



# استراتژی مدیریت قرارداد

## برای مدیران پروژه

راهنمای مدیریت قرارداد مختص مدیران پروژه (Contract Administration Guidelines)

بخش پنجم: مدیریت قرارداد در فاز ساخت/اجرا (Construction)

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## What we will learn?

- ☐ Introduction to construction phase
- ☐ Contract & specification requirements
- ☐ Pre-construction submittals
- ☐ Pre-construction conference/meeting
- ☐ Construction management plan
- ☐ Document existing conditions
- ☐ Owner-furnished items
- ☐ Permits, insurance, labor affidavits, and bonds
- ☐ Communication procedures
- ☐ Meetings
- ☐ Documentation procedures
- ☐ Information management
- ☐ Quality
- ☐ Field reports
- ☐ Safety

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## What we will learn?

- ☐ Change management
- ☐ Cost control
- ☐ Schedule monitoring
- ☐ Progress payments
- ☐ Status reports
- ☐ Entitlement evaluation
- ☐ Damage assessment
- ☐ Record drawings
- ☐ Record drawings
- ☐ Commissioning (Cx) and functional performance testing

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# **INTRODUCTION TO CONSTRUCTION PHASE**

## Time of contract award

- ☐ During the phases **before construction begins**,  
the **planning** and **organizational** efforts have been performed to implement the PMP.
- ☐ At the **time** of construction contract award,  
the **standards for measuring** the timeliness, quality, and cost of the **contractor's performance** are already established.
- ☐ The next step is to **ensure** those standards are met by administering the contract.

## 2.1 Preconstruction

The period between the procurement phase (bidding/negotiating/purchasing) and the beginning of actual construction work on the site is known as preconstruction. The preconstruction period is a period in which the owner, architect/engineer, and contractor get organized for construction, and the contractor prepares and submits the preconstruction submittals. There are a series of activities that must occur before the contractor can begin construction. It is during this time that the following generally occurs depending on the project delivery method being used:

- If the project has been bid among prospective contractors, a successful bidder is identified by the owner to be the contractor.
- A letter of intent to award the contract is issued by the owner to the successful bidder.
- An owner-contractor agreement is executed; the successful bidder is now the contractor.
- Bonds, if any, are furnished by the contractor and delivered to the owner.
- Insurance certificates are furnished by the contractor and delivered to the owner.
- Building permits are issued by the authorities having jurisdiction (AHJs).
- A notice to proceed is issued by the owner if the date is not stipulated in the agreement.
- The contractor starts buying out the project and awarding subcontracts and purchase orders.
- Site conditions are verified.
- A preconstruction meeting or conference is held.
- The contractor mobilizes onto the site.

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## Preconstruction definition

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## CM construction tasks – Appendix A

| Construction Phase Tasks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>✓ Pre-construction conference</li> <li>✓ Contract &amp; specification requirements</li> <li>✓ Construction management plan</li> <li>✓ Partnering</li> <li>✓ Documentation of existing conditions</li> <li>✓ Assignment of owner-furnished items</li> <li>✓ Permits, insurance, labor affidavits, and bonds</li> <li>✓ Communication procedures</li> <li>✓ Meetings</li> <li>✓ Documentation procedures</li> <li>✓ Computerized information management</li> <li>✓ Quality assurance/quality control</li> </ul> | <ul style="list-style-type: none"> <li>✓ Field reports</li> <li>✓ Safety</li> <li>✓ Change management</li> <li>✓ Cost control</li> <li>✓ Schedule monitoring</li> <li>✓ Progress payments</li> <li>✓ Status reports</li> <li>✓ Entitlement evaluation</li> <li>✓ Damages assessment</li> <li>✓ Record drawings</li> <li>✓ Punchlists</li> <li>✓ Commissioning and functional performance testing</li> </ul> |

## CM construction tasks – Appendix F

| D. Program Oversight of Construction Phase |                                                                                                                                                                                                                        |       |   |  |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---|--|
| 1                                          | Provide program oversight services regarding scheduling, cost tracking, and reporting for specialty components of the bond projects, including but not limited to the following:                                       |       |   |  |
|                                            | a) Demolition in coordination with the owners facilities department surplus properties procedure                                                                                                                       | A,C,I | R |  |
|                                            | b) Safety/security upgrades (and coordination with the owner's IT department and police department)                                                                                                                    | A,C,I | R |  |
| 2                                          | Provide overall planning services for technology equipment and infrastructure upgrades for the bond projects ( in coordination with the owners IT department parentheses. Including:                                   |       | R |  |
|                                            | a) Large-scale additions, renovations, and modifications                                                                                                                                                               | A     | R |  |
|                                            | b) Classroom equipment upgrades                                                                                                                                                                                        | A     | R |  |
|                                            | c) Infrastructure refresh                                                                                                                                                                                              | A     | R |  |
|                                            | d) Data infrastructure upgrades including telephone and wireless                                                                                                                                                       | A     | R |  |
|                                            | e) Infrastructure upgrades                                                                                                                                                                                             | A     | R |  |
|                                            | f) Hardware refresh                                                                                                                                                                                                    | A     | R |  |
| 3                                          | Provide construction phase reports, reviews, and recommendations, and/or coordination and the following areas:                                                                                                         |       |   |  |
|                                            | a) Job site meetings, master schedule, construction schedule, monthly schedule updates, reports to the board                                                                                                           | A     | R |  |
|                                            | b) Submittals, quality assurance, technical inspection and testing, schedule of values, progress review, recovery schedule, schedule revision, monthly contractor payment, monthly status report, cash flow projection | A     | R |  |
|                                            | c) Change order system, CO evaluate, CO negotiation, CO reports                                                                                                                                                        | A     | R |  |
|                                            | d) Contractor claims, safety plan, owner furnished items, allowances and contingencies, non-conforming work, photographs                                                                                               | A     | R |  |



# **CONTRACT & SPECIFICATION REQUIREMENTS**

## Requirements and obligations

- ❑ Once awarded, the **first task** in contract administration  
it is to **review** the requirements and the specific obligations of  
the contractor (or CM/GC), the CM (as agent), and the owner.
- ❑ These **requirements and obligations** are set forth in the contract itself, largely in
  - ❖ Specifications,
  - ❖ Contract clauses,
  - ❖ Special clauses, and
  - ❖ Applicable industry standards.

## Contract documents

The documents typically used in the administration of a construction contract include the following:

- Owner-architect/engineer agreement
- Owner-contractor agreement(s)
- Conditions of the contract
- Specifications
- Drawings
- Bid form or proposal, when attached as an exhibit to the agreement
- Precontract revisions, including addenda with items relating to contract documents
- Notice to proceed
- Contract modifications, including change orders

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## Owner-Contractor agreement

The owner-contractor agreement typically includes articles relating to the following:

**Contract Documents.** A detailed list of all written and graphic documents that are part of the contract. The individual responsible for CCA should ensure that all parties to the contract are referencing the same documents. The dates and titles of the documents and the number of pages in each need to be checked against the agreement to ensure the correct documents are being used.

Electronic models and Building Information Modeling (BIM) may be outlined as supplementary resources.

**Contract Time.** Start and completion dates or allotted calendar days for the project.

**Contract Sum.** The basis on which applications for payment will be made. Includes the listing of any unit prices, allowances, and accepted alternates.

**Payment Procedures.** Identifies when the contractor will submit applications for payment and when payment by the owner to the contractor will be made. This article also includes the provisions for retainage.

## Comparison of standard owner-contractor agreements

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AMERICAN INSTITUTE OF ARCHITECTS</b>               | <p>AIA Document A101™<br/>Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum</p> <p>AIA Document A102™<br/>Standard Form of Agreement Between Owner and Contractor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price (commonly referred to as a GMP contract)</p> <p>AIA Document A103™<br/>Standard Form of Agreement Between Owner and Contractor where the basis of payment is the Cost of the Work Plus a Fee without a Guaranteed Maximum Price</p> |
| <b>CONSENSUSDOCS</b>                                  | <p>ConsensusDocs® 200<br/>Standard Agreement and General Conditions Between Owner and Constructor (Lump Sum)</p> <p>ConsensusDocs® 500<br/>Standard Agreement and General Conditions Between Owner and Construction Manager (Where CM is At-Risk)</p>                                                                                                                                                                                                                                                                                                    |
| <b>CONSTRUCTION MANAGEMENT ASSOCIATION OF AMERICA</b> | <p>CMAA Document CMAR-1<br/>Standard Form of Agreement Between Owner and Construction Manager (Construction Manager At-Risk)</p> <p>CMAA Document A-1<br/>Standard Form of Agreement Between Owner and Construction Manager (Construction Manager as Owner's Agent)</p>                                                                                                                                                                                                                                                                                  |
| <b>DESIGN-BUILD INSTITUTE OF AMERICA</b>              | <p>DBIA 520<br/>Standard Form of Preliminary Agreement Between Owner and Design Builder</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE</b>   | <p>EJCDC C-520<br/>Suggested Form of Agreement Between Owner and Contractor, for Construction Contract (Stipulated Price)</p> <p>EJCDC C-525<br/>Standard Form of Agreement Between Owner and Contractor, Cost - Plus</p>                                                                                                                                                                                                                                                                                                                                |

## Conditions of contract

The conditions of the contract typically contain the following general topics:

- General provisions and definitions
- Owner's responsibilities
- Contractor's responsibilities
- Architect/engineer's responsibilities
- Subcontractors (definition and relationships)
- Construction by owner or separate contractors
- Changes in the work
- Contract time
- Payments to contractor and completion of work
- Protection of persons and property
- Insurance and bonds
- Correction, removal, or acceptance of defective work
- Miscellaneous provisions
- Suspension of work and termination of the contract
- Claims and disputes

## Major standardized general conditions in use for construction projects

|                                                |                                                                                                            |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| AMERICAN INSTITUTE OF ARCHITECTS               | AIA Document A201™<br>General Conditions of the Contract for Construction                                  |
| CONSENSUSDOCS                                  | ConsensusDocs® 200<br>Standard Agreement and General Conditions Between Owner and Constructor              |
| CONSTRUCTION MANAGEMENT ASSOCIATION OF AMERICA | CMAA CMAR-3<br>General Conditions of the Construction Contract Between Construction Manager and Contractor |
| DESIGN-BUILD INSTITUTE OF AMERICA              | DBIA 535<br>Standard Form of General Conditions of Contract Between Owner and Design- Builder              |
| ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE   | EJCDC C-700<br>Standard General Conditions of the Construction Contract                                    |



## Specifications

- ☐ The specifications are typically organized in accordance with the **CSI MasterFormat®**.

