



زبان تخصصی مدیریت ساخت

بر اساس اسناد و استانداردهای بین‌المللی

ارائه دهنده:

سید محمدرضا علوی‌پور

(PhD, PMP, CMIT)

دانشگاه Illinois Tech آمریکا

زبان تخصصی مدیریت ساخت

ACEMI

مقدمه

به شکل نوین تأثیر فراوانی در صنعت ساخت گذاشته و همین موضوع باعث ایجاد زبان متفاوتی در این صنعت گردیده است. موضوعی که باعث پررنگ شدن اهمیت یادگیری این زبان تخصصی و مشترک می‌شود.

در این دوره که اولین بار توسط موسسه ACEMI در کشور تدوین شده، برای ایجاد زبانی مشترک، بر اساس استانداردهای بین‌المللی و بخصوص استاندارد مدیریت ساخت آمریکا که توسط انجمن CMAA منتشر شده، اقدام به آموزش اصطلاحات تخصصی مدیریت ساخت می‌نماییم. این موضوع کمک می‌نماید تا متخصصان صنعت ساخت با زبانی مشترک مواجه بوده و سهم بسیار زیادی در پیشرفت شغلی در عرصه بین‌الملل خواهد داشت. زبان مشترکی که باعث تدوین و توسعه اسناد تخصصی مدیریت ساخت در کشورمان خواهد شد.

البته باید توجه نمود که لغات و عبارات تخصصی هر کدام از محدوده‌های تخصصی مدیر ساخت که در این دوره آموزش داده می‌شوند، شامل اسناد تخصصی دیگری نیز هستند که موسسه ACEMI در آینده دوره‌های تخصصی هر کدام از این محدوده‌های تخصصی را برگزار خواهد نمود.

شاید بتوان گفت که قدمت صنعت ساخت به "گهواره تمدن"، جایی که سازه‌هایی با قدمت ۳ الی ۴ هزار سال وجود دارد، باز می‌گردد. صنعتی با قدمت طولانی که به دلیل پیچیدگی‌ها و ریسک‌های فراوان خود، از اهمیت زیادی برخوردار بوده و شرایط متفاوتی به خود دیده است. صنعتی که قبل از دهه ۱۸۵۰ عموماً توسط بخش نظامی کشورها و به شیوه استادکاری هدایت می‌گردید، اما از دهه ۱۸۵۰ بود که بریتانیا به دلیل ایجاد رشته دانشگاهی مهندسی عمران و آمریکا به دلیل تأسیس انجمن مهندسان عمران آمریکا (ASCE)، فصل جدیدی در زمینه مدیریت صنعت ساخت رقم زدند.

در سال ۱۹۶۰ بود که به دلیل ناکارآمدی سیستم سنتی مدیریت پروژه در این صنعت، فلسفه مدیریت ساخت حرفه‌ای (Professional Construction Management) مطرح گردید تا پس از مطالعات فراوان توسط انجمن‌ها و تشکلهای تخصصی صنعت ساخت، انجمن مدیریت ساخت آمریکا در سال ۱۹۸۲ تأسیس شود تا اولین استاندارد مدیریت ساخت در سال ۱۹۸۶ در کشور آمریکا منتشر گردد. از آن سال تاکنون مدیریت ساخت

- | | |
|---|--|
| ۱. زبان تخصصی مدیریت حرفه‌ای ساخت | ۷. زبان تخصصی مدیریت ایمنی در پروژه‌های صنعت ساخت |
| ۲. زبان تخصصی مدیریت پروژه در صنعت ساخت | ۸. زبان تخصصی پایداری در پروژه‌های صنعت ساخت |
| ۳. زبان تخصصی مدیریت هزینه در پروژه‌های صنعت ساخت | ۹. زبان تخصصی مدیریت تکنولوژی در پروژه‌های صنعت ساخت |
| ۴. زبان تخصصی مدیریت زمان در پروژه‌های صنعت ساخت | ۱۰. زبان تخصصی مدیریت ریسک در پروژه‌های صنعت ساخت |
| ۵. زبان تخصصی مدیریت کیفیت در پروژه‌های صنعت ساخت | ۱۱. زبان تخصصی مدیریت طرح در صنعت ساخت |
| ۶. زبان تخصصی مدیریت قرارداد در پروژه‌های صنعت ساخت | |

آنچه خواهید آموخت

در این دوره، با اصطلاحات تخصصی مدیریت ساخت، با توجه به محدوده‌های دانشی مدیر ساخت، آشنا می‌شوید. این دوره، نه تنها به بیان معنی هر اصطلاح به شکل تخصصی می‌پردازد، بلکه شرح مفصلی از هر لغت و عبارت ارائه می‌دهد تا بتوانید درک مناسبی از متون تخصصی مدیریت ساخت و زبان مشترک آن در عرصه بین‌الملل داشته باشید. در واقع هدف این دوره آنست که:

۱. شما را با لغات و اصطلاحات تخصصی مدیریت ساخت آشنا کند.
۲. شرح مناسبی از هر لغت و اصطلاح ارائه نماید.
۳. باعث ایجاد زبان مشترک بین مدیران پروژه صنعت ساخت شود.
۴. قدرت درک مراجع تخصصی صنعت ساخت را در میان متخصصان، با ارائه آموزش تخصصی، افزایش دهد.

وجه تمایز این دوره

۱. اولین برگزارکننده دوره اختصاصی زبان تخصصی مدیریت ساخت در کشور بر اساس استانداردهای بین‌المللی مدیریت ساخت
۲. ارائه تعاریف بر اساس محدوده‌های دانشی و تخصصی مدیر ساخت
۳. متمایزسازی فراگیران به دلیل آموزش به‌روزترین اسناد تخصصی مدیریت ساخت در دنیا که بعضاً دسترسی به برخی از آنها در کشور سخت و یا ناممکن است
۴. ارائه ویدیوها و جزوات به صورت کامل (جزوات تنها در اختیار اعضای کانون قرار می‌گیرند)
۵. گروه پشتیبانی ۶۰ روزه از زمان شروع دوره
۶. ارائه محتوا به صورت جامع، ساختار یافته و هدفمند در راستای نقشه راه CM

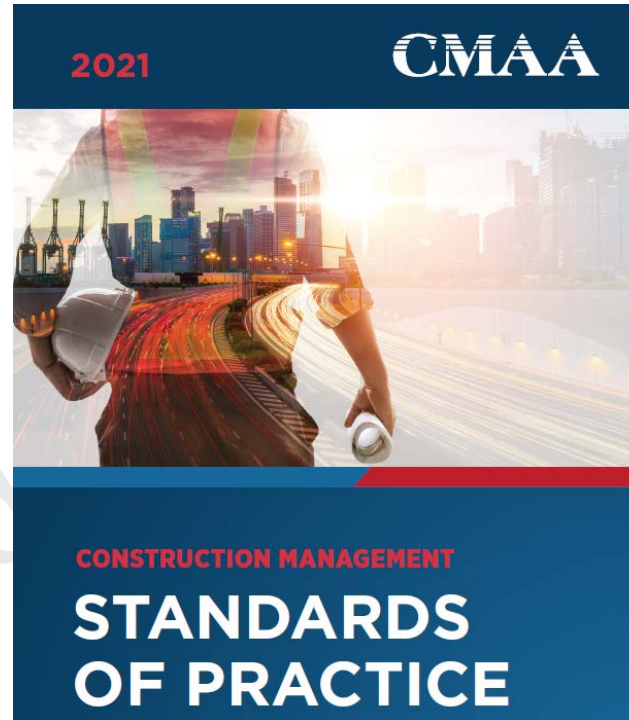
جزئیات دوره



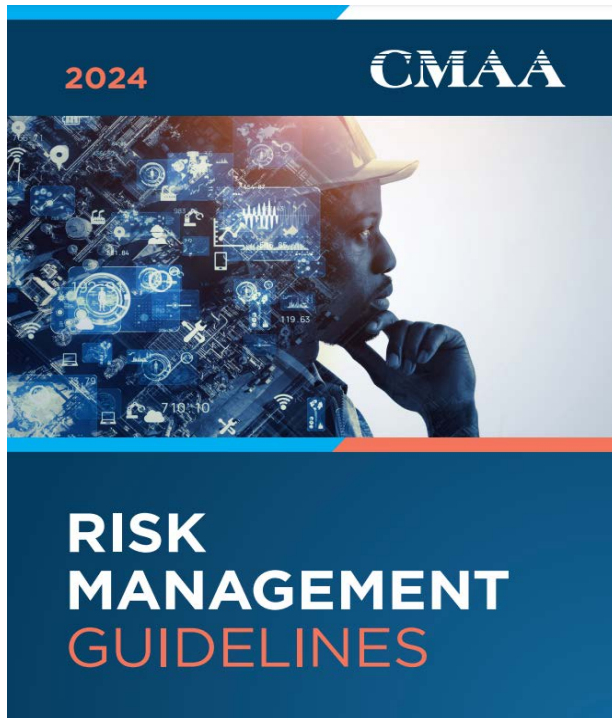
نوع دوره	مهارت سخت
سطح دوره	کارشناسی و اجرایی
سطح تخصص	سطح ۱
دپارتمان	مدیریت پروژه
مدرس	دکتر سید محمدرضا علوی‌پور
گواهینامه‌ها	گواهینامه حضور - گواهینامه حرفه‌ای
پیش‌نیاز	-----

Reference

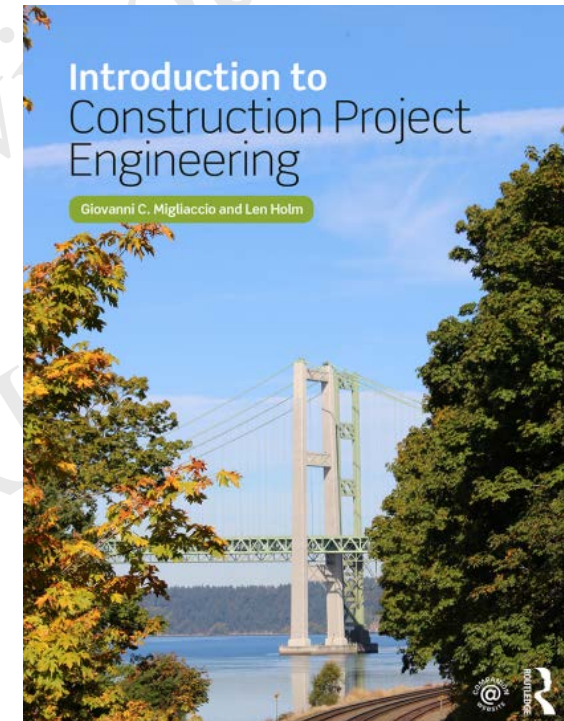
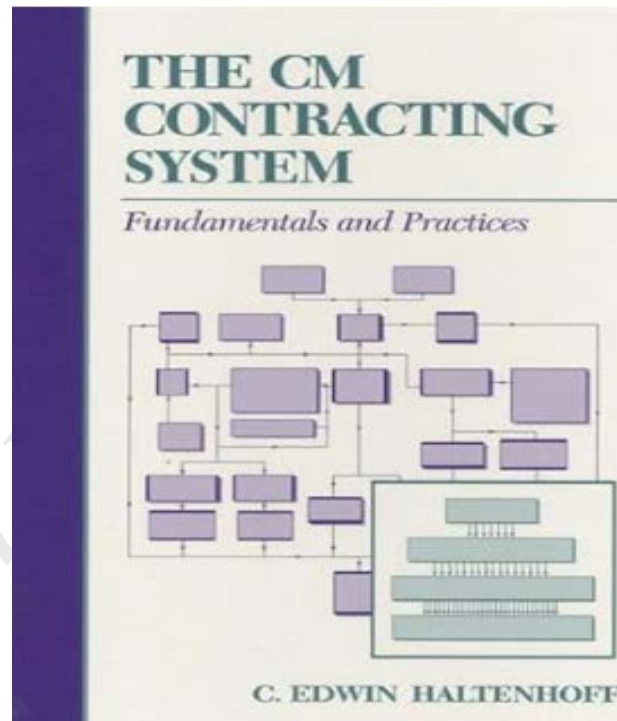
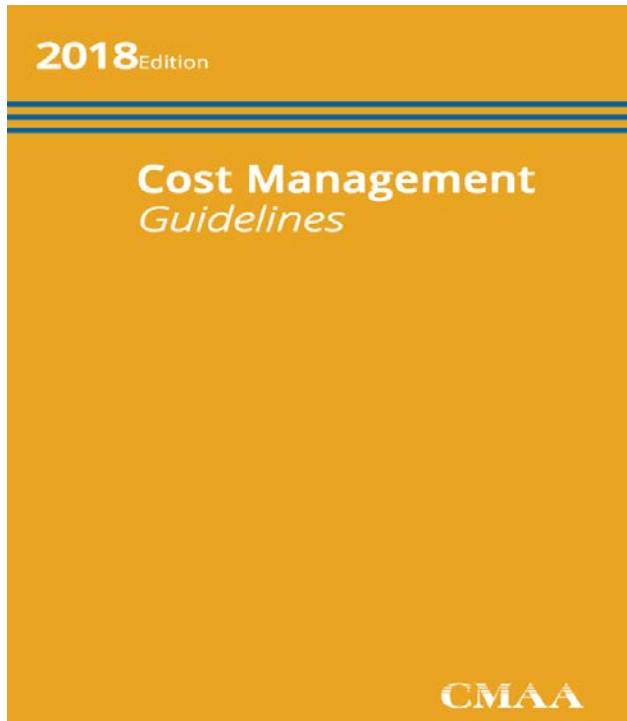
Primary reference



Primary reference



Primary reference



Primary reference



Glossary of Terminology

Scheduling, Estimating, Project/Construction Management, Contract Administration, and Construction Claims Terminology for Engineering and Construction Projects

Richard J. Long, P.E., P.Eng.