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## Contract Drawings and Electronic Models

Drawings and electronic models are graphic representations of the work. They show materials, locations, dimensions, sizes, interrelationships of materials, details of connections, and shapes and forms. CCA and contractor project management are responsible for understanding the relationship between drawings, specifications, and the other components of the contract documents.

Because most general conditions require that drawings and specifications are complementary, the architect/engineer must be familiar with conflict resolution procedures for discrepancies which may arise between such documents during construction.

## Precontract Revisions Including Addenda

Precontract revisions include addenda, which are written or graphic instruments issued to clarify, revise, add to, or delete information in the procurement documents or in previous addenda. Addenda are typically issued by the architect/engineer before the bid or final negotiation. As portions of addenda may affect the contract documents, it is imperative that construction process participants properly account for these changes by posting or documenting the appropriate addenda information in the affected areas of the drawings and specifications.

## Contract Modifications

After execution of the agreement, contract documents can be modified by change orders, change directives, or minor changes. Each of these documents modifies the contract; therefore, it is important to understand the documentation procedures and the relationship of the changes as they apply to other contract documents.

# **PRE-CONSTRUCTION SUBMITTALS**



## Pre-construction submittals

Preconstruction submittals are required prior to commencement of work. Examples of such submittals include the following:

- Certificates of Insurance
- Construction Bonds
- Subcontractor and Product Lists
- Schedule of Values
- Schedule of Inspections and Testing
- Submittal Schedule
- Construction Progress Schedule

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## Contractor's construction schedule

- ☐ Schedule preparation
- ☐ Owner-furnished, contractor-installed items
- ☐ Work by owner and under separate contracts
- ☐ Items not in the contract
- ☐ Submittal processing and lead times
- ☐ Order and delivery lead times
- ☐ Anticipated weather conditions and potential delays
- ☐ Time impact analysis
- ☐ Establishing the project's critical path (early completion and late completion)
- ☐ Establishing the project float
- ☐ Schedule meetings and updates
- ☐ Schedule revisions
- ☐ Contract time
- ☐ Impact of penalty and bonus provisions
- ☐ Impact of liquidated damage provisions

## Comparison of the standard general defining contract time

|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AIA DOCUMENT A201™</b><br>General Conditions of the Contract for Construction                                  | <p>"8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work."</p> <p>"8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined."</p>                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>CONSENSUSDOCS® 200</b><br>Standard Agreement and General Conditions Between Owner and Constructor              | <p>"2.4.6 "Contract Time" is the period between the Date of Commencement and the total time authorized to achieve Final Completion in Paragraph 6.1.1."</p> <p>"2.4.10 "Day" means a calendar day."</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>CMAA CMAR-3</b><br>General Conditions of the Construction Contract Between Construction Manager and Contractor | <p>"7.1.1 The contract time is the period of time allotted in the Contract Documents for completion of the Work as defined herein including authorized adjustments thereto."</p> <p>"7.1.2 A "day" is a calendar day of twenty four (24) hours measured from midnight to the next midnight. ..."</p>                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>DBIA 535</b><br>Standard Form of General Conditions of Contract Between Owner and Design-Builder               | <p>"1.2.4 Day or Days shall mean calendar days unless otherwise specifically noted in the Contract Documents."</p> <p>"8.1.1 Design-Builder agrees that it will commence performance of the Work and achieve the Contract Time(s) in accordance with Article 5 of the Agreement."</p> <p>Article 5 in DBIA 520 Agreement States: "5.1 Commencement Date. Design-Builder shall commence performance of the services set forth in this Agreement within five (5) days of Design-Builder's receipt of Owner's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing. Design-Builder shall complete such services no later than (_____) calendar days after the Date of Commencement."</p> |
| <b>EJCDC C-700</b><br>Standard General Conditions of the Construction Contract                                    | <p>"1.01 A.15 Contract Times—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work."</p> <p>"1.02 C.1 The word "day" means a calendar day of 24 hours measured from midnight to the next midnight."</p>                                                                                                                                                                                                                                                                                                                                                                                                                         |

# **PRE-CONSTRUCTION CONFERENCE/MEETING**

## Chair a meeting

- ❑ To begin, the **CM** should chair a meeting of **all key project participants** as soon as possible after the construction contracts are awarded.
- ❑ The **purpose** of the **pre-construction conference** is to
  1. **Introduce** the key team members to each other,
  2. **Familiarize** everyone with the **various administrative requirements** of the **project** and
  3. **Ensure** that each participant understands **what is required** to fulfill their contracts.

**Who should participate?**

## Attendees at this meeting

### Attendees at this meeting should include the following:

- |                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>✓ The owner or its authorized representative(s).</li><li>✓ Key members of the CM's staff.</li><li>✓ Representatives from the designer and its principal sub-consultants.</li><li>✓ The general contractor or each prime contractor, including executives, project manager, and project superintendent(s).</li></ul> | <ul style="list-style-type: none"><li>✓ Major subcontractors, represented by their project managers and/or superintendents.</li><li>✓ The commissioning agent.</li><li>✓ The sustainability consultant.</li><li>✓ Representatives of relevant public agencies, utilities, or regulatory authorities.</li><li>✓ Any important material or equipment suppliers.</li><li>✓ Representative(s) from other active projects that may be impacted.</li><li>✓ Any others deemed key project participants.</li></ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### NOTE

If other active projects may affect or be affected by the project in question, it is a good idea to invite a representative from that project to the pre-construction conference.

**What should be discussed?**



## Topics need to be discussed

- ❑ The coordination of the activities of utilities, public agencies, other contractors, and the owner's field or operational personnel needs to be discussed to **clarify** how they will interface with the **contractor's operation**.
- ❑ In addition, correspondence distribution should be **reviewed** including **submittals** and **shop drawings**.
- ❑ Other topics to discuss are applicable procedures, number of copies required, timing of submissions, turnaround time for review, and designer's specific responsibilities.
  - ❖ The types of project meetings and schedule for each should also be established.

## Topics need to be discussed

- ☐ The CM should **review** project safety plans and procedures to **clarify each party's responsibility**.
- ☐ Construction permit requirements and status should be reviewed to ensure they are being obtained **expeditiously**.
- ☐ The **contractor(s)** and **CM** should discuss the logistics of their on-site offices in terms of
  1. Proximity for communication and meetings,
  2. Computer network, and
  3. Space availability.

## Topics need to be discussed

☐ Other related subjects include

1. Parking,
2. Vehicle and equipment traffic,
3. Storage areas, and
4. Site access
5. All contractually required computer and telecommunications equipment,
6. furniture, etc.

should be reviewed.

## Topics need to be discussed

- ☐ Public information and community interaction procedures need to be discussed and spokespersons identified.
  
- ☐ It is also customary to review
  1. Project QA/QC procedures,
  2. Contract document precedence in the case of ambiguity,
  3. Reporting of nonconforming work,
  4. Decisions regarding nonconforming work, and
  5. Specific inspection and testing requirements.

## Topics need to be discussed

- ❑ The CM should review the project scheduling requirements to include
  1. The overall time allotted for project completion and
  2. Any intermediate milestones to be accomplished.
  
- ❑ The **contractor** should **identify** the plan or sequence in which the project is to be constructed.
  - ❖ Related constraints or issues should be discussed.
  
- ❑ The CM then
  1. **Establishes** when a formal schedule is to be **prepared** and
  2. **How often** it is to be **updated**,
  3. As well as specific submission requirements and format.

## Topics need to be discussed

- ☐ The parties should discuss **all potential material and equipment issues** such as
  1. Substitutions and “or equal” items,
  2. Long lead time purchases, and
  3. Any owner-furnished items.
- ☐ The CM also reviews progress payment procedures including
  1. Applicable forms,
  2. Lien waivers,
  3. Timing of application,
  4. Promptness of payment,
  5. Retention,
  6. Partial release of retention, and
  7. Final payment.