Copyright © Long International, Inc.

صفحه اصلی درباره ما کانون دانش‌پژوهان متخصصان صنعت راهنما آموزش مشاوره پایگاه دانش تماس با ما

موسسه مهندسی و مدیریت ساخت علوی پور (ACEMI)
نخستین موسسه تخصصی مدیریت ساخت در ایران



از کجا شروع کنم؟

دیکشنری مدیریت ساخت

صفحه اصلی / دیکشنری مدیریت ساخت



اولین و جامع‌ترین دیکشنری آنلاین مدیریت ساخت در کشور

تا این لحظه حاوی کلمه و عبارت تخصصی

شما هم می‌توانید با ثبت ترجمه پیشنهادی، در توسعه این دیکشنری ما را همراهی نمایید.



construction

Agency Construction Manager

Architecture, Engineering, and Construction (AEC) Industry

Construction

Construction Industry (CI)

Construction Management at-risk (CMAR)

کلمه برای جستجوی "construction" یافت شد.



Construction & construction phase

construction

Word family (noun) construction reconstruction constructor construct (verb) construct reconstruct

From Longman Dictionary of Contemporary English

Related topics: [Industry](#), [Construction](#), [Grammar](#)

con·struc·tion /kən'strʌkʃən/ ●●○ AWL noun 🔊 🔊

1 **BUILDING SOMETHING** [uncountable] the process of building things such as houses, bridges, roads etc

construction of

🔊 the construction of a new airport

under construction (=being built)

🔊 The hotel is currently under construction.

🔊 a road construction project

🔊 construction workers

2 **MAKING SOMETHING FROM MANY PARTS** [uncountable] the process of making something using many parts

🔊 Work out the exact design before you start construction.

3 **WAY SOMETHING IS MADE** [uncountable] the materials used to build or make something, or its design and structure

🔊 The houses were partly timber in construction.

🔊 External doors should be of robust construction.

4 **A BUILDING/STRUCTURE** [countable] *formal* something that has been built

🔊 a modern construction

5 **GRAMMAR** [countable] the way in which words are put together in a sentence, phrase etc

🔊 difficult grammatical constructions

ALAVIPOUR
RIBUTE

DO

Construction & construction phase

لغت نامه دهخدا

احداث. [ا] (ع مص) ظاهر و پیدا کردن. || زنا کردن. || شکستن وضو. || صیقلی کردن شمشیر را. (منتهی الارب).
آهن بزدودن. (زوزنی) (تاج المصادر). || نو ایجاد کردن. (منتهی الارب). نو کردن. (زوزنی). نو پیدا کردن. (مؤید
الفضلاء). || حَدَّث کردن. (تاج المصادر) (زوزنی). غایط کردن. || احداث، ایجاد و خلق چیزی است که مسبوق بزمان
و مدّت باشد. (تعریفات). مؤلف کشف اصطلاحات الفنون آرد: احداث بکسر الف مرادف تکوین است و برخی گفته
اند مرادف نیست و شرح آن در ضمن تفسیر و معنی لفظ تکوین بیاید و مختصری از مبحث احداث و تکوین در ضمن
شرح و معنی لفظ ابداع بیان شد. بدانجا مراجعه شود.
- احداث کردن؛ نو آوردن. بنوی کردن.

احداث' ehdās

معنی

۱. تأسیس کردن؛ ساختن.
۲. [قدیمی] چیز تازه به وجود آوردن.

مترادف

ایجاد، پیدایش، تأسیس، خلق، ساخت، ساختن

برابر پارسی

ساخت، پدید آوردن

فرهنگ معین

(آ) [ع. ا] (ص. ج) حدث ۱ - نوها، تازه ها، هر چیز تازه و نو پدید آمده ۲ - جوانان ۳ - نوعی حقوق دیوانی
(در عهد صفویه)، ~ اربعه : حدث های چهارگانه : قتل، ازاله بکارت، شکستن دندان و کور کردن. ~ دهر: بلاهای
روزگار، پیشامدهای دوران. ~ مو
(ا) [ع. ا] (مص م) چیزی نو به وجود آوردن، ساختن و برقرار کردن.

Construction & construction phase

در فارسی
پروژه احداث
بودجه اجرا
هزینه اجرا
آیا قابلیت استفاده از یک کلمه وجود دارد؟

اما در انگلیسی
Construction Industry
Construction Project
Construction Documents
Construction Phase
Construction Budget
Construction Manager
Construction Management
Construction Management at Risk
Agency Construction Manager

Construction & construction phase

۳-۱. تعریف صنعت ساخت و دسته‌بندی آن

تعاریف مختلفی برای صنعت ساخت وجود دارند که برخی از آن‌ها جامع‌ترند و شامل ساخت اتومبیل، هواپیما، ساختمان، زیرساخت، قطار و حتی لباس می‌شوند و برخی دیگر فقط مختص زیرساخت‌های ایجادشده در محیط‌اند. براساس تعریف رایج‌تری که در این سند نیز به آن توجه شده است:

«هر فعالیتی در طبیعت، اقتصاد یا محیط اجتماعی اعم از اضافه‌کردن و یا تغییردادن که منجر به ایجاد زیرساخت فیزیکی شود، یعنی عمل ساخت یا احداث انجام شده است و این اقدامات زیرمجموعه‌ی صنعت ساخت محسوب می‌شوند.»

بر اساس تعریف فوق، فعالیت‌هایی چون ساخت کفش و لباس جزو صنعت ساخت محسوب نمی‌شوند، ولی ساخت کارخانه برای تولید کفش و لباس در حوزه‌ی صنعت ساخت قرار می‌گیرند. اگرچه عبارات متعددی برای این صنعت (اعم از صنعت ساخت^۱، صنعت معماری، مهندسی و ساخت^۲، محیط ساخت^۳ و صنعت احداث) به کار می‌روند، در این سند از عبارت صنعت ساخت استفاده شده است.

بخشی از کتاب مدیریت ساخت موسسه ACEMI

A



Absorption

❑ The process of **distributing** indirect or overhead costs over any defined cost base such as

- ❖ Labor hours,
- ❖ Labor dollars,
- ❖ Material dollars or
- ❖ Total cost dollars,

so that, at the end of an accounting period,

the **indirect costs** are **totally absorbed**.

A/B estimates of damages

❑ The **A/B estimate method** is generally utilized in cases **where** the changed work or the cause of the delay or disruption related to the changed work is **fairly straightforward**.

- ❖ For example, a **lump sum contractor bids** on a chemical plant expansion **assuming** that a **large pressure vessel** is to be **located at grade** with its own **foundation**.
- ❖ After the job begins, the **contractor discovers** that the **engineer has relocated** the vessel in the structure **above grade** because of **other process changes made by the owner**.

How the contractor could prove?



A/B estimates of damages

- ❑ The contractor in such a case can **prove his damages** by **subtracting**
 - ❖ An independent estimate of the **work as planned** (the “A estimate”) from
 - ❖ **New estimate of the work** with the vessel relocated (the “B estimate”).
- ❑ The “B Estimate” is a **fair and reasonable estimate** of the value of the work,
at the time of the bid,
if the **contract documents** had contained an **adequate**
description of the problems and changes
that actually occurred during the course of the work.
- ❑ The **contractor’s damages** under this method would be the difference between
the two estimates.



Absenteeism

❑ **Absence** of **crew members** may lower the overall crew productivity rate

because of

1. Fewer resources or
2. Different skill levels of the remaining crew.

❑ The **contractor is usually responsible** for the consequences (delay and loss of productivity) for this problem.

- ❑ **Acceleration** of a construction project **occurs when** the construction schedule for the project, or a portion of the project, is **shorter than** what would be **required using normal sequences** of construction on a normal working schedule.



Acceleration

- ❑ If the contractor agreed to a short schedule, it **may be responsible** for the **acceleration costs** unless
 1. **Owner caused critical path delay** to the contractor's work and
 2. **Did not** provide a time extension.
- ❑ Also, compensable acceleration may occur when the contractor is **directed** to perform the work in a shorter time period than it believes is **allowed under the contract**.
 - ❖ **Compensable acceleration** can also occur when additional work is added through **contract changes or constructive changes**
but additional time for performance is **not granted**.



Activity-Based costing (ABC)

❑ Activity-Based Costing

- ❖ Identifies **activities** in an organization and
- ❖ Assigns the **cost of each activity resource** to all products and services according to the actual consumption by each:
 - ❖ It assigns more indirect costs (overhead) into direct costs.

Why and when to use this method?



Activity-Based costing (ABC)

- ❑ For the purposes of
 - ❖ **Identifying** and **eliminating** those which are **unprofitable** and
 - ❖ **Lowering** the **prices** of those which are **overpriced**.
- ❑ It is generally used as a **tool for understanding** product and customer cost and **profitability**.
- ❑ As such, ABC has **predominantly been used** to support strategic decisions such as
 - ❖ Pricing,
 - ❖ Outsourcing and
 - ❖ Identification and measurement of process improvement initiatives.



Acts of God

- ❑ **Natural disasters**, including but not limited to floods, fire, earthquakes, tornadoes, hurricanes, lightning, drought, high tides, and other unusual and severe conditions.
- ❑ **Contracts** often contain **provisions** by which acts of God are defined in a **“Force Majeure” clause** by which the owner and contractor agree that the contractor cannot claim additional compensation for increased costs or delays resulting from such acts of God, and the **only relief** for such events is that the contractor is entitled to an extension of time.
- ❑ However, the **contractor must still demonstrate** that the activities in its schedule that were affected by such acts of God were on the **critical path of the project schedule** at the time that the acts of God occurred and the **contractor was not responsible** for other concurrent delays at that time.



Addendum (Addenda & Addendums)

☐ A **supplement** to documents,

issued prior to taking receipt of bids,

for the purpose of

1. Clarifying,
2. Correcting, or
3. Otherwise changing bid documents

previously issued.



Additional services

- ❑ **Services provided** in addition to those specifically designated as **basic services** in the agreement between the owner and CM.
 - ❖ Also known as **supplemental services**.

- ❑ **Architect/Engineer:** the design professional hired by the owner to provide design and design-related services.



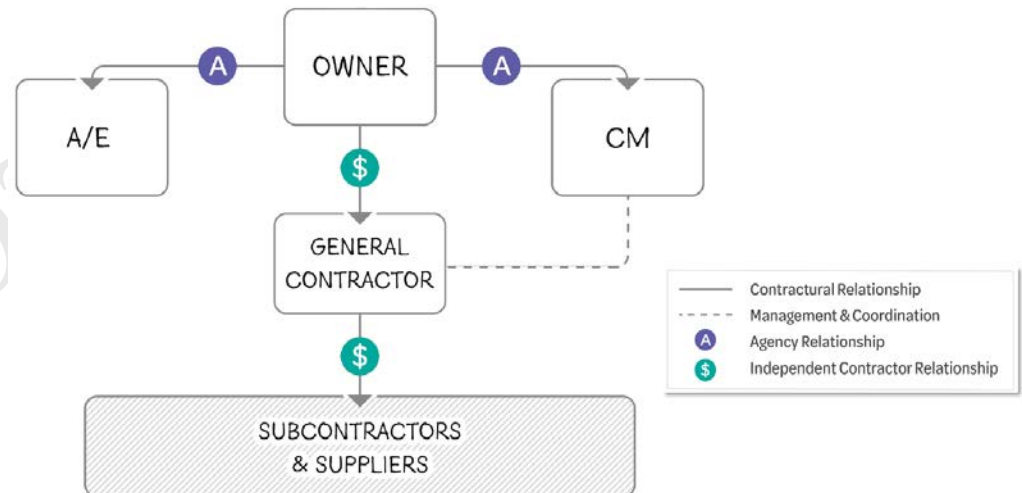
☐ A legal relationship by which **one party (agent)** is

1. Empowered and
2. Obligated

to **act on behalf** of another party (owner).

Agency construction management

- ❑ A **form** of construction management performed in a **defined relationship** between the CM and owner.
 - ❖ The agency form of construction management establishes a **specific role** of the CM acting as the owner's principal agent in connection with the **project/program**.



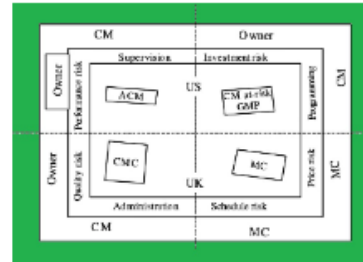
Agency construction management

در ایران و در نظام فنی و اجرایی کشور به اشتباه به آن عامل **مدیریت طرح** گفته می‌شود!

ساختار آمریکا و انگلستان در این مورد متفاوت است و در انگلستان این قراردادها با نام **CMC** شناخت می‌شوند!

مدیریت ساخت، مدیریت طرح و پیمان مدیریت؛
تعاریف اشتباه نظام فنی و اجرایی کشور

در این مقاله قصد داریم با موشکافی تعاریف مدیریت ساخت،
مدیریت طرح و پیمان مدیریت، اشتباهات رایج در کشور را
بررسی کنیم تا یک‌بار برای همیشه این ابهامات برطرف شود.

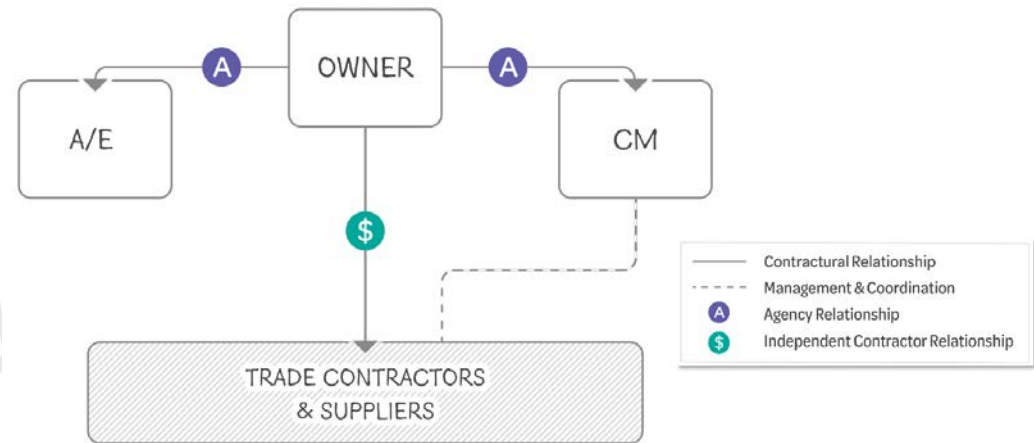


« ادامه مطلب »

<https://dralavipour.com/blog/view/cm-vs-mc>

Agency construction manager

- ❑ A firm or individual **coordinating** that **contracts directly** with the owner.



- ❑ A **document** setting forth the relationships and obligations between **two parties**, as the CM and owner or contractor and owner.
 - ❖ It may **incorporate other documents** by reference.



THE CONSTRUCTION MANAGEMENT ASSOCIATION OF AMERICA, INC.

CMAA Document CMAR-1 (2004 Edition)

Standard Form of Agreement Between
Owner and Construction Manager

(Construction Manager At-Risk)



Allowance

- ☐ An **amount stated** in the contract for inclusion in the contract sum to cover the **cost of prescribed items**,
the **full description** of which is not known at the **time of bidding**.
- ☐ Once the architect or project owner provides a **full description**,
the **actual cost** of such items is **determined** by the **contractor** and
the total contract amount is **adjusted accordingly**.
- ☐ This may be used for calculations, time, etc., but **cost allowance** is usually used in the **contract**.

Alternative technical concepts

☐ Value engineering tool used **predominantly** in the public heavy-civil sector to promote

- ❖ Innovation during procurement;
- ❖ Deviations from the project concept,
- ❖ Design, or
- ❖ Specifications

that are submitted by **proposers** to the project owner for **their approval**.

☐ Once approved, they can be incorporated into the **final proposal**, which provides a **competitive advantage** for the proposing contractor



Ancillary benefits

- ❑ Subordinate **secondary benefits** that **automatically accrue** from the **performance** of an unassociated prime responsibility.

Ancillary benefits are a type of supplemental benefit that employees may receive in addition to their regular wages. This can include things like health insurance, dental insurance, and vision insurance. Other ancillary benefits may include things like life insurance, disability insurance, and 401(k) contributions.



Apparent low bidder

- ☐ The **bidder** who has submitted the lowest bid for a division of work described in bid documents, a proposal form, or proposed contract.

- ❑ **Entry-level workers** who are **learning** a trade through on-the-job training (OJT) under the supervision of other **highly skilled workers**, such as **craftspeople**.



Approved bidders list

- ☐ The **list of contractors** that have been prequalified for the purpose of submitting responsible, competitive bids.

Prepared by Dr. Alavipour
DO NOT DISTRIBUTE

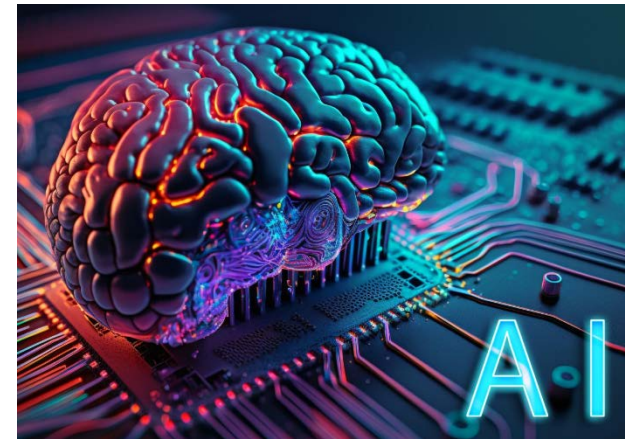


Approved changes

- ❑ **Changes** in the **contract documents** that have been subjected to an agreed upon **change approval process** and have been **approved** by the party empowered to approve such changes.

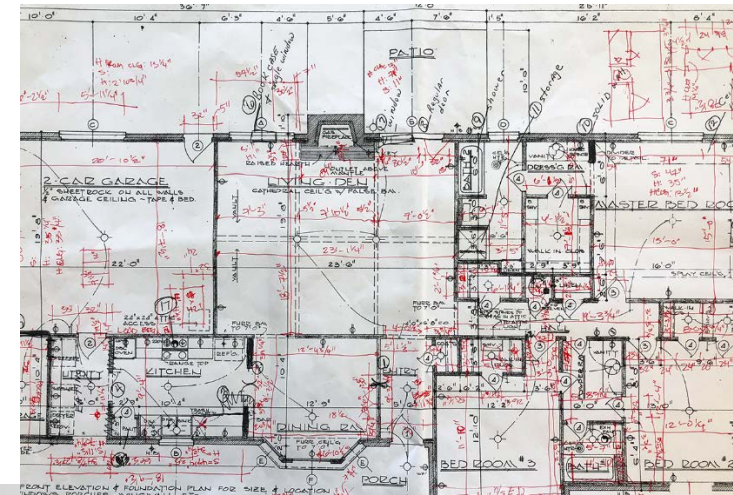
Artificial intelligence (AI)

- ❑ A **technology** that applies computer algorithms to **replicate** actions that humans perform.



As-Built drawings

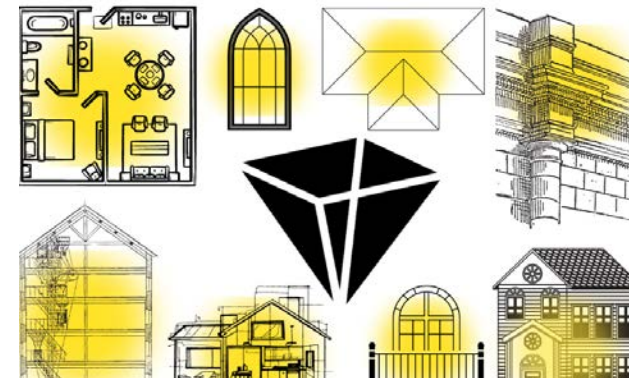
- ❑ Drawings (plans) that show the work as actually installed.
- ❑ Contractor-corrected construction drawings depicting actual dimensions, elevations, and conditions of **in-place constructed work**.



As-built estimate

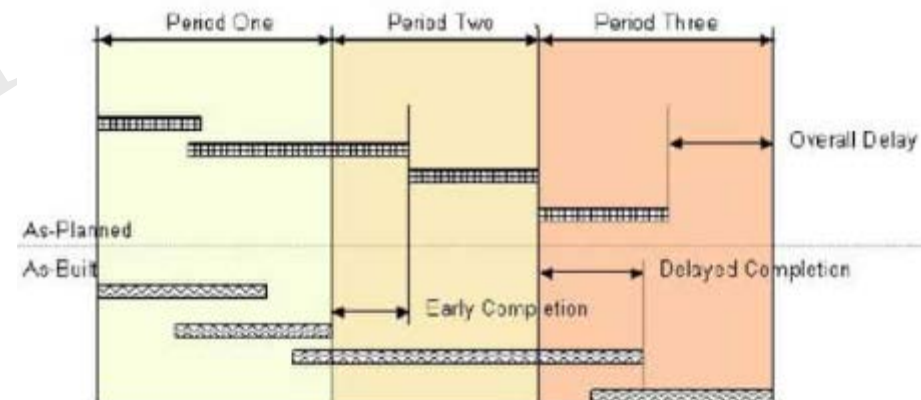
❑ **Assessment** in which the actual costs **incurred** are applied to the quantities **installed** to

1. **Develop** actual unit prices and
2. **Develop** productivity rates



As-built schedule

- ❑ Marked-up, detailed schedule depicting
 - ❖ Actual start and completion dates,
 - ❖ Durations,
 - ❖ Logics
 - ❖ Deliveries, and
 - ❖ Restraint activities

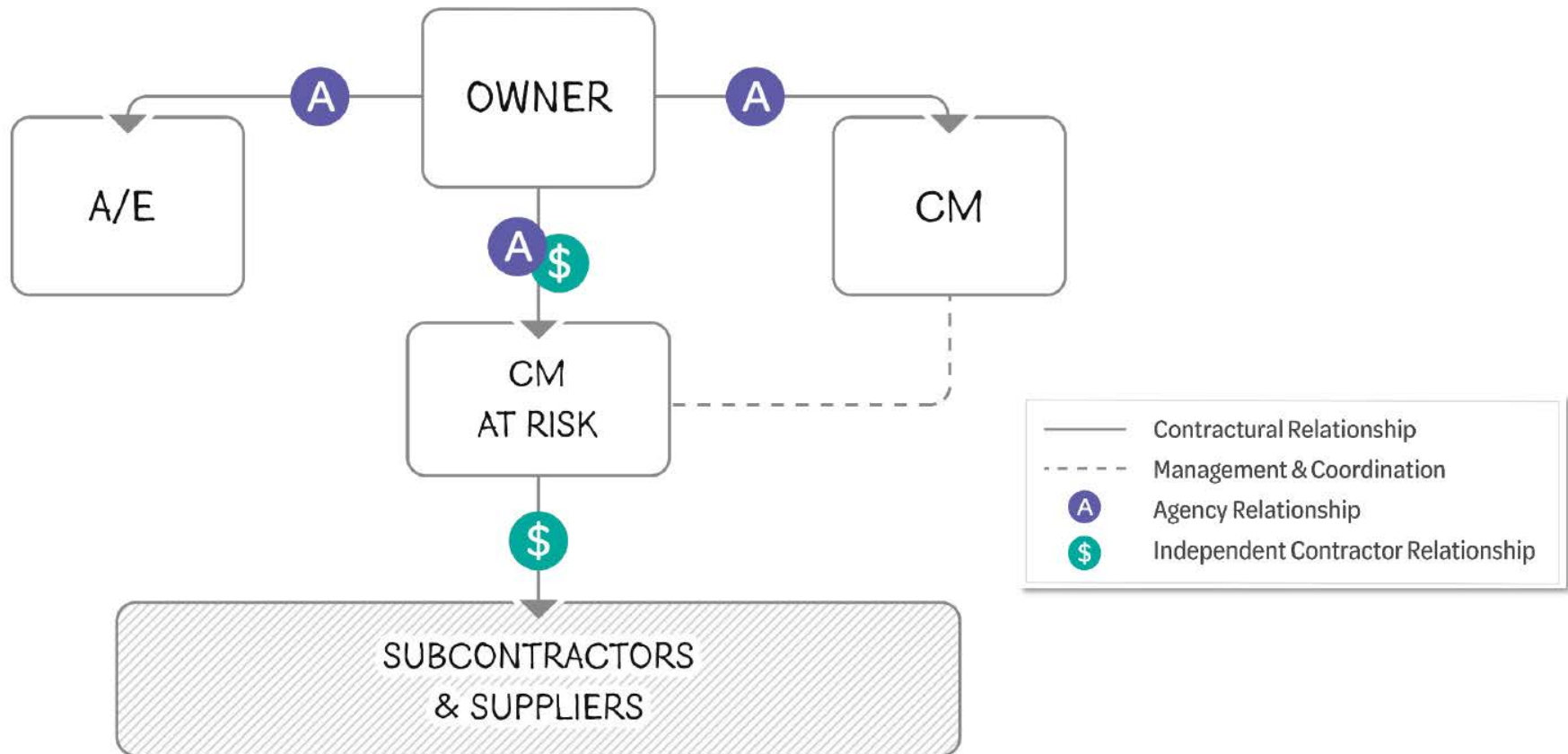




At-Risk construction management

- ❑ A **delivery method** that entails a commitment by the **construction manager** to deliver the project for an established amount,
often a guaranteed maximum price (GMP).
- ❑ The **construction manager** acts as a consultant to the owner in the development and design phases.
- ❑ During construction, the CM will assume additional obligations and will undertake construction responsibilities,
typically being **placed in a legal position** like that of a general contractor.