## Topics need to be discussed

- ☐ Since cleanup and rubbish removal is often a **source of irritation**, all ground rules and special requirements contained in the **contract documents** should be discussed during the pre-construction conference.
- ☐ **Commissioning requirements** need to be reflected in the schedule and the commissioning agent should **attend the pre-construction conference**.

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## Topics need to be discussed

- ❑ The CM should **review all relevant policies and procedures** including
  - ❖ How to handle the discovery of changed conditions,
  - ❖ Owner- or designer-initiated price changes and required documentation,
  - ❖ Time extensions,
  - ❖ Deductive changes,
  - ❖ VE change proposals, and
  - ❖ Payment for change order work, including additional costs for general condition term extensions.
- ❑ **Notification requirements** to discuss should include the specifics of where notices are to be sent.
- ❑ **Time limitations** need to be detailed and who can authorize extra work should be reviewed.



## Topics need to be discussed

- ❑ The **pre-construction conference** is also an opportunity to review issues related to project completion so that there are no surprises.
  - ❖ This includes **defining** substantial completion and procedures dealing with **completing the punchlist items**.
- ❑ Warranty requirements and how “call backs” will be handled should also be discussed.

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## Topics need to be discussed

❑ Finally, **contract closeout requirements** such as

- ❖ Record drawings,
  - ❖ O&M manuals,
  - ❖ Commissioning documentation,
  - ❖ Owner training requirements,
  - ❖ Lien releases, and
  - ❖ Final payment,
- should be reviewed.

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## Meeting Document Samples – Appendix D

- ❑ See Appendix D: Meeting Document Samples.
  - ❖ Checklist for Pre-Construction Meeting
  - ❖ Pre-Construction Meeting Agenda
  - ❖ Pre-Construction Meeting Minutes Example

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# **CONSTRUCTION MANAGEMENT PLAN**

## Preparation

❑ At this point, the

1. **CMP and PPM should be updated** to include the **contractor(s) and any other new members** to the project team,
2. As well as any **changes** in procedures or responsibilities arising out of the **pre-construction conference**, including any **changes** to the project sustainability goals and requirements.

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# **DOCUMENT EXISTING CONDITIONS**

## CM role

- ☐ Because of the potentially **litigious nature** of construction projects, the **CM** can minimize the potential damage of claims by implementing a **thorough review** of existing conditions of property impacted by the construction.
- ☐ The CM conducts
  1. A walk-through of the project site and
  2. Records the condition of existing structures and other areas of note.
- ☐ The **inspection** can be recorded by
  1. Photo or video
  2. With a date stampto preserve a **benchmark of existing conditions** prior to construction.

## Contractor role

- ☐ It is **recommended** that the **contractor participate** in the inspection to **minimize opportunities** for disagreement later concerning damage caused by the contractor.
- ☐ This process can also be used to document existing materials and quantities that may be **reused or recycled**.

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# **OWNER-FURNISHED ITEMS**

## Owner-furnished items during construction phase

- ☐ As discussed previously, to obtain **time or cost savings** or ensure product control, the owner may contract separately  
for **certain long lead** or **specialty items**.
- ☐ During the construction phase,  
the **CM assists the owner** in  
establishing the **procedures** for the transfer of owner-provided  
materials and equipment.

What does this require?

## Owner-furnished items during construction phase

❑ This requires

1. **Identification** of specific personnel (either contractor or owner) responsible for administration of the suppliers and
2. **Determining** responsibility for
  - ❖ Delivery coordination,
  - ❖ Shipping charges,
  - ❖ Insurance,
  - ❖ Receipt,
  - ❖ Unloading,
  - ❖ Storage, and
  - ❖ Installation.

# **PERMITS, INSURANCE, LABOR AFFIDAVITS, AND BONDS**

## CM role

- ❑ The **CM** should **monitor** the **contractor's progress** in **securing proof** of insurance, permits, bonds, and labor affidavits.
  - ❖ Administrative submittals need to be **closely tracked** to ensure that the **contractor meets** scheduled submittal dates.
  - ❖ The **CM** should **ensure** that the contractor does **not begin work** **until the required** permits, insurance, etc. are in place.
  - ❖ The **CM** should
    - ❖ **Receive** copies of all documents **secured** by the contractor and
    - ❖ **Review** each for compliance to the **specifications**.

## Insurance and bonds

- ☐ The owner and CM should be **named as additional insurers** and the **dollar limits** should be **commensurate** with the scope of work being performed.
- ☐ The **CM** should **verify** that **subcontractors** also have the specified insurance coverage.
- ☐ Additionally, the **CM** should **obtain** copies of all bonds **secured by the contractor** to include payment and performance bonds.



## Bond

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بخش پنجم: مدیریت قرارداد در فاز ساخت/اجرا (Construction)

- ☐ See Payment Bond in Appendix E
- ☐ See Performance Bond in Appendix E

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# **COMMUNICATION PROCEDURES**



## Procedures and directory

- ❑ The **CM** should **prepare** communication procedures to **ensure** the prompt and efficient exchange of information.
  
- ❑ Initially, the **CM** should **create** and **distribute** a project directory to include
  - ❖ All key project personnel and their addresses,
  - ❖ Telephone numbers,
  - ❖ Fax numbers,
  - ❖ Email addresses and
  - ❖ Cell numbers in case of an emergency.

## Matrices and coordination

- ☐ The **CM** should **prepare** matrices that indicate who has responsibility and authority for different aspects of the project, including the project's **sustainability requirements**, and the CM should create a **submittal flow chart**.
- ☐ The **CM** should also **coordinate**
  - ❖ RFI procedure,
  - ❖ Deficiency reporting procedure,
  - ❖ Payment application procedures, and
  - ❖ Request/authorization procedures for changed or additional work.
- ☐ As the **focal point** of all project communication, the CM should take the **initiative in following up** any matters not promptly solved.

# MEETINGS

## Meeting plan

- ☐ The **CM creates** a meeting plan for the project.
- ☐ The **CM prepares** and **distributes** meeting notices and agenda for **receipt** by all parties in advance of the meetings.
- ☐ The **CM** also prepares and distributes the minutes accordingly.
  - ❖ Minutes have an action list **detailing items**
    - ✓ Requiring follow-up,
    - ✓ Parties responsible, and
    - ✓ Date when action is expected.
- ☐ A **list of open issues** is also maintained, and **efforts** are made to work those items off the list.

## Period meeting

- ☐ The CM should arrange and conduct **periodic meetings** to **review**
  1. The **progress of the work** in the field,
  2. Along with any project **sustainability requirements**.
  
- ☐ These usually occur monthly,  
but **more frequent meetings** may be necessary during different phases of the project.

What does meeting include?

## Review and verification

### ☐ This includes **reviewing**

- ❖ CPM schedules,
- ❖ Outstanding or potential problems,
- ❖ Possible solutions,
- ❖ Current versus budgeted line items,
- ❖ Technical issues,
- ❖ Project sustainability requirements, and
- ❖ Safety concerns.
  1. Timely response to submittals,
  2. RFIs, and
  3. Redesign requests

**What does meeting minute include?**

should be verified.

## Meeting minutes inclusion

| Meeting Minutes should include:                                                                                                                            |                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>✓ Date, time, location</li><li>✓ Attendees</li><li>✓ Minutes author</li><li>✓ Items discussed, in sequence</li></ul> | <ul style="list-style-type: none"><li>✓ Agreements/disagreements</li><li>✓ Issues</li><li>✓ Actions</li><li>✓ Decisions</li><li>✓ Follow-up items</li></ul> |

**When to hold weekly meeting?**

## Weekly coordination meetings

- ☐ The **CM** and the **contractor's project manager** should jointly hold weekly coordination meetings with appropriate **subcontractors** to review the week's planned activities.
- ☐ The meetings are essential to minimize delays caused by poor coordination of the various contractor activities.

What to discuss?



## Weekly coordination meetings

### ❑ Discussion topics should include

- ❖ Delivery of material,
- ❖ Availability of on-site storage,
- ❖ Staging areas for work preparation,
- ❖ Access for cranes,
- ❖ **Means and methods** to include
  - ✓ Blocking off certain areas or safety of other workers above and/or below,
  - ✓ QA/QC requirements,
  - ✓ Proper sequencing of operations to prevent rework/claims,
  - ✓ Impact of ongoing operations or other construction projects, and
  - ✓ General safety concerns.

**Before we see a sample of meeting minutes...**

**Is it the responsibility of AE or CM to interfere in contractor's means and methods?**

## Responsibility for means and methods

### The Fifth Type: Unnecessary and Not Desired

Some design professionals require **informational submittals** that address the **contractor's construction means and methods**, or the contractor's programs for safety and protection, or other "means and methods" matters. Many design professionals who require such submittals correctly recognize such submittals pose significant liability when reviewed, so the **design professional never intends to review them**. The **rationale** for requiring such submittals is often articulated as, "We want to make the contractor think it through before they act," or, "We want them to submit it to prove they have a plan," or similar, befuddling rationales.