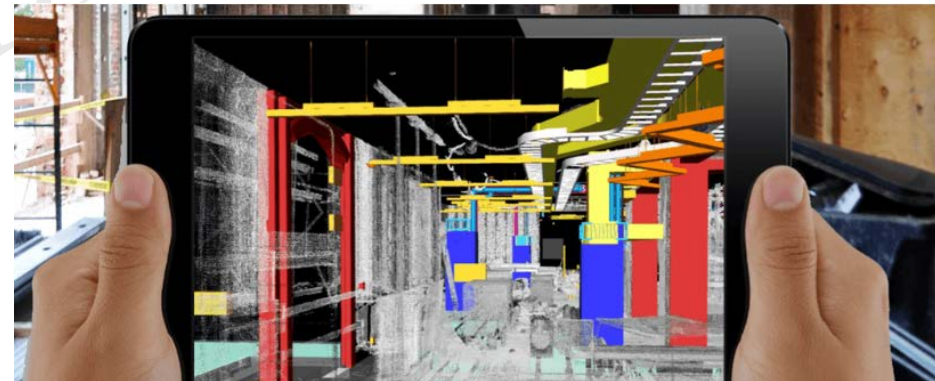
At-Risk construction management



- ☐ The **systematic examination** of records and documents and the securing of evidence by confirmation, physical inspection, or examination.

Augmented reality (AR)

- ❑ An **interactive tool** that overlays **digital information** onto real-world objects.





Authorized work

- ☐ Work that has been defined and is included in the contract value.

- ☐ Also **may include work** that has been authorized in writing,
but for which **contract value** has not been determined and agreed.



Award fee

- ☐ A **contractual provision** by which the owner determined the fee paid to the **contractor** on the basis of performance on the project.

B



Back charge

☐ A billing made to

1. Collect an expense incurred in a **previous billing period**, or
2. An adjustment due to an error, or
3. A cost caused by defective or deficient work by the contractor

deducted from or **used to offset** the amount due to the owner.

☐ General contractor charge against a subcontractor for work that the **general contractor performed** on behalf of the subcontractor.

Ball-Park estimate

- ❑ A **very rough cost estimate** made with some knowledge and confidence that the **estimate is within** a reasonable range of exactness (or “somewhere in the ball park”).

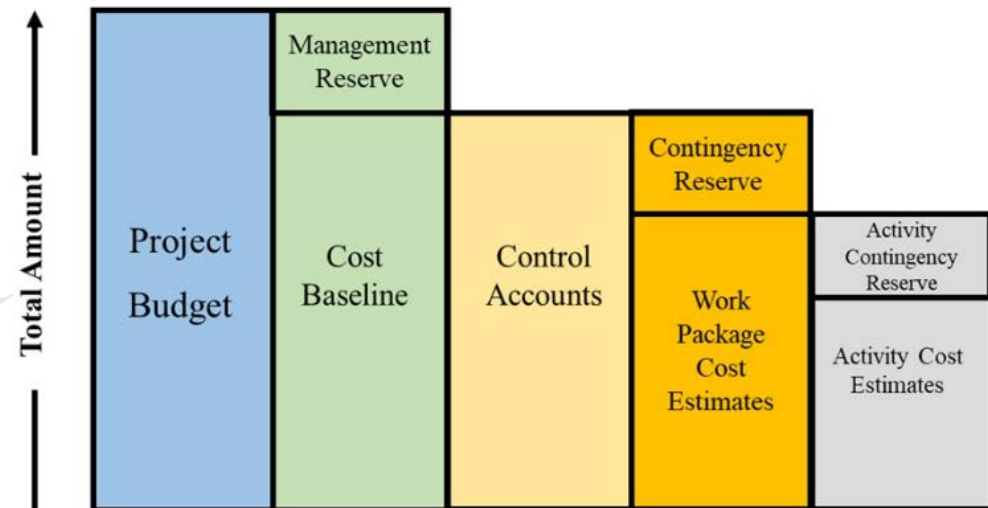


- ☐ A **quantitative definition** of cost, schedule, and scope performance that serves as a **base or standard** for measurement and control during the performance of an effort.
- ☐ The established plan against which the **status** of resources and the work effort are measured, assessed, and controlled.
- ☐ **Once established**,
baselines are subject to change control procedures.

- ❑ An **error** made by the **contractor** in **preparing** its bid proposal/cost for performing contract work.
- ❑ Bid errors may **include, but are not limited to**,
 1. Incorrect labor rates,
 2. Labor productivity factors,
 3. Overhead rates,
 4. Schedule duration assumptions,
 5. Estimated quantities, and
 6. Technical assumptionsfor which the **contractor is responsible**.

Baseline cost estimate (BCE)

- ❑ An **estimate of the cost** of the project baseline work scope.
- ❑ The BCE is the first detailed estimate and is **normally required** for high-level decision making concerning the project.





Basic services

- ❑ **Scope of service** as defined in the original agreement between the owner and CM as basic services.
 - ❖ The services **specifically listed** in the services agreement as basic services.

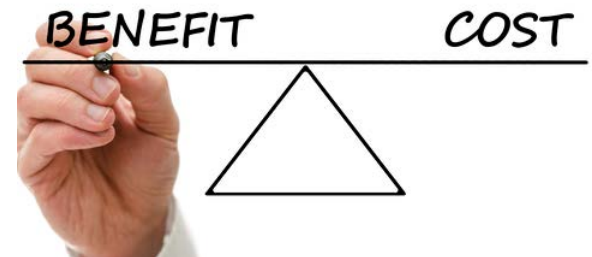


Beneficial occupancy

- ☐ The **use** of the constructed facility by the owner **prior to** final completion of the construction.
- ☐ The point of **project completion** when the owner can use the constructed facility in whole or **in part** for its **intended purpose** **even though** final completion may **not be achieved**.

Benefit cost analysis (BCA)

- ❑ A **systematic process** for calculating and comparing benefits and costs of a project, decision, or **government policy**.
- ❑ BCA has two purposes to:
 1. **Determine** if it is a **sound investment/decision** (justification/feasibility);
 2. **Provide** a basis for **comparing projects**.
- ❑ Benefits and costs are expressed in monetary terms and are **adjusted for the time-value of money**,
so that all **flows of benefits** and **flows of project costs over time** (which tend to occur at different points in time) are expressed on a **common basis** in terms of their net present value.

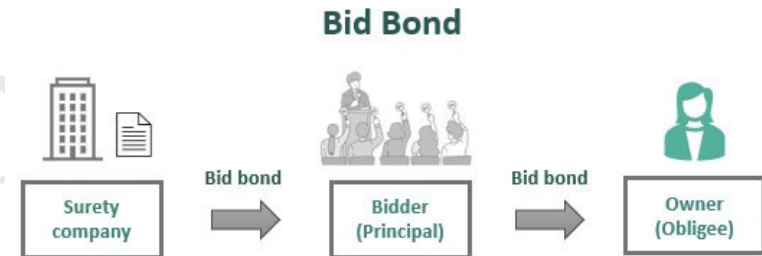


- ☐ An **offer** to perform the work described in **contract documents** at a **specified cost**.

Prepared by Dr. Alavipour
DO NOT DISTRIBUTE

Bid bond

- ❑ A **pledge** from a **surety** to **pay up** to the bond amount to the owner in the event the **bidder defaults** on its commitment to **enter into a contract** to perform the work described in the bid documents **for the bid price**.
- ❑ The **bond** is designed to protect the owner for the **difference in price** between the accepted bid and the next lowest acceptable bid.



- An important element in a construction bidding process
- Guarantee compensation to the owner, if the bidder fails to undertake the project



Bid depository

- ❑ A **physical location** where **trade contractor proposals** are **filed** the **day before** general contractor bids are to be **received by an owner** for pick-up, opening, acceptance or rejection by **general contractors** **bidding** the owner's project.

It provides for the **reception of sealed bids** from **subcontractors** whereby **adequate time** is provided for the **General Contractor to compile** bids completely and accurately.

These **procedures are in the best interest** of the owners, architects, engineers, contractors and subcontractors.



Bid documents

- ❑ The **documents** issued to the **contractor(s)** by the owner that describe the proposed work and contract terms.

- ❑ **Bid documents** typically include
 - ❖ Drawings,
 - ❖ Specifications,
 - ❖ Contract forms,
 - ❖ General and supplementary general conditions,
 - ❖ Proposal, or
 - ❖ Bid forms, and
 - ❖ Other information.



Bid peddling

- ❑ “**Bid peddling**” happens when **subcontractor A** purposely chooses not to enter a bid,
wait for subcontractor B to pay for the estimate and make an offer, and
then offer to perform the **work at a lower price.**

- ❑ Unethical **subcontractor’s activity** of offering to **lower the bid** provided to the
general contractor on bid day;

bid peddling “occurs **when a subcontractor approaches a general contractor** with the intent of **voluntarily lowering** the original price below the
price level established on bid day.
 - ❖ This action implies that the subcontractor’s original price was
either padded or incorrect” (ASPE 2011)



Bid shopping

- ❑ Unethical general contractor's activity of **sharing** subcontractor bid values with the subcontractor's competitors in order to drive down prices;

bid shopping “occurs when a contractor **contacts several subcontractors** of the **same discipline** in an effort to reduce the previously quoted prices”
(ASPE 2011)



Bid rigging

❑ **Illegal behavior** by companies that are **competing** for work in which they make a secret agreement,

for example to **increase their prices** or to **share the work**,

in order that they both gain financially.

Collusive behavior!

- ❑ The **degree** to which a **set of bid documents** could be **reasonably expected** to **permit a bidder** to establish a competitive price to perform the work as defined in the bid documents.

Biddability review

❑ A **formal review** of the contract documents, addendum, and reference documents to be accomplished with **respect** to

the **local construction marketplace** and the **bid packaging strategy** to eliminate

- ❖ Ambiguities,
- ❖ Errors,
- ❖ Omissions, and
- ❖ Contradictions,

For the purpose of **minimizing bid prices** in

the procurement phase and disputes during construction.

BIM execution plan (BEP)

- ❑ A BIM Execution Plan (BEP) is a **written document** that provides a framework for the project team to determine **most effective application of BIM throughout a facility's life.**
- ❑ In addition to confirming the **goals for using BIM**, it documents **important project protocols**, such as
 - ❖ Information exchanges,
 - ❖ Model level of development within project phases,
 - ❖ Model transitions, including from the design consultant to the CM/contractor/builder, and
 - ❖ Eventually the transition of the model to the project owner for facilities management.

❑ A **popular slang term** used to describe the **standard language** of a set of contract documents

generally including

- ❖ General Conditions and Requirements,
- ❖ Special Provisions, and
- ❖ Instructions to bidders

❑ A **pledge** from a **surety guaranteeing** the performance of the obligation defined in the bond, including the completion of work or payment of the bond amount to the obligee (owner or contractor)

in the event of

1. A default, or
2. Non-payment

by a **principal (contractor or subcontractor)**, as with bid, performance and labor and material bonds.

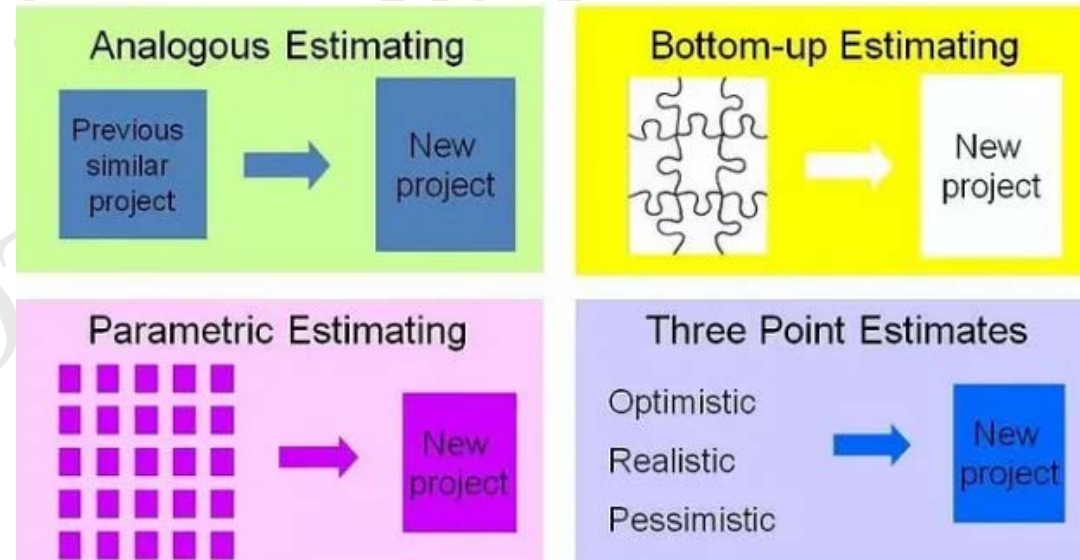
☐ **Additional compensation** paid or to be paid to the contractor by the owner

as a **reward** for accomplishing **predetermined objectives**

that are **over and above** the basic requirements of the contract
between the owner and contractor.

Bottom-up models

- ❑ Uses a **method of estimation** that estimates each component of the project separately and the results are combined (**or rolled up**) to produce an **estimate of the entire project**.



- ☐ The **dollar amount** and **planned allocation** of resources by the owner for a project/program.
- ☐ A **planned allocation** of resources.
- ☐ The **planned cost** of needed materials is usually subdivided into **quantities** required and unit costs.
- ☐ The **planned cost** of labor is usually divided into
 1. Workhours required and
 2. Wage rates (plus **fringe benefits and taxes**).

also called the performance measurement baseline budget.



Budget authorization

- ☐ An **administrative action** by management approving an operating budget for use on the project.

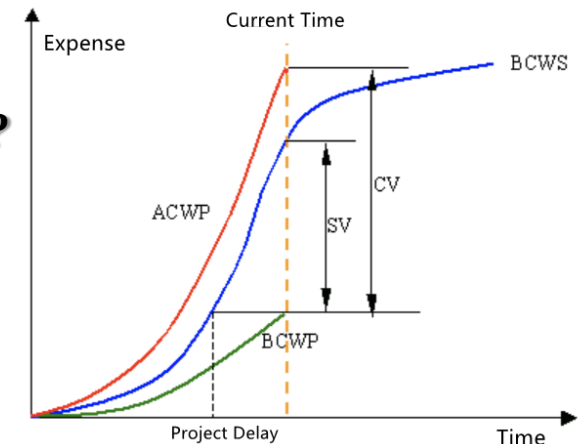
Prepared by Dr. Alavipour
DO NOT DISTRIBUTE

Budgeted cost for work performed (BCWP)

- ❑ The **sum of the budgets** for **completed portions** of in-process work, plus the **appropriate portion** of the budget for
 1. Level of effort and
 2. Apportioned effortfor the **relevant time period**.

- ❑ BCWP is commonly referred to as “Earned Value (EV)”.

What does this budget mean?



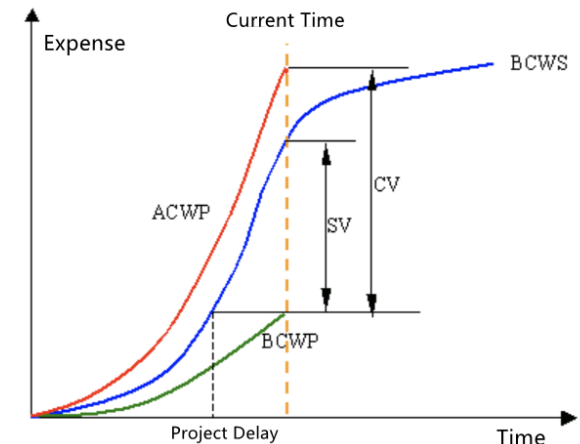
Budgeted cost for work scheduled (BCWS)

❑ The **sum** of the **budgets** for **work scheduled** to be accomplished (including work in process),

plus the **appropriate portion** of the budget for

1. Level of effort and
2. Apportioned effort

What does this budget mean?

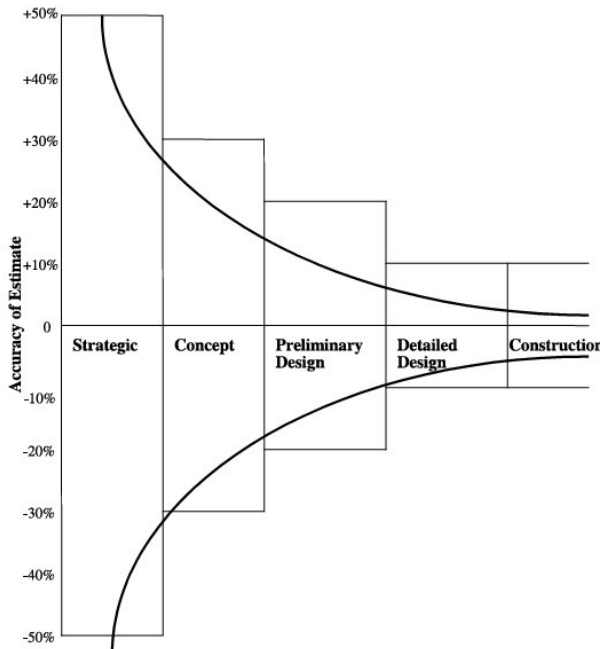


Budget estimate

- ❑ An **estimate** of the cost of work based on **preliminary information**, with a qualified degree of accuracy.

approximate cost estimate, usually developed early in the design process and also known as a

1. Conceptual cost estimate or
2. Rough order of magnitude cost estimate





Budgeting

☐ The **process** of translating

1. Approved or
2. Negotiated

resource requirements (manpower, equipment, and materials)

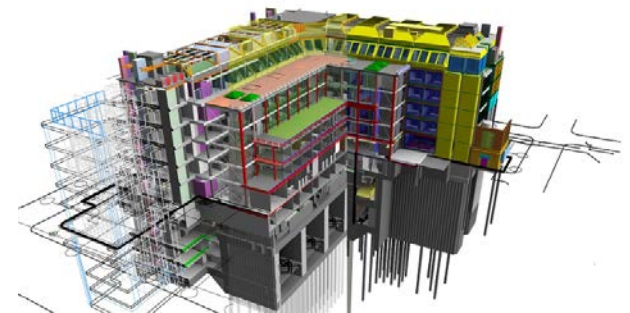
into a **funding profile** or **time-phased**
financial **targets and goals**.

Building commissioning (Cx)

- ❑ A **systematic process** of ensuring that **all building systems** perform interactively **according** to the design intent and the owner's operational needs.
- ❑ The process evaluates
 - ❖ Building equipment,
 - ❖ Subsystems,
 - ❖ Operation and maintenance (O&M) procedures, and
 - ❖ Performance of all building componentsto ensure that they function efficiently, and as designed, as a system.

Building information modeling (BIM)

- ❑ A **method** to create a **digital representation** of the physical and functional characteristics of a facility that a project team can **virtually**
1. Analyze,
 2. Document, and
 3. Assess, then
 4. Revise iteratively
- throughout** the design and construction process.



Building research environment assessment method (BREEAM)

- ❑ A UK **standard environmental assessment** method and rating system for **buildings** that has established **best practices** for **sustainable** building design, construction, and operation and has become one of the **most comprehensive and widely recognized** measures of a building's environmental performance.
- ❑ It **encourages** designers, clients, and others to think about
 - ❖ Low carbon and low impact design,
 - ❖ Minimizing the **energy demands** created by a building before considering energy efficiency, and
 - ❖ Low carbon technologies.



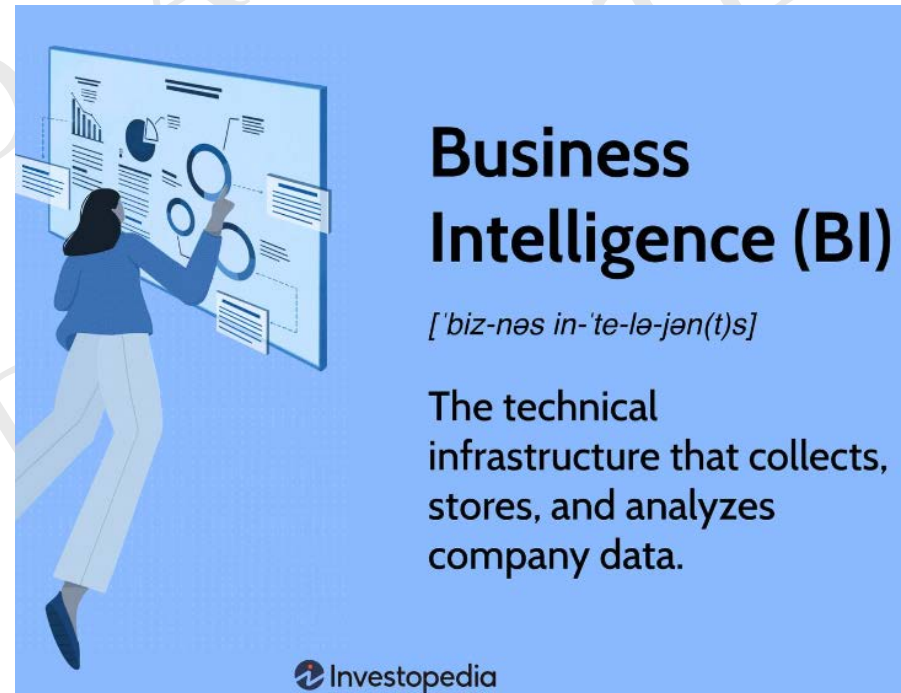
Built environment

❑ **Facilities** and **physical** infrastructures that add or change functions in the underlying

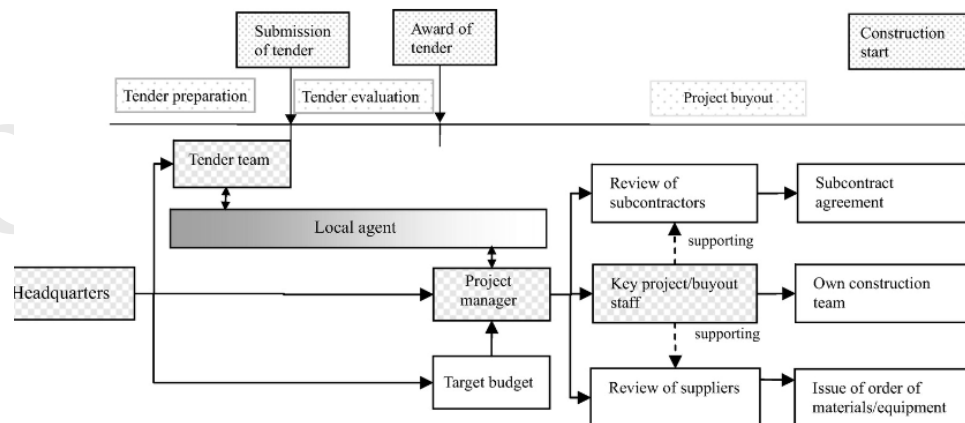
1. Natural
2. Economic
3. Social environments

Business intelligence (BI)

- ❑ The **process** of transforming raw data into actionable data.



- ❑ The process of awarding subcontracts and issuing purchase orders for **materials** and **equipment**.
- ❑ Buyout is the **transitional time** between the preconstruction and the construction phases of a project.
- ❑ It is during buyout that **purchase orders** and **subcontracts** are issued.
- ❑ Most of the literature in construction addresses either estimating or project management but **ignores** the buyout time frame.