**What do standard forms of agreements say?**

## Responsibility for means and methods

|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AIA DOCUMENT A232™</b><br>General Conditions of the Contract for Construction                                  | <p>"4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, or control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of, or be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work."</p> |
| <b>AIA DOCUMENT A201™</b><br>General Conditions of the Contract for Construction                                  | <p>"4.2.2 ...The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents."</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>CONSENSUSDOCS® 240</b><br>Standard Agreement Between Owner and Design Professional                             | <p>ConsensusDocs general conditions do not include any provision for the design professional concerning means and methods or for safety; however, the document identified at the left did include the following:</p> <p>"3.2.8.3 ... Design Professional shall not be responsible for construction means, methods, techniques, sequences, and procedures, unless they are specified by Design Professional, or for ensuring that the Work is in accordance with the Construction Documents."</p> <p>"3.2.8.4 SAFETY Design Professional shall not be responsible for Contractor's safety precautions and programs. ...."</p>                                                                                                                                                                                                                                |
| <b>CMAA CMAR-3</b><br>General Conditions of the Construction Contract Between Construction Manager and Contractor | <p>"2.1.3 The Designer shall not be responsible for the Contractor's means, methods, techniques, sequences or procedures of construction or the safety precautions and programs incident thereto."</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>DBIA 540</b><br>Standard Form of Agreement Between Design-Builder and Design Consultant                        | <p>DBIA general conditions do not include any provision for the design professional concerning means and methods or for safety; however, the document identified at the left did include the following:</p> <p>"2.7.9 Design Consultant's provision of the Construction Phase Services shall not be construed to make Design Consultant responsible for ... (ii) the means, methods, sequences, and techniques of construction of the Project or (iii) safety precautions and programs in connection with the construction of the Project."</p>                                                                                                                                                                                                                                                                                                             |
| <b>EJCDC C-700</b><br>Standard General Conditions of the Construction Contract                                    | <p>"10.02 B. ... "Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, ..."</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



## Meeting Minutes Template – Appendix F

- ☐ See Appendix F: Project Tools - Meeting Minutes Template.

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# **DOCUMENTATION PROCEDURES**

## Importance of documentation

- ❑ Any project can become the subject of **lengthy claims** and **litigation**.
- ❑ Written documentation can be used to **reconstruct the actual events** that occurred, and

it adds **credibility** to any

1. Testimony,
2. Opinion, or
3. Evaluation

All forms of communication can be recorded, including email, text messages, video conferences, etc. and are considered formal correspondence and part of the project record, which is admissible in court.

that an **individual or firm** may be requested to provide.

## CM role in documentation

- ☐ The **CM** should **establish** project documentation requirements **prior to the start** of construction.
- ☐ The **CM** should establish a project **documentation system** capable of recording, storing, and retrieving information pertaining to all technical, financial, and administrative aspects of the project.

**Remember Delay Analysis Course?**

- ☐ While **all projects are different** and have different recordkeeping requirements, certain types of information are **common** for all types of construction projects.

## Common information needed in documentation

- ❑ The following is typical of the information that must be handled by a project documentation system:

### PRE-CONTRACT DOCUMENTS

- » Bid package drawings and specifications, including all addenda
- » Pre-bid meeting minutes
- » Any pre-bid schedules showing milestone dates or anticipated work by others
- » Schedules or similar submissions included in contractor bids or proposals
- » All cost estimates and takeoffs made
- » During the design phase
- » The contractor's bid package or proposal
- » Bidder prequalification information
- » LEED scorecards
- » Owner project requirements
- » BOD documents
- » Technical proposals or submissions
- » Bid analysis
  - Pre-award meeting minutes



## Common information needed in documentation

- ❑ The following is typical of the information that must be handled by a project documentation system:

### CONTRACT DOCUMENTS

- » Original contract or agreement
- » Bonds and insurance certificates
- » Record of any pre-contract negotiations
- » Plans and specifications issued for construction
- » NTP
- » Any notices of changed conditions, requests for change orders or change order proposals
- » Work orders or field directives
- » Contract modifications or change orders
- » Request for final inspection
- » Punchlists
- » Certificate of substantial
- » Completion closeout documentation

## Common information needed in documentation

- ❑ The following is typical of the information that must be handled by a project documentation system:

### TECHNICAL

- » Log and file of all design revisions
- » Log and file of all field revisions
- » Log and file of all submittals, shop drawings, catalog cuts, etc.
- » Log and file of all RFIs
- » Log and file of inspection/testing/ QC reports
- » Log of all sustainability requirements such as material VOCs, recycled material content, FSC wood compliance, and reused material
- » Log and file of record drawings
- » O&M manuals
  - Warranties and guarantees

## Common information needed in documentation

- ❑ The following is typical of the information that must be handled by a project documentation system:

### CONTEMPORANEOUS

- » Log and file of general correspondence
- » Letters, memos, e-mails, and speed memos
- » Directives
- » Meeting minutes

## Common information needed in documentation

- ❑ The following is typical of the information that must be handled by a project documentation system:

### CORRESPONDENCE

- » Daily reports
- » Daily diaries
- » Daily labor reports
- » Accident reports
- » Progress photos
- » Material delivery reports
- » Safety violations
- » Issue files

## Common information needed in documentation

- ❑ The following is typical of the information that must be handled by a project documentation system:

### SCHEDULING

- » Project/Program master schedule
- » Preliminary contractor schedule
- » Approved contractor baseline schedule
- » Periodic updates
- » Scheduling meeting minutes

## Common information needed in documentation

- ❑ The following is typical of the information that must be handled by a project documentation system:

### **COSTS**

- » Approved schedule of values
- » Applicable labor rates
- » Work order time sheets
- » Periodic labor distribution
- » Change Budget/Cost status reports
- » Cash flow reports
- » Payment requests and actual disbursements with explanation of discrepancies
- » Lien waivers
- » Sustainability requirements checklist, with responsibility and deadline columns
- » Project sustainability documentation
- » Contingency funds balance
- » Estimated cost to complete

# **INFORMATION MANAGEMENT**

## Importance of PMIS

- ❑ The **goal** for the **CM** is to provide timely flow of information to the project team as to  
overall status and forecast of the outcome **versus the plan**.
- ❑ Although a **high-end computerized PMIS** may **not make sense** on smaller projects with a CM staff of one or two,  
every project will benefit from **some form of computerized system** to  
**track** the construction progress and store data for future use.



## Importance of PMIS

- ☐ Besides the benefits of storage, search, and reporting, the system can greatly assist the **CM in proactively managing** the project.
- ☐ Many of these systems, for example, will **alert the CM** each day submittals or activities as “late” or “soon to be late.”
- ☐ The **ball-in-court feature** is designed to identify a bottleneck.
- ☐ Digital photos on daily inspector and daily reports **signal poor workmanship before** the concrete pour, not after.

**QUALITY**

## QC/QA methods

- ❑ There are **various methods** of performing QC/QA for a project.
- ❑ **Although different agencies/owners** have their preferred methods,  
**no plan is the best** and often the type of project and  
delivery system used will suggest **one method over another**.

**What are Two of the most widely  
used methods?**

## QC/QA methods

❑ Two of the most widely used methods are:

1. CM provides QA, Contractor provides QC:

❑ In this format, the **contractor** is **responsible** for establishing a separate QC organization,

**independent** from their superintendent's staff, to

1. **Perform all** inspection and testing,
2. **Submitting** results to the CM/owner.

## QC/QA methods

❑ **Two of the most widely used methods are:**

1. **CM provides QA, Contractor provides QC:**

❑ The **CM** is **responsible** for

- i. Reviewing and approving the **contractor's QC plan** and
- ii. Overseeing the **implementation** to verify that the **requirements are being met**.

❖ This method is the most common and is often used for design-build projects, private projects, and projects for federal agencies such as the General Services Administration (GSA), the Corps of Engineers, and the Naval Facilities Engineering Command (NAVFAC).

*Advantages include risk sharing and streamlining of the QC plan.*

## QC/QA methods

❑ Two of the most widely used methods are:

### 2. CM and Owner provide QC:

❑ Usually found in horizontal construction with distinct **pay quantities and unit prices**,

the **CM** is **responsible** for inspecting the work and sampling/testing the materials in the field.

❑ For **laboratory testing and analysis**,

the **CM retains** a materials testing lab or utilizes the owner's laboratory.

## QC/QA methods

❑ Two of the most widely used methods are:

### 2. CM and Owner provide QC:

- ❑ The **contractor**, who is still responsible for the quality of its work,  
**performs** its own testing for scheduling purposes (when to strip forms, etc.)  
and as a **check on performance**.
- ❖ Departments of Transportation and Departments of Public Works are  
typical users of this QC system.

*An advantage to the owner is **control**,  
but there is **redundancy** in testing which results in **additional costs** to the project.*

What are the key aspects of QC manual?

## Quality control manual

### Key aspects of the QC Manual include:

- ✓ Assignment of experienced, knowledgeable inspection personnel to the job.
- ✓ Performance of all field testing not included in the contractor's scope of work.
- ✓ Maintenance of all quality related documentation including test reports, certificates of compliance, etc.
- ✓ Documentation of nonconforming work, determination of corrective action necessary and follow-up on its performance.

For more, see *CMAA Quality Management Guidelines*.



# **FIELD REPORTS**

## Daily report

- ☐ The **CM** should **ensure** that an adequate daily reporting system is implemented for the project.
- ☐ The **daily report** is the **most important** element in the documentation of an ongoing construction project.
- ☐ **Daily reports** are prepared by **all personnel** with **supervisory control** of construction such as
  1. Project managers,
  2. Trade or area superintendents,
  3. Project engineers, and
  4. Inspectors.