Buyout log

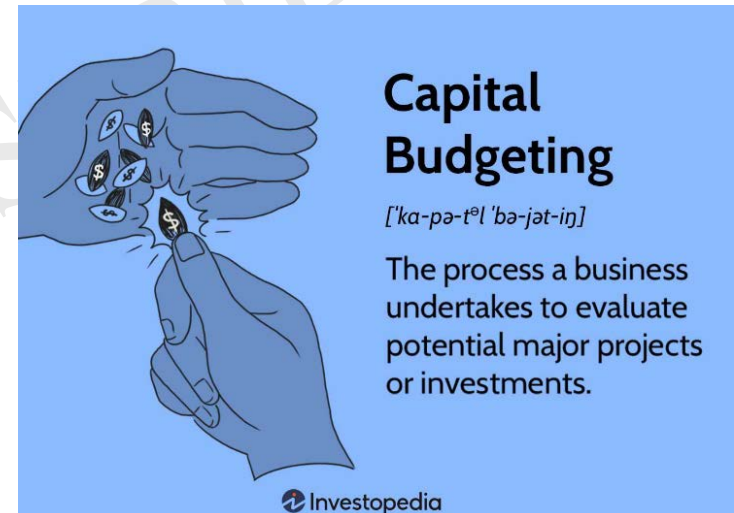
- ☐ A **project management document** in spreadsheet format that is used for planning and tracking the **buyout process**.

Prepared by Dr. Alavipour
DO NOT DISTRIBUTE

C

Capital budgeting

- ❑ A **systematic procedure** for classifying, evaluating, and ranking **proposed** capital expenditures for the purposes of comparison and selection, combined with the analysis of the **financial requirements**.





Cardinal change

- ❑ The **U.S. Court of Claims** has defined “**Cardinal Change**” as a change or series of changes that are
 1. **Beyond the scope** of the contract and
 2. **Breach** of contract
- ❑ The U.S. Supreme Court defined work within the general scope as work that
“should be regarded as fairly and reasonably within the contemplation of the parties when the contract was entered into”.

How to determine if it exists?

Cardinal change

❑ There are **two basic tests** to **determine if** a cardinal change exists.

1. Test one asks,

*was the type of work **within the contemplation** of the parties when they **entered** into the contract?*

2. Test two asks,

*was the **finished** product basically the **same in form or function** as the **originally** contemplated product?*

What options contractor has when cardinal change exists?



Cardinal change

- ❑ Faced with a cardinal change, a **contractor** has **two options**.
 1. First, it may **perform** the change and **seek** breach of contract damages **after completing** the work.
 2. As a second option, the contractor **may refuse** to perform and **claim** breach of **contract**.

What happens then?



Cardinal change

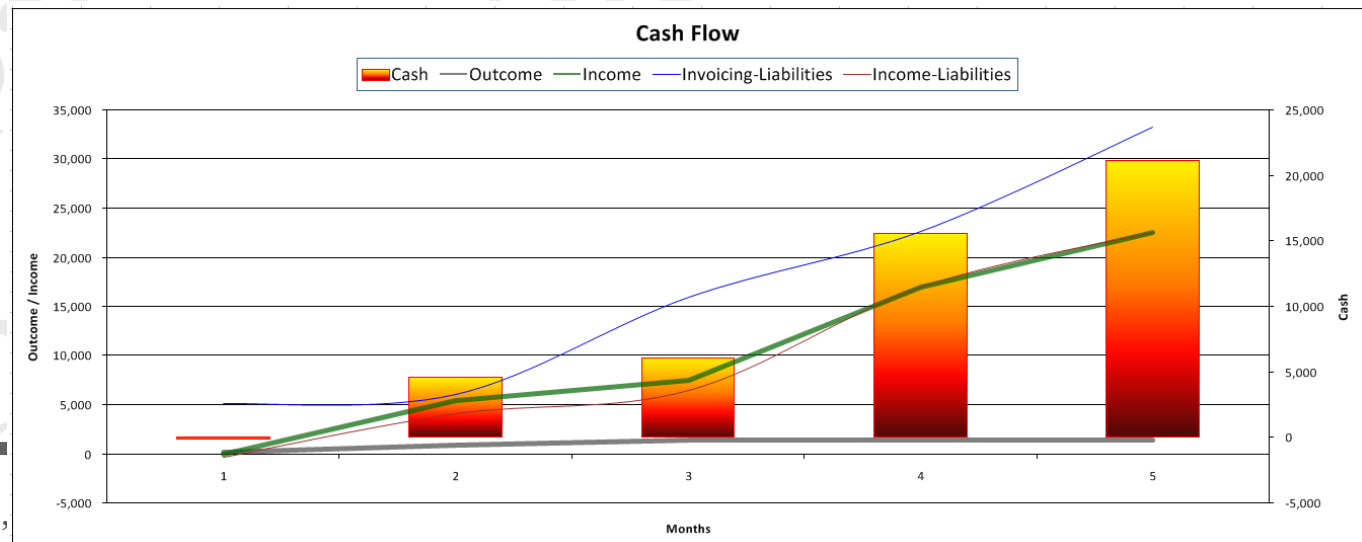
1. If the **contractor performs** the change,
it can **suffer** severe **financial hardship**
until it **proves** and **recovers** breach of contract **damages**.
2. If the contractor **opts not** to perform but the **change ultimately is found not** to be cardinal,
the **contractor will have committed a breach** of contract
because it was **obligated by the disputes clause** to perform
all of the original scope of work and all non-cardinal changes.

Cash flow curve

❑ Cash Flow Curve means the periodic cash flow curve set forth in the **Schedule of Values** that

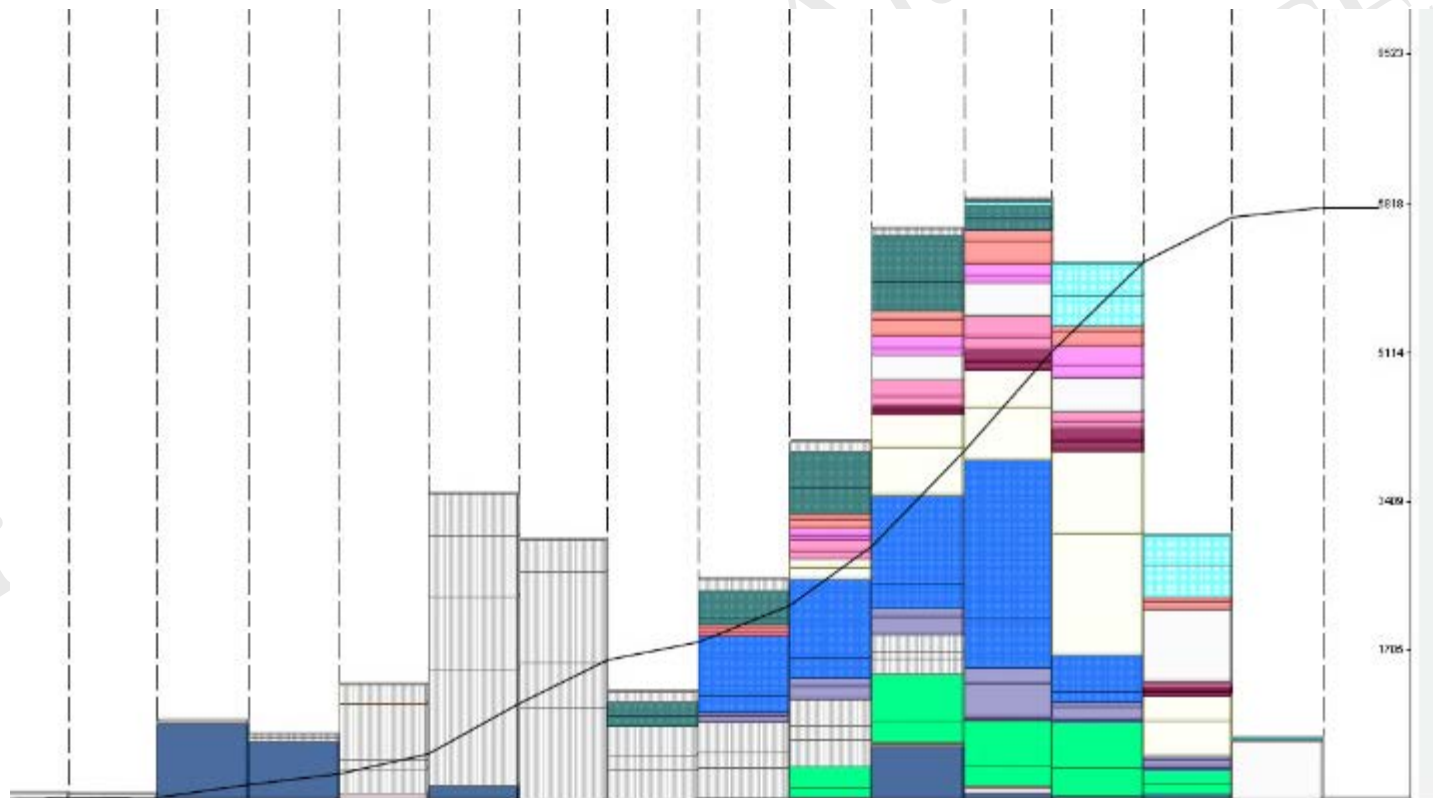
constitutes the cumulative maximum payment obligation Owner will have to Contractor under this Agreement for any given period during the performance of the Work.

❑ A plot of the estimated value of **work** to be completed **each month** during the construction of a project



Cash-loaded schedule

- ❑ A **schedule** in which the **value of each activity** is distributed across the activity, and monthly costs are **summed** to produce a cash flow curve





Certificate of occupancy

- ☐ A **certificate** issued by the city or municipality indicating that the **completed project** has been inspected and meets all code requirements.



Certificate of substantial completion

- ☐ A **certificate** signed by the client, architect, and contractor indicating the **date** that substantial completion was achieved.



Changed conditions

- ☐ **Conditions or circumstances**, physical or otherwise, which differ from the **conditions or circumstances** on which the contract documents were based.

Change order

- ❑ A written instrument **prepared** by the **Architect and signed** by the Owner, Contractor, and Architect **stating their agreement** upon all of the following:
- 1) the change in the Work;
 - 2) the **amount of the adjustment**, if any, in the Contract Sum; and
 - 3) the **extent of the adjustment**, if any, in the Contract Time.”

The **operative language** is that a change order is an “**agreement**” amongst the parties and, therefore,

the **terms are settled** and become a part of the contract.

فرآیند جامع مدیریت دستور تغییر (Change Order) در پروژه‌های ساخت

در این مقاله علاوه بر ارائه یک فرآیند جامع به منظور مدیریت دستور تغییرات (Change Order) در پروژه‌های ساخت، مواردی را مطرح نموده‌ایم که بسیاری از متخصصان در کشورمان از آن آگاه نیستند.



<https://dralavipour.com/blog/view/Fundamentals-of-Change-Orders>



Change order

- ☐ A **written agreement** or directive between contracted parties, which **represents** an addition, deletion, or revision to the **contract documents**, identifies the **change** in price and time and **describes** the nature (scope) of the work involved.
- ☐ A document **directing** a change in scope.
- ☐ **Modifications** to contract documents made after contract award that
 1. **Incorporate** changes in scope and
 2. **Adjustments** in contract price and time.

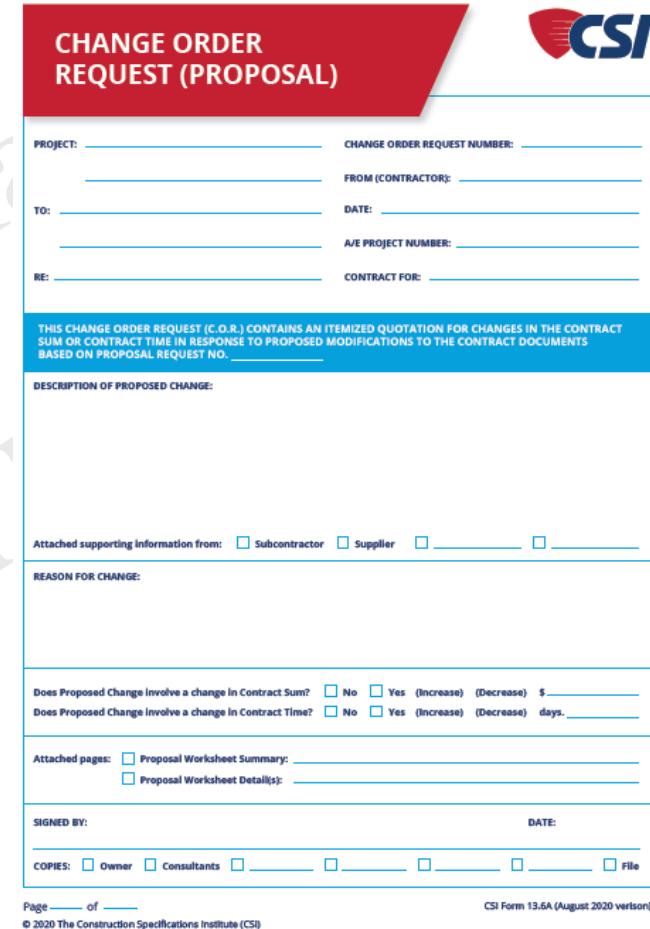
Change order proposal

☐ A request for

1. A change order submitted to the **client** by the **contractor**, or
2. A proposed change sent to the **contractor** by the **client** requesting data.

– The document prepared to provide

1. A complete description of a proposed change and
2. Its resulting impacts on project baselines.



CHANGE ORDER REQUEST (PROPOSAL)

CSI

PROJECT: _____ CHANGE ORDER REQUEST NUMBER: _____

FROM (CONTRACTOR): _____

TO: _____ DATE: _____

A/E PROJECT NUMBER: _____

RE: _____ CONTRACT FOR: _____

THIS CHANGE ORDER REQUEST (C.O.R.) CONTAINS AN ITEMIZED QUOTATION FOR CHANGES IN THE CONTRACT SUM OR CONTRACT TIME IN RESPONSE TO PROPOSED MODIFICATIONS TO THE CONTRACT DOCUMENTS BASED ON PROPOSAL REQUEST NO. _____

DESCRIPTION OF PROPOSED CHANGE:

Attached supporting information from: ☐ Subcontractor ☐ Supplier ☐ _____ ☐ _____

REASON FOR CHANGE:

Does Proposed Change Involve a change in Contract Sum? ☐ No ☐ Yes (Increase) (Decrease) \$ _____

Does Proposed Change Involve a change in Contract Time? ☐ No ☐ Yes (Increase) (Decrease) days _____

Attached pages: ☐ Proposal Worksheet Summary: _____

☐ Proposal Worksheet Detail(s): _____

SIGNED BY: _____ DATE: _____

COPIES: ☐ Owner ☐ Consultants ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ File

Page _____ of _____

© 2020 The Construction Specifications Institute (CSI)

CSI Form 13.6A (August 2020 version)



Change order proposal log

❑ A **project management document** in spreadsheet format

1. Listing **all change order proposals** and
2. Indicating **dates** of initiation, approval, and incorporation as final change orders



Chart of accounts

- ❑ An **alpha/numeric** identification system for budget line items that ensures that project expenditures are properly **debited/credited** in the **project budget** as payments are made in behalf of the project.

Construction Chart of Accounts

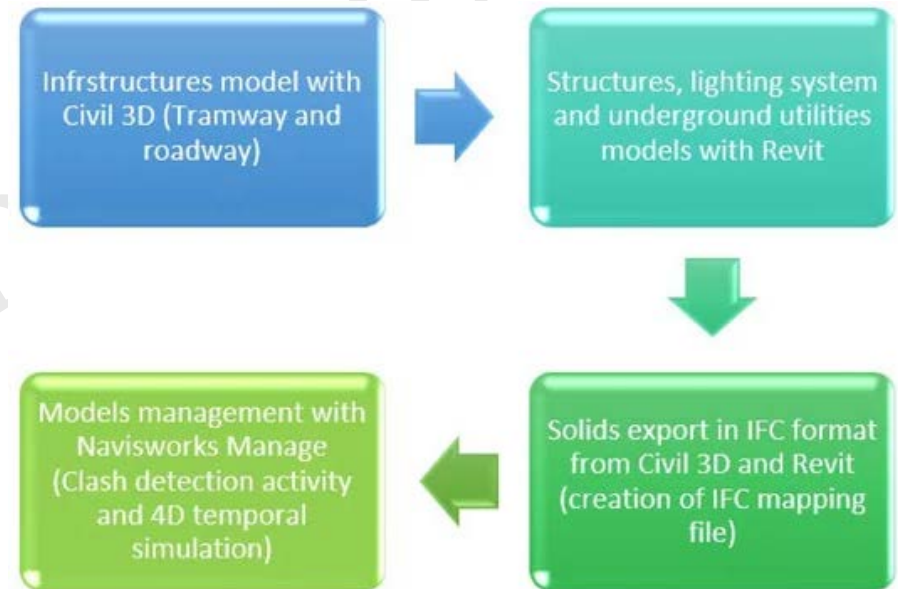
For companies using *Percentage of Completion accounting*

Account Type	Account No.	Account Name
Current Assets		
	110	Cash
	120	Accounts Receivable
	121	Retention Receivable
	140	Costs and Profits in Excess of Billings
	150	Notes Receivable
	160	Prepaid Expenses
	190	Other Current Assets
Long-term Assets		
	210	Land
	213	Buildings
	220	Construction Equipment
	230	Trucks and Autos
	240	Office Furnishings and Equipment
	270	Less Accumulated Depreciation
	290	Other Long-Term Assets
Current Liabilities		
	310	Accounts Payable
	311	Retention Payable
	320	Billings in Excess of Costs and Profits
	330	Notes Payable
	341	Accrued Payroll
	342	Accrued Taxes
	345	Accrued Vacation and Sick Leave

Civil information modeling

❑ Computer design software tools involving multi-dimensional overlays of infrastructure project information;

a new approach toward the integration of design and construction processes for **delivering infrastructures**



☐ A formal demand requesting **additional**

1. Time,
 2. Money, or
 3. Both
- for

acts or omissions during the **performance of the work**

filed by a contractor or the owner with the other party,

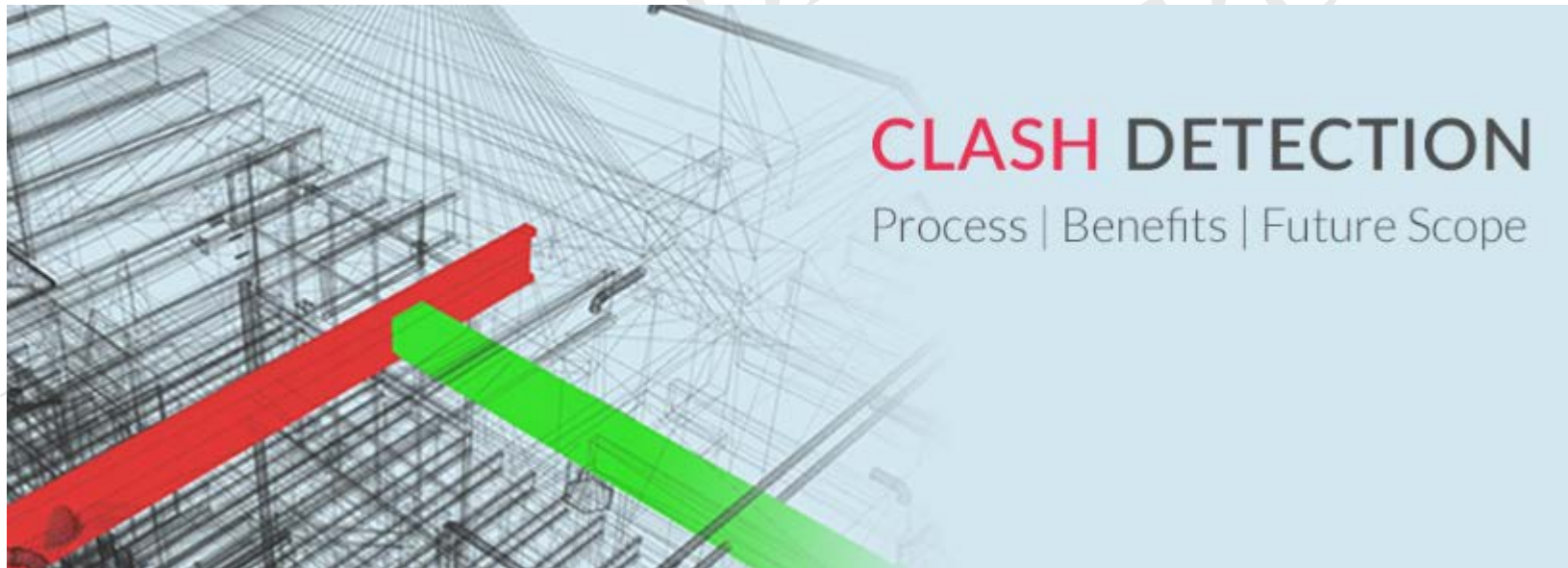
in accordance with the **provisions** of the contract documents.

Claim – An assertion or request for a **contract price and/or time** for completion adjustment by **one of the contracting parties** seeking adjustment or interpretation of an **existing contract** subject to the dispute clause on the contract.

What AIA says?

Clash detection

- ❑ Within the context of BIM, a **method to check** for interferences by searching for intersecting volumes.



- ❑ The **process** of completing **all construction** and **paperwork** required to complete the project and close-out the contract.

Construction project closure checklist to enhance operational effectiveness

This slide covers construction project closure checklist to enhance operational effectiveness. It involves tasks such as warranties submission, maintenance agreement submission, submit property surveys and final record information.

Done	Category	Description	Due Date	Completion Date	Priority	Status	Quantity requested	Comments
	Closeout per specification							
	Contract Close-out	Warranties Submission			Low	Not Started		
	Contract Close-out	Bonds Submission			Medium	In Progress		
✓	Contract Close-out	Maintenance Agreement Submission			High	Complete		
	Contract Close-out	Obtain certificate of conditional occupancy				Needs Review		
	Contract Close-out	Submit final project photos				On hold		
	Contract Close-out	Submit damage or settlement surveys				Overdue		
✓	Contract Close-out	Submit property surveys				Complete		
✓	Contract Close-out	Submit final record information				Complete		
	Required testing							
	Structure Steel	Inspect or test shop bolted connections						
	Warranties/guarantees							
	Wood doors	Manufacturer's standard warranty						
	Sprinkler system	Add text Here						
	Certificates							
	Structural steel	Mill certificates						
	Hoist/mulay	Load tested						
	Final submittal							
		Punch list signed off						



Close-out log

- ☐ A **project management document** in spreadsheet format listing all close-out tasks that is used to **manage project close-out**.

- ☐ A form of **contractual payment** for services,
where the **CM is paid a fee** for services performed.



CM partnering

- ❑ A **contractual commitment** by the Owner, A/E, and CM to **achieve** a common goal, and **doing so** without a **stakeholder's exposure** to a potential for **conflict of interest** in pursuit of that **goal**.



CM procedure manual

- ☐ The **depository** for the proprietary micromanagement procedures used by the **CM** to **detail** and **facilitate** the service obligations owed to a client.

Code of accounts

- ❑ A **systematic numeric accounting method** of identifying various categories of costs incurred in the progress of a project.
- ❑ The **segregation** of engineering, procurement, fabrication, construction, and associated project costs **into elements** for accounting purposes.

ID	Name
22	Foundations
221	Sand and gravel bases for foundations
222	Monolithic r / b base foundations, sockets
223	Metal structures in foundation masks, sockets and foundation foundations
224	Base foundations, plinth and foundation foundations
225	Element bases, plinths, foundation foundations
227	Heat and waterproofing of base structures
23	Groundfloors
231	Sand and gravel bases
232	Concrete structures
233	Metal structures
234	Subfloor elements
235	Subfloors for wooden structures
236	Heat and waterproofing

Commercial impracticability: Performance (impractical performance)

❑ Contract performance becomes **extremely**

1. Expensive (e.g., Costs double),
2. Dangerous or
3. Difficult, and

where such **expenses, dangers or difficulties** were unexpected.

❖ Unprofitable work, hardship or high costs alone are usually not enough.

So what happens then?

Commercial impracticability: Performance (impractical performance)

- ❑ Depending on the **existence of contractual provisions** stating otherwise, such **impracticability** may **entitle the contractor** to a compensable delay
1. If the work affected by such problems was on the **critical path** at the **time that the delay occurred** and
 2. If the **contractor was not responsible** for **other concurrent delays** at that time.



Commissioning (Cx)

- ☐ A **process** that includes the startup, calibration, and certification of a facility.
- ☐ The **process** at or near construction completion when a facility is **tried out (put into use)** to see if it functions as designed.