## Daily report

Field reports are prepared at the end of each workday and contain the following information:

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>✓ Report number (consecutively numbered for each person reporting).</li><li>✓ Date and day of report.</li><li>✓ Project name and number.</li><li>✓ Weather conditions – note any direct effect on project progress.</li><li>✓ Name of any contractor whose work was specifically involved.</li><li>✓ Workforce.<ul style="list-style-type: none"><li>- Identify the number and classification of all craft labor at the site for each contractor.</li><li>- Identify the number and type of major construction equipment on the job.</li></ul></li></ul> | <ul style="list-style-type: none"><li>✓ Specifically note if equipment was idle or active.</li><li>✓ Work in progress – include as appropriate quantities or estimate percentages of work completed, specific locations of work performed. Any specific testing or QC procedure should be noted. Refer to specific testing report if applicable.</li><li>✓ Problems or difficulties encountered – note any directives, approvals or rejections given or received, including the personnel involved.</li><li>✓ Completed form should be signed and dated.</li></ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

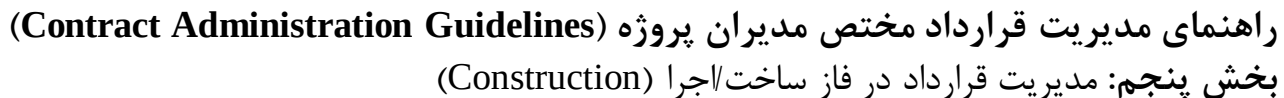


## Daily report

- ☐ Daily reports should be **promptly reviewed** by the supervisor.
- ☐ Any **items requiring attention** should be attended to **promptly** and so **noted** on the original inspection report.
- ☐ **Modifications** to original report are **noted** and **initialed** by the **supervisor** at time of review.
- ☐ Information contained in the daily reports should be summarized as appropriate to **form** the basis of any weekly or monthly reporting that is required.

## Photographic record

- ☐ The **CM** normally **provides** a photographic record of the progress and construction methods of the project, which is **separate** from the contractor's progress photographs.
- ☐ **Photographs** must be date stamped by the **camera** and include the location and description of the photograph.
- ☐ **Many CMs** use digital technology to attach **photographs to daily reports** to provide a **better understanding** of events.



❑ See Appendix F: Project Tools - Construction Daily Report Sample.

| Report: | Date | Number | Job: | Job Name | Job Number |
|---------|------|--------|------|----------|------------|
|---------|------|--------|------|----------|------------|

|                    |             |               |       |          |
|--------------------|-------------|---------------|-------|----------|
| Weather Report     | Clear/Sunny | Partly Cloudy |       | Overcast |
| Temperature        |             |               |       |          |
| Winds (MPH)        |             |               |       |          |
| Precipitation (AM) | Rain        | Snow          | Sleet | None     |
| Precipitation (PM) | Rain        | Snow          | Sleet | None     |

|                  |                  |                      |                       |
|------------------|------------------|----------------------|-----------------------|
| Crew             |                  |                      |                       |
| Title            | Superintendent   | Asst. Superintendent | Asst. Project Manager |
|                  | Field Secretary  | Carpenter Foreman    | Carpenters            |
|                  | Laborers         | Equipment Operators  | Masons                |
|                  | Cement Finishers | Iron Workers         | Other                 |
| No. of Crew      |                  |                      |                       |
| Total No. of Hrs |                  |                      |                       |
|                  |                  |                      |                       |

|                    |  |  |  |
|--------------------|--|--|--|
| Subcontractor Name |  |  |  |
| No. of Crew        |  |  |  |
| Total No. of Hrs   |  |  |  |

|                                                         |
|---------------------------------------------------------|
| Describe the Daily Activities and Phases of the Project |
|---------------------------------------------------------|

|                                                                                   |     |    |     |
|-----------------------------------------------------------------------------------|-----|----|-----|
| Was work delayed for any reason?                                                  | Yes | No | N/A |
| Was stoppage in writing?                                                          | Yes | No | N/A |
| Were verbal instructions received?                                                | Yes | No | N/A |
| Has any verbal or written direction been given to a subcontractor?                | Yes | No | N/A |
| Were any field work orders received or implemented?                               | Yes | No | N/A |
| Was any subcontractor scheduled to start or material to arrive but didn't appear? | Yes | No | N/A |
| Were you required to do any extra work?                                           | Yes | No | N/A |

|                                                                            |     |    |     |
|----------------------------------------------------------------------------|-----|----|-----|
| Was a jobsite inspection performed today?                                  | Yes | No | N/A |
| Were there any job site hazards observed or incidents that occurred today? | Yes | No | N/A |
| Are all Subcontractors compliant to THG Safety Management Program?         | Yes | No | N/A |

|                                        |     |    |     |
|----------------------------------------|-----|----|-----|
| Were any QA/QC inspections done today? | Yes | No | N/A |
|----------------------------------------|-----|----|-----|

|                                |     |    |     |
|--------------------------------|-----|----|-----|
| Were there any visitors today? | Yes | No | N/A |
|--------------------------------|-----|----|-----|

|                            |           |
|----------------------------|-----------|
| Foreman or Site Supervisor | Name      |
|                            | Signature |

## Field observation reports

Other than a construction manager, the owner may elect to have full-time, periodic, or on-site staff. Some owners have professional staff to manage and engage outside consultants to perform site inspection - related activities.

The architect/engineer prepares the field observation reports at the conclusion of site visits. The reports are for the benefit of the architect/engineer and may be used as a means of communication with the owner and the contractor. The purpose of field observation reports is to record and report the construction status and progress, as well as nonconformance of work and any concerns.

The architect/engineer typically conduct site visits, observations, and communications. A field observation report should be written within a day or two of the site visit, but preferably on the same day as the visit. The report must be objective, factual, and complete. It should contain general observations about work in progress and include specific notes on how work is or is not in compliance with the contract documents. The architect/engineer should develop a method for informing the contractor of work rejected for nonconformance with the requirements of the contract documents — for example, oral notification of immediate concern followed by a written communication. The notice should include a time limit for correcting rejected work.

## Field observation reports

### DAILY FIELD OBSERVATION REPORT



PROJECT: \_\_\_\_\_ REPORT NUMBER: \_\_\_\_\_

OWNER: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

RE: \_\_\_\_\_ A/E PROJECT NUMBER: \_\_\_\_\_

| WEATHER                                                                                                                                                                                                                                                                                   | SITE CONDITIONS                                                                                                                                                                    | DAY                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Clear <input type="checkbox"/> Snow <input type="checkbox"/> Warm<br><input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Hot<br><input type="checkbox"/> Rain <input type="checkbox"/> Cold <input type="checkbox"/> _____ | <input type="checkbox"/> Clear <input type="checkbox"/> Dusty<br><input type="checkbox"/> Muddy <input type="checkbox"/> _____<br><input type="checkbox"/> Temperature Range _____ | <input type="checkbox"/> Monday <input type="checkbox"/> Thursday<br><input type="checkbox"/> Tuesday <input type="checkbox"/> Friday<br><input type="checkbox"/> Wednesday <input type="checkbox"/> _____ |

PERSONS CONTACTED:

WORK OBSERVED:

ITEMS DISCUSSED:

MATERIALS DELIVERED:

REQUESTED REVISIONS OR INTERPRETATIONS:

NONCONFORMING WORK REPORTED THIS DATE TO CONTRACTOR:

REMARKS:

☐ Attachments

SIGNED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

COPIES: ☐ Owner    ☐ A/E    ☐ Contractor    ☐ Consultants    ☐ \_\_\_\_\_    ☐ \_\_\_\_\_    ☐ File

### PERIODIC FIELD OBSERVATION REPORT



PROJECT: \_\_\_\_\_ REPORT NUMBER: \_\_\_\_\_

OWNER: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

RE: \_\_\_\_\_ A/E PROJECT NUMBER: \_\_\_\_\_

| WEATHER                                                                                                                                                                                                                                                                                   | SITE CONDITIONS                                                                                                                                                                    | DAY                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Clear <input type="checkbox"/> Snow <input type="checkbox"/> Warm<br><input type="checkbox"/> Overcast <input type="checkbox"/> Foggy <input type="checkbox"/> Hot<br><input type="checkbox"/> Rain <input type="checkbox"/> Cold <input type="checkbox"/> _____ | <input type="checkbox"/> Clear <input type="checkbox"/> Dusty<br><input type="checkbox"/> Muddy <input type="checkbox"/> _____<br><input type="checkbox"/> Temperature Range _____ | <input type="checkbox"/> Monday <input type="checkbox"/> Thursday<br><input type="checkbox"/> Tuesday <input type="checkbox"/> Friday<br><input type="checkbox"/> Wednesday <input type="checkbox"/> _____ |

PERSONS CONTACTED:

WORK OBSERVED:

ITEMS DISCUSSED:

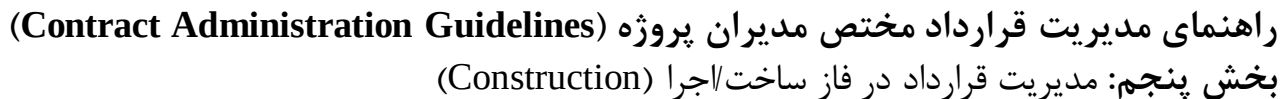
REMARKS:

☐ Attachments

SIGNED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

COPIES: ☐ Owner    ☐ A/E    ☐ Contractor    ☐ Consultants    ☐ \_\_\_\_\_    ☐ \_\_\_\_\_    ☐ File





## Field observation reports

## Field observation reports

The architect/engineer's project representative may be required to complete and distribute weekly and monthly reports. The weekly/monthly reports summarize the daily log and specifically address important issues that remain unresolved. The report also addresses important activities that occurred during the report period. These reports give an overview of construction activity and progress in relation to the construction progress schedule.

### WEEKLY/MONTHLY PROGRESS REPORT



PROJECT: \_\_\_\_\_ REPORT NUMBER: \_\_\_\_\_  
OWNER: \_\_\_\_\_ REPORT DATE: \_\_\_\_\_  
CONTRACTOR: \_\_\_\_\_ A/E PROJECT NUMBER: \_\_\_\_\_

Contract Completion Date/Time: \_\_\_\_\_ Approved Time Extensions (Days): \_\_\_\_\_  
Date Construction Started: \_\_\_\_\_ Contract Completion Date/Days: \_\_\_\_\_  
Revised Completion Date: \_\_\_\_\_ Percent of Project Completion: \_\_\_\_\_  
Percent of Time Used: \_\_\_\_\_ Days Elapsed: \_\_\_\_\_  
Is Project on Schedule: \_\_\_\_\_ If not, why? \_\_\_\_\_

#### SUMMARY OF CONSTRUCTION ACTIVITIES SINCE LAST REPORT:

☐ Attachments

SIGNED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

COPIES: ☐ Owner ☐ A/E ☐ Contractor ☐ Consultants ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ File

**SAFETY**

## Who is responsible?

- ❑ **Safety** is the ultimate responsibility of the **contractor** and its **subcontractors**.
  - ❖ However, in the **contemporary legal environment**,  
the **CM and owner** must be involved.
- ❑ Owners often ask CMs to take a **larger role** in safety management,  
but insurers prefer CMs to take a **smaller role**.
- ❑ The **CM** should **monitor** the **implementation** of the contractor's safety program to
  1. Minimize accidents and
  2. Minimize owner's exposure, if necessary.

## Safety procedure

- ❑ Depending on its contractual status (**agency or at-Risk**),  
the **CM reviews** the contractor's safety plan,  
but **may or may not be responsible** for  
implementation or compliance.
- ❑ It is essential to **develop a system** that periodically
  1. Evaluates the **contractor's compliance** with its safety plan and
  2. Prepares a **formal report** of the results.

These procedures should be outlined in the **CM's CMP**.



## CM role

☐ The **CM** should

1. Report the **identification** of safety violations and
2. Monitor the **correction** of those violations.

☐ The report should **include**

1. Name of the contractor;
2. Time, date, and location of the hazard;
3. Reason why the observer believes a hazard exists; and
4. The occupational safety and health administration (OSHA) or other regulation reference.

Is there any senior safety review?



## Senior safety review

☐ A **senior safety review team** is established to include

1. Safety director of the affected agency (railroad, DOT, etc.),
2. CM,
3. Contractor's safety supervisor, and
4. Insurance carrier's safety representative.

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## Components of the program

### Components of the program should include:

- ✓ **Safety Meetings:** The CM should attend weekly safety meetings chaired by the contractor(s). The CM may assist with training construction workers for hazards.
- ✓ **Agency Certification:** Most agencies (AMTRAK, SEPTA, FAA, etc.) require certifications for workers to work in high-risk areas. Risk areas include high-speed rail or vehicle traffic, confined spaces, high steel, asbestos/lead paint, and environments with fumes. The CM's staff should have the appropriate certifications for the workplace environment and the CM should monitor the contractor's certification program for its workers and subcontractors.
- ✓ **Personal Protective Equipment:** Depending on jobsite conditions, the contractor's safety program should list the required safety equipment for each labor classification. Such equipment includes hard hats, safety vests, safety shoes, clothing, hearing protection, eye protection, and fall protection.
- ✓ **Safety Awards Program:** Contractors may institute an incentive plan for workers with awards for safety compliance.
- ✓ **Safety Inspections:** Jobsite inspections by CM staff or a safety consultant.

Dr



# **CHANGE MANAGEMENT**

## Importance of change management

- ❑ The **CM's** primary construction contract administration activity involves contract changes and modifications.
- ❑ After the contract is signed, any **contract changes** must be performed in accordance with the procedures set out by the owner and/or CM.
- ❑ The **management** of the cost and schedule implications of the changes should have been formally established at the **beginning of the project**.

**What should project participants know to have best control over disputes raised due to change?**

## Importance of change management

Project participants need to have a clear understanding of contract provisions related to the following:

- Contract document relationships
- Requests for information (RFI)
- Interpretation of contract documents
- Concealed and unknown conditions
- Contract document modifications and changes to the project
- Substitutions
- Evaluation of substitution requests
- Project time provisions
- Project review, analysis, and evaluation

Project participants should recognize that interpretations and modifications are often necessary and understand the methods used to modify contract documents.

**The first thing is interpretation!**

## Who has the responsibility for interpreting the contract documents

|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AIA DOCUMENT A201™</b><br>General Conditions of the Contract for Construction                                  | "4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents ..."                                                                                                                                                                                                                                                                            |
| <b>CONSENSUSDOCS® 200</b><br>Standard Agreement and General Conditions Between Owner and Constructor              | "14.2.2. ...Subject to an equitable adjustment in Contract Time or Contract Price pursuant to Article 8, or a dispute mitigation and resolution, Owner's clarifications are final and binding."                                                                                                                                                                                                                   |
| <b>CMAA CMAR-3</b><br>General Conditions of the Construction Contract Between Construction Manager and Contractor | "2.1.6 Should errors, omissions, or conflicts in the drawings, specifications or other Contract Documents prepared by the Designer be discovered, the Designer shall prepare such clarifications, amendments or supplementary documents and provide consultation as may be required."                                                                                                                             |
| <b>DBIA 540</b><br>Standard Form of Agreement Between Design- Builder and Design Consultant                       | DBIA general conditions does not include any provision for the design professional to visit the site, however, the document identified at the left did include the following: "2.7.2 Design Consultant shall timely provide requested clarifications and interpretations of the Construction Documents, which shall be consistent with the intent of, and reasonably inferable from, the Contract Documents. ..." |
| <b>EJCDC C-700</b><br>Standard General Conditions of the Construction Contract                                    | "3.04 A ...Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder."                                                                                                                                                                                                                                                         |

**Where to start?**

## Request for information (RFI)

☐ Most standardized general conditions make the contractor responsible for

1. Studying
2. Comparing

the **contract documents**

before proceeding with **fabrication** and **installation** of the work.

☐ The **contractor** should promptly advise the architect/engineer of any

1. Error,
2. Inconsistency,
3. Omission, or
4. Apparent discrepancy

discovered.

**Let's see some examples!**

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1. Error,
2. Inconsistency,
3. Omission, or
4. Apparent discrepancy

discovered.

**Let's see some examples!**

## Request for information (RFI)

- ❑ This is at the time of bidding.

Owner shall welcome such a clarification request, and if deemed necessary by the Owner, the Owner shall issue a written addendum clarifying the matter in question. Should the Bidder fail to seek such a clarification prior to bid, Bidder thereby assumes the risk of loss related to such ambiguity, discrepancy, error, omission, or conflicting statement which the Bidder and any person bidding to Bidder and subsequently in contract with Bidder, relating to the subject project, knew or should have known existed at the time of bid.