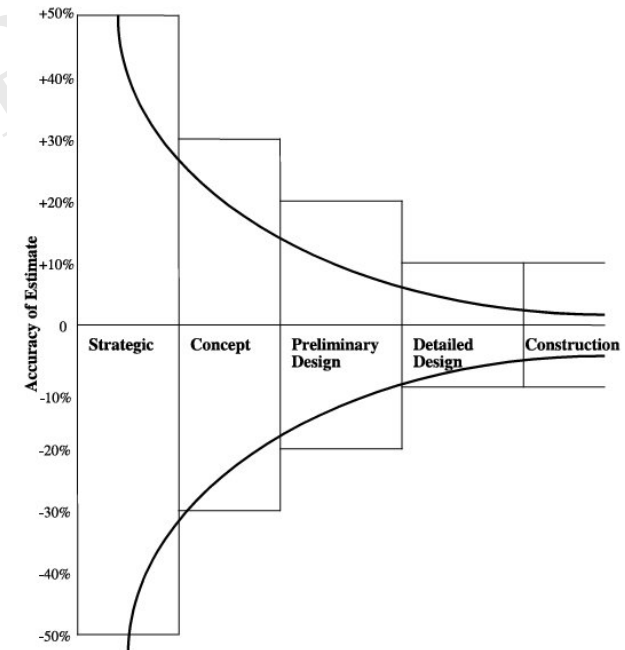
Commissioning and startup

- ❑ For many projects, particularly **process-related** industrial and municipal plants, commissioning, testing, and startup activities are **very time-consuming** and, thus, important to **include in the schedule**.
- ❑ Typically, activities include the development of a detailed commissioning plan that should be included in the **construction schedule**.

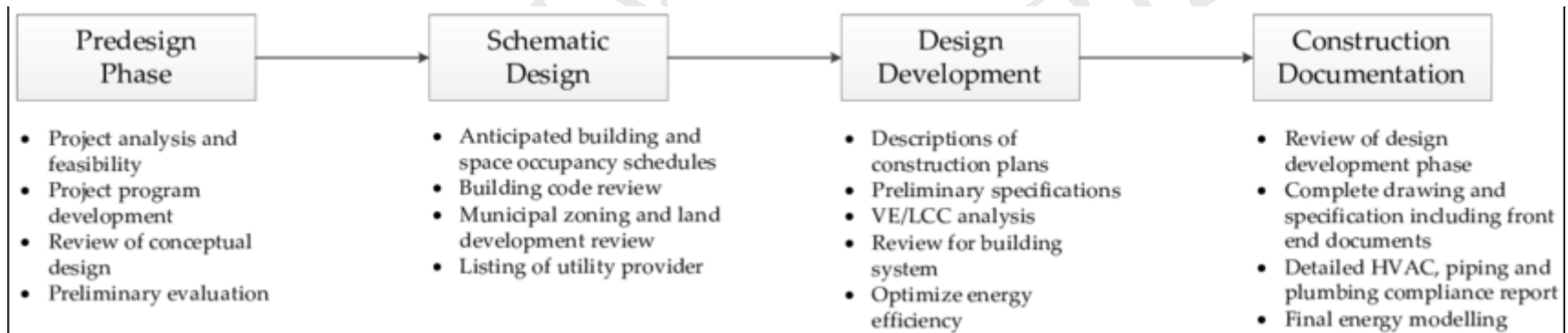
- ❖ **Commissioning** – entails running and testing all areas of each system to ensure the system performs as anticipated and to correct any remaining problems prior to Plant Operational Start-up.
- ❖ **Start-up** – the commencement of actual plant operations.

Conceptual cost estimate

- ❑ **Cost estimates** developed by using incomplete project documentation, also known as a **rough order of magnitude cost estimate** or **budget estimate**



- ❑ **Initial design** developed during the planning phase (pre-design) as part of the **conceptualization** of the project idea and evolved during the initial stage of design activities; also known as project concept





Conceptual schedule

- ❑ A **conceptual schedule** is similar to a proposal schedule except that it is usually time scaled and is developed from the **preliminary design** of the project.



Configuration control or management

- ❑ The **systematic** evaluation, coordination, approval or disapproval and implementation of **all approved changes** in the project **after formal establishment** of the project configuration.



Configuration management

- ❑ Technical and administrative **direction** and surveillance **actions** taken to:
 - (a) **Identify** and **document** the functional and physical characteristics of a configuration item;
 - (b) **Control** **changes** to those characteristics; and,
 - (c) **Record** and **report** configuration change processing and implementation status.

❑ The **ease** with which a project can be built, based upon

1. Clarity,
2. Consistency, and
3. Completeness

of the **contract documents** for

1. Bidding,
2. Administration, and
3. Interpretation

to **achieve overall project objectives.**



Constructability review

- ❑ The **process** of evaluating the **construction documents** for clarity, consistency, completeness, and ease of construction to **facilitate** the achievement of overall project objectives.



Construction budget

❑ The **target cost** figure covering the construction phase of a project.

❑ It includes the cost of contracts with trade:

- ❖ Contractors,
- ❖ Construction support items,
- ❖ Other purchased labor,
- ❖ Material and equipment, and
- ❖ Construction manager's cost

But **not the cost** of land, A/E fees, or consultant fees.

❑ The **sum established**,

normally during the pre-design or design phase, as available for construction of the project.



Construction change directive

- ❑ A **directive issued** by the client to the contractor to proceed with the **described change order**.
- ❑ Change directives direct the contractor to make a change to the project **before** the owner and contractor **have agreed** upon the proposed changes in contract sum or time.
- ❑ Change directives **are used in the absence of**
 1. An agreement between the **owner and the contractor** or
 2. An agreement between the **architect/engineer and the contractor** on the terms of a change order.
 3. Change directives may also be used when the **value of a change cannot be determined until after** the work is **performed**.



Construction contract documents

- ☐ The **documents** which provide the basis for the contract entered into between parties.
- ☐ They typically include
bid documents updated to
reflect the **agreement** between the owner and the contractor(s).

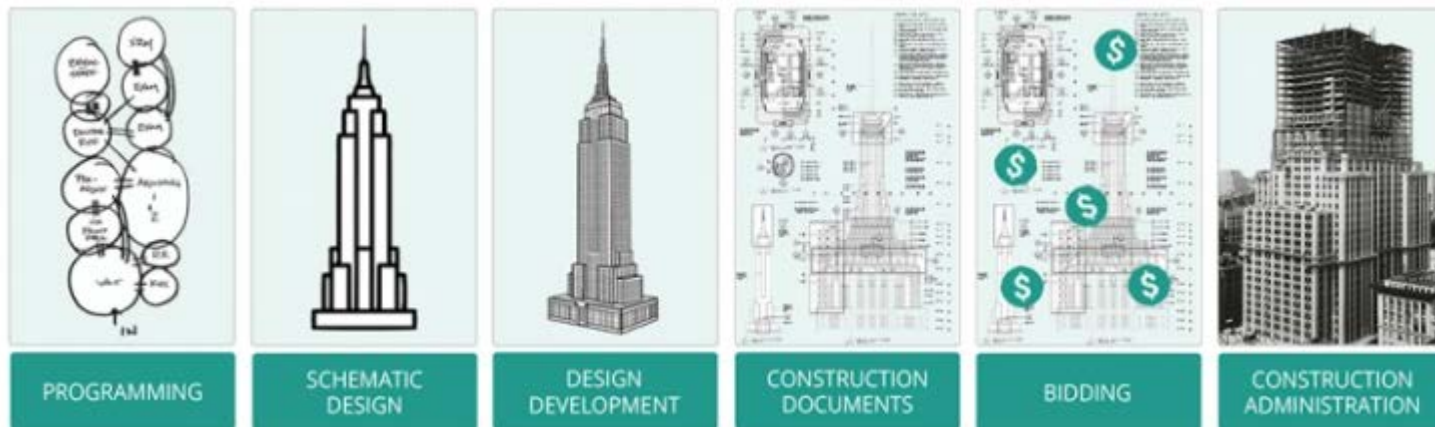


Construction costs

- ❑ The **cost of all work** required to **complete the construction** as defined in the construction contract documents.
 - ❖ This may be different for contractors!

Construction documents

- ❑ **Construction documents** take the design to a greater level of detail to include construction details and specifications for **materials**.





Construction drawings

- ❑ **Portion** of the construction documents providing a **graphical description** of the project, including
its geometrical information and often its materials.



Construction management

- ❑ A **professional management practice** applied to construction projects from project inception to completion

for the purpose of **controlling** time, cost, scope, and quality.

Construction management plan (CMP)

- ❑ The **CMP** is a written, project-specific plan that **outlines** the *project's scope, budget, schedule, organizational roles, quality standards, and specific methods and procedures* that the **CM** will **undertake** to accomplish the various management tasks for the project.



Construction manager (CM)

❑ An organization or individual with the **expertise** and **resources** to provide **construction management services**.

1. When referred to individuals,

this term is used to **identify all management positions** on a project;

2. When referred to firms,

this term is used to **identify firms** that provide construction management services and

serve a similar role to general contractors except they do **not self-perform**

scope and, therefore, do not hire direct craft labor



Construction schedule

- ❑ A graphic, tabular, or narrative representation or depiction of the **time of construction** of the project,
showing **activities and duration** of activities in sequential order.
- ❑ Also known as the **formal schedule**.
 - ❖ These schedules will be provided **to the client** at the beginning and throughout the project delivery as required by the contract special conditions

Construction specifications

- ❑ **Portion** of the **construction documents** that provide a textual description of the project, including any **additional information** on
 - ❖ Its materials,
 - ❖ Quality acceptance processes, or
 - ❖ Other performance expectations.
- ❑ Construction specifications are usually **organized** according to some standardized classification system.
- ❑ For instance, the Construction Specification Institute (CSI) MasterFormat and UniFormat are **two commonly used classification systems** for organizing data about construction requirements, products, and activities.



Construction technology

- ❑ The systems, tools, equipment, and software used to
organize and **manipulate**
data, materials, and other resources to
complete a **capital construction project**.



Constructive acceleration

- ❑ Constructive acceleration **occurs when** a construction contractor encounters excusable delay during its performance of the contract work, such as
design changes, added scope, unusually severe weather, differing site conditions, acts of God, or owner-caused delays.
- ❑ The **contractor** is then entitled to a **time extension** equivalent to the **time of excusable delay**.
- ❑ The contractor is constructively accelerated **when** it is not granted the time extension.
 - ❖ The **contractor must then decide** whether to accelerate its performance to meet the **mandated completion date**.
 - ✓ If the contractor is compelled by such circumstances to **accelerate its performance**,
it may be **entitled to recover damages** based on a theory of constructive acceleration.



Constructive change

- ❑ A change in contract work without issuance of a formal **change order**;
 - 1. **Insistence** on **performance** in a manner different from that allowed by the contract or
 - 2. **Refusal to accept** **performance** in a manner allowed by the contract.

So what happens then?



Constructive change

- ☐ Such constructive changes may entitle the contractor to a compensable delay
 1. If the work affected by such changes was on the **critical path** at the time that the delay occurred and
 2. If the contractor was **not responsible** for other concurrent delays at that time.

Constructive notice

- ❑ **Most construction contracts**, whether they are standard or customized forms, usually contain specific provisions related **expressly to the process** of giving ‘notice.’
- ❑ The notice generally refers to an obligation on the part of the **Contractor to notify** the relevant party administering the contract,
normally the architect, CM, resident engineer, or owner’s representative,
of a **claim or change event** that gives rise to possible additional entitlement for time and/or cost.
- ❑ The **duty imposed** upon the issuing party when giving notice in terms of **information** to be supplied and the **time for performance** of any specific and designated obligations varies with the form of contract employed.



Contingency

- ☐ An **amount** of money reserved by the owner to pay for **unforeseen changes** in the work or increases in cost.
- ☐ A **portion** of the estimating markups that takes into consideration **potential inaccuracies** due to uncertainties in the project **definition and risks**.



Contingency fund

- ❑ **Money** set aside to provide for
 - ❖ Unforeseen expenditures or
 - ❖ Anticipated expenditures of an **uncertain amount**.



Contract administration

- ❑ The **function** of implementing the **terms and conditions** of a contract, based upon **established** systems, policies, and procedures.



Contract budget

☐ The **cost** of the contract

plus the **actual or estimated cost** for authorized changes,

which have **not yet** been **fully priced**.

موسسه مهندسی و مدیریت ساخت علوی پور (ACEMI)

دفتر آموزش



تهران، بلوار فردوس شرق، مجتمع آبگینه، طبقه سوم اداری، واحد C42



+۹۸ ۲۱ ۴۶ ۱۰۰ ۴۴۵



+۹۸ ۲۱ ۴۶ ۱۰۰ ۴۵۰



info@dralavipour.com



www.dralavipour.com



@alavipour_pm



@acemi_social



@alavipour_pm



@IRANACEMI