Prepared by  
DO NOT DISTRIBUTE



## Request for information (RFI)

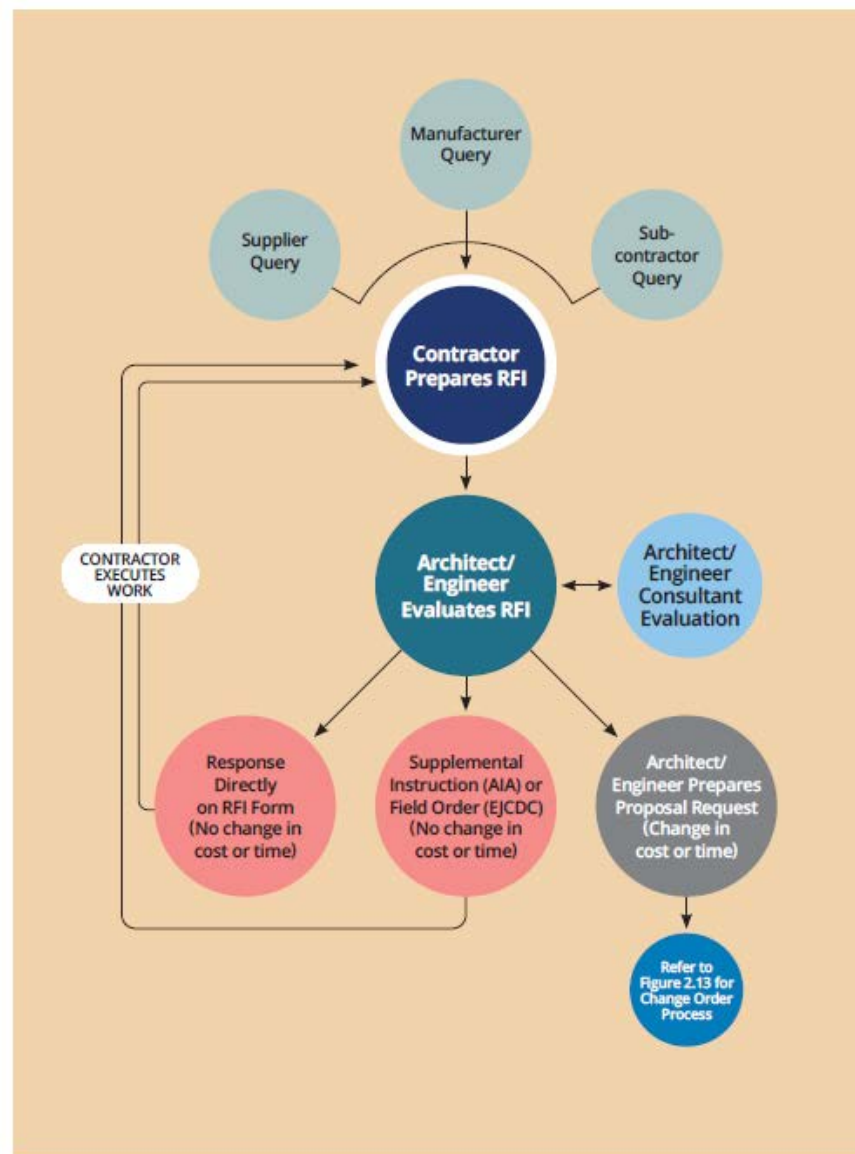
|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AIA DOCUMENT A201™</b><br>General Conditions of the Contract for Construction                                  | <p>"3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work...the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered ... as a request for information..."</p>                                                                                                                                                                                                           |
| <b>CONSENSUSDOCS® 200</b><br>Standard Agreement and General Conditions Between Owner and Constructor              | <p>"3.3.1 Before commencing the Work, Constructor shall examine and compare the drawings and specifications ..."</p> <p>"3.3.2 Should Constructor discover any errors, omissions, or inconsistencies in the Contract Documents, Constructor shall promptly report them to Owner. ..."</p>                                                                                                                                                                                                                                                                                                  |
| <b>CMAA CMAR-3</b><br>General Conditions of the Construction Contract Between Construction Manager and Contractor | <p>"1.1.10 By executing the Contract, the Contractor represents that it has (a) examined the Contract Documents thoroughly, ... (d) studied and carefully correlated the Contractor's observations with the Contract Documents."</p>                                                                                                                                                                                                                                                                                                                                                       |
| <b>DBIA 535</b><br>Standard Form of General Conditions of Contract Between Owner and Design-Build                 | <p>DBIA documents do not address design-builder studying the construction documents since they were prepared by design-builder.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>EJCDC C-700</b><br>Standard General Conditions of the Construction Contract                                    | <p>"3.03 A.1 Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, ..."</p> |

**What is a solution?**

## Request for information (RFI)

### ❑ RFI routing process

Why RFI is important?



## Request for information (RFI)

### ❑ RFIs allow

1. The **contractor** or the **owner** to inquire about an **item of work** that is either
  1. **Detailed** in the contract documents, or
  2. **Missing** or insufficiently described and  
to seek an interpretation.
2. The **architect/engineer** to respond with an interpretation or minor change that does **not require a change** to the **contract sum or time** (clarification notice).
  - ❖ This may be used for **interpretations** that do not modify the **contract documents**.

## Request for information (RFI)

☐ RFI form

What if modifications needed?

REQUEST FOR INFORMATION



|                |                           |
|----------------|---------------------------|
| PROJECT: _____ | R.F.I. NUMBER: _____      |
| TO: _____      | FROM: _____               |
| RE: _____      | DATE: _____               |
|                | A/E PROJECT NUMBER: _____ |
|                | CONTRACT FOR: _____       |

|                                                                                                                                                                                                                                       |            |                    |             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|-------------|
| SPECIFICATION SECTION:                                                                                                                                                                                                                | PARAGRAPH: | DRAWING REFERENCE: | DETAIL:     |
| REQUEST:                                                                                                                                                                                                                              |            |                    |             |
| SIGNED BY:                                                                                                                                                                                                                            |            |                    | DATE:       |
| RESPONSE:                                                                                                                                                                                                                             |            |                    |             |
| <input type="checkbox"/> Attachments                                                                                                                                                                                                  |            |                    |             |
| RESPONSE FROM:                                                                                                                                                                                                                        | TO:        | DATE REC'D:        | DATE REC'D: |
| SIGNED BY:                                                                                                                                                                                                                            |            |                    | DATE:       |
| COPIES: <input type="checkbox"/> Owner <input type="checkbox"/> Consultants <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> File |            |                    |             |

Page \_\_\_\_\_ of \_\_\_\_\_

CSI Form 13.2A (February 2021 version)

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## Modifications

❑ There are **two types of modifications**:

1. Those that require a change to the contract sum or time, and
2. Those that do not.

❖ **Changes** to the contract sum or time require a change order.

❖ **Changes** that do not affect cost or time are **minor changes** in the work and may take the form of  
substitutions, supplemental instructions, or field orders.

**You have learned the comprehensive  
process of change management in  
Claim Management Course!**

**But...**

**Let's look at some points**

## Modifications – Minor change

**FIELD ORDER**



|                |                           |
|----------------|---------------------------|
| PROJECT: _____ | FIELD ORDER NUMBER: _____ |
| TO: _____      | FROM: _____               |
| RE: _____      | DATE: _____               |
|                | A/E PROJECT NUMBER: _____ |
|                | CONTRACT FOR: _____       |

You are hereby directed to execute promptly this Field Order which interprets the Contract Documents or orders minor changes in the Work without change in Contract Sum or Contract Time.  
If you consider that a change in Contract Sum or Contract Time is required, submit a Change Order Request to the A/E immediately and prior to proceeding with this Work.

| SPECIFICATION SECTION:                   | PARAGRAPH: | DRAWING REFERENCE: | DETAIL: |
|------------------------------------------|------------|--------------------|---------|
| DESCRIPTION OF INTERPRETATION OR CHANGE: |            |                    |         |

☐ Attachments

SIGNED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

COPIES: ☐ Owner ☐ Consultants ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ File

**CLARIFICATION NOTICE**



|                |                                    |
|----------------|------------------------------------|
| PROJECT: _____ | CLARIFICATION NOTICE NUMBER: _____ |
| TO: _____      | FROM: _____                        |
| RE: _____      | DATE: _____                        |
|                | A/E PROJECT NUMBER: _____          |
|                | CONTRACT FOR: _____                |

This Clarification Notice is issued for the purpose of clarifying the Contract Documents based on an interpretation reasonably inferable from the Contract Documents, and therefore has no effect on the Contract Sum or Contract Time. Proceeding with Work in accordance with this Clarification Notice indicates acceptance with no change in the Contract Sum or Contract Time.

| SPECIFICATION SECTION: | PARAGRAPH: | DRAWING REFERENCE: | DETAIL: |
|------------------------|------------|--------------------|---------|
| DESCRIPTION:           |            |                    |         |

☐ Attachments

SIGNED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

COPIES: ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ \_\_\_\_\_ ☐ File

**Communication record** may also be used if parties reach a mutual interpretation during the project.

## Bilateral and unilateral change order

A **bilateral change order** is a modification or supplemental agreement to the contract and must be signed by the contractor. A **unilateral change order** is for administrative changes and does not require the contractor's signature or approval.

What should be analyzed once change is requested?

## Change request items checked by CM

The CM should analyze each change request as follows:

- ✓ Necessity
- ✓ Scope
- ✓ Reasonableness
- ✓ Thoroughness
- ✓ Cost
- ✓ Impact on the project schedule
- ✓ Responsibility

**What if the designer exists?**



## CM role in presence of designer

- ❑ During construction, requests for **changes may come from** the owner, the contractor, the designer, third parties, or the CM.
- ❑ The CM
  1. **Obtains** and/or **prepares** the necessary information for justification and then
  2. **Submits** an **assessment** to the owner or designer with **recommended actions**.
  3. **Responds** to changes in the work in a **timely manner**.

**How to minimize problems during changes?**

## Minimizing problems during changes

- ❑ Problems handling changes can be **minimized** if **certain procedures**
  - 1. **Made** part of the contract documents or
  - 2. **Agreed** to by **all parties** at an early date.
- ❖ This includes requiring prompt written notification from the **contractor** to
  - 1. **CM** concerning
    - ✓ Any changed conditions,
    - ✓ Any omissions, or
    - ✓ Any discrepancies that may result in extra work and
  - 2. **Owner** or **designer** for
    - ✓ Any desired design modifications.

## Minimizing problems during changes

- ☐ Members of the CM's staff who can **authorize changes** to
  1. Scope of work,
  2. Schedule, and
  3. Method of performing the workshould be **clearly identified** in the CMP.
- ☐ Written direction should be **required before** any extra work begins.

Should be a time limit?

## Minimizing problems during changes

- ☐ A time limit should be set for the **owner and/or designer** to **respond** to a **change proposal** by the contractor.
- ☐ **Compensation** for **changed work** should be identified as well as detail and backup required for the **submission** of **any cost proposals** for changed work.
- ☐ Similarly, the **CM** should establish **required procedures** for the contractor to **demonstrate** the need for a time extension (or reduction) because of changed work.

**Requirements for change order report!**

## Change order report

- ☐ To ensure owner is **apprised** of the status of all changes to the project, the **CM** should issue a monthly change order report that identifies both
  1. Approved changes
  2. Potential changes

What includes in the report?

## Change order report

❑ The **monthly report** includes

1. **Date** of discovery
2. **Notification** of the issue
3. With a **brief description**, including
  - ❖ **References** to applicable contract documents and
  - ❖ Any **time or cost adjustments requested** or proposed by the contractor.
4. **CM's evaluation** of the issue with estimates of **time and cost due**.
5. All potential changes should be assigned a **reference number**,  
which is best **tracked back** to the originating RFI or communication.

**You saw all forms in  
Claim Management Course!**

**But  
Should the report be updated?**

## Change order report

☐ As change issues are resolved,

the change order report is updated for

1. Date of resolution
2. Approved costs
3. Schedule impact and change order number

as appropriate.

**Should CM maintain the information in log?**

## Change order report

❑ What **CM in-house log forms** should be used:

- ❖ Change order log
- ❖ Change order request log
- ❖ Clarification notice log
- ❖ Communication log
- ❖ Minor change/Field order log
- ❖ Payment request log
- ❖ Project photo log
- ❖ Project video log
- ❖ Request for interpretation log
- ❖ Request for proposal log
- ❖ Substitution request log
- ❖ Supplemental drawing log



# **COST CONTROL**

## Systems for cost control

- ☐ The CM should establish and maintain a **computerized system** of cost control.
- ☐ The system consists of a cost database and a cost analysis method to track
  1. Change requests and claims estimates
  2. Actual contractor bid prices
  3. Contractor progress payments
  4. Overall budget including
    - ❖ Costs to complete changes,
    - ❖ Force account work, and
    - ❖ Cash flow projections.
- ☐ The system should be **compatible** with the owner's systems.

## Daily cost records

- ☐ The **CM** should **monitor** and **maintain** daily cost records of **expended** labor, material, and equipment to establish costs through a **system** that segregates and documents **force account work** and **resources from contract work**.
- ☐ It is **recommended** that the **contractor** be required to incorporate all additional work into **as-built drawings** and **other job records**.

## Cost control in change management

- ❑ In **evaluating changes**, the **CM** should prepare  
an **independent cost estimate** for contract change requests to  
**verify reasonableness** of contractor requests.
- ❑ **Each estimate** should be broken into
  1. Construction items,
  2. With unit prices and
  3. With total costfor each one.
- ❑ The items shall be divided into elements of **labor, material, and equipment**.
- ❑ Based on the **CM's evaluation** (with concurrence from the designer/engineer),  
a **payment recommendation** is made to the owner

# **SCHEDULE MONITORING**

## CM duties in monitoring schedule

- ❑ The CM performs scheduling duties to **effectively monitor the progress** of the project and **coordinate the project team**.
- ❑ These **duties** include
  - ❖ Reviewing the contractor's schedule,
  - ❖ Schedule of consultants,
  - ❖ Time sensitive services of the designer, and
  - ❖ Analyzing time extension requests,
  - ❖ Tracking of force account work, and
  - ❖ Reporting monthly progress.

## Initial review

- ☐ The CM reviews the **contractor's baseline schedule** to check its **conformance** with
  1. Specifications
  2. Master schedule
- ☐ The **approved baseline schedule** should be **incorporated** into the master schedule.

You have learned how to review **baseline schedule** in

<https://dralavipour.com/video-course/baseline-schedule>

## Monthly updates

- ☐ Once the contractor's baseline schedule has been **approved**, it should be updated **at least monthly**.
- ☐ To help eliminate misunderstandings and incorrect information, a process must be established where the CM and contractor **jointly review** the updated information **before adjusting** the schedule.

You have learned how to prepare and review **schedule updates** in

**<https://dralavipour.com/video-course/update-schedule>**



## Monthly updates

- ❑ In performing its review, the **CM** should
  1. **Check** the specifications to determine if the schedule update **complies** with revision requirements and
  2. **Verify** that the written narrative describes the **progress accurately**.
  3. **Verify** that the **progress** of activities and **any other as-built information** is accurate.
  4. **Point out** any loss of float and **alerts** the project team of all actual or potential delays and disruptions to the schedule.
  5. **Make recommendations** to the owner on how to regain any lost time in the

You have learned how to prepare and review **recovery schedule** in

<https://dralavipour.com/video-course/recovery-schedule>

# **PROGRESS PAYMENTS**

## Progress payment

- ☐ **Unless** one exists under the owner's current operations, the **CM** should **establish** a system to **control contractor payments** consistent with the owner's objectives and requirements.
- ☐ **Progress payments** are based upon the actual amount of work performed through the period of the payment request.
- ☐ The **method of payment** is typically established through the contract specifications.
- ☐ The following methods are widely used:
  - » Unit prices
  - » Schedule of values
  - » Cost-loaded CPM schedule
  - » Cost reimbursable (cost plus)

**You learned most of them in previous courses  
But....**

## Progress payment

- ❑ **Each method** has its advantages, disadvantages, and peculiarities, and there are general procedures common to all arrangements.
- ❑ The **contractor** must submit the proposed payment breakdown to the **CM** for **approval prior** to receiving the **NTP**.
  - ❖ In the case of a unit price contract, that was done as **part of the bid package**.

## Progress payment

- ☐ The project should be divided into **reasonable work packages** to allow easy identification and verification.
  - ❖ **Estimated quantities** of the completed work should be included, where appropriate.
- ☐ The **CM** then **reviews** the contractor's proposed payment breakdown.
- ☐ The **proposed value** of each item should be verified as being reasonable.
- ☐ **Unbalanced payment schedules** can create serious problems.
- ☐ **Any questions** should be **resolved** with the contractor prior to the first payment.
- ☐ The **payment schedule** should be reviewed and approved by the **owner** **prior to** the first payment.

## Progress payment

- ☐ At the **end of each pay period**, the **actual amount** of work performed must be determined.
- ☐ A summary of daily records that contains **accurate registers** of work accomplished is the **best method** to evaluate progress.
- ☐ On **unit price contracts**, this is especially important,  
as the **quantity of work performed**  
will determine the actual final value of the contract.
- ☐ The **CM** also **reviews** the completion status of any additional work (change orders)  
that was **formally incorporated** into the contract **during the period**.

## Progress payment – EJCDC C-620-2018

### Progress Estimate - Lump Sum Work

### Contractor's Application for Payment

|             |       |                           |       |
|-------------|-------|---------------------------|-------|
| Owner:      | _____ | Owner's Project No.:      | _____ |
| Engineer:   | _____ | Engineer's Project No.:   | _____ |
| Contractor: | _____ | Contractor's Project No.: | _____ |
| Project:    | _____ |                           |       |
| Contract:   | _____ |                           |       |

|                         |                            |             |           |                           |
|-------------------------|----------------------------|-------------|-----------|---------------------------|
| <b>Application No.:</b> | <b>Application Period:</b> | <b>From</b> | <b>to</b> | <b>Application Date :</b> |
|-------------------------|----------------------------|-------------|-----------|---------------------------|

| A                        | B           | C                    | D                                      | E                | F                                               | G                                                            | H                                | I                              |
|--------------------------|-------------|----------------------|----------------------------------------|------------------|-------------------------------------------------|--------------------------------------------------------------|----------------------------------|--------------------------------|
| Item No.                 | Description | Scheduled Value (\$) | Work Completed                         |                  | Materials Currently Stored (not in D or E) (\$) | Work Completed and Materials Stored to Date (D + E + F) (\$) | % of Scheduled Value (G / C) (%) | Balance to Finish (C - G) (\$) |
|                          |             |                      | (D + E) From Previous Application (\$) | This Period (\$) |                                                 |                                                              |                                  |                                |
| Original Contract        |             |                      |                                        |                  |                                                 |                                                              |                                  |                                |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
|                          |             |                      |                                        |                  |                                                 | -                                                            |                                  | -                              |
| Original Contract Totals |             | \$ -                 | \$ -                                   | \$ -             | \$ -                                            | \$ -                                                         |                                  | \$ -                           |



## Progress payment – EJCDC C-620-2018

### Progress Estimate - Lump Sum Work

### Contractor's Application for Payment

| Owner: _____                        |             |                                         |                                        |                         | Owner's Project No.: _____                      |                                                              |                                  |                                |      |
|-------------------------------------|-------------|-----------------------------------------|----------------------------------------|-------------------------|-------------------------------------------------|--------------------------------------------------------------|----------------------------------|--------------------------------|------|
| Engineer: _____                     |             |                                         |                                        |                         | Engineer's Project No.: _____                   |                                                              |                                  |                                |      |
| Contractor: _____                   |             |                                         |                                        |                         | Contractor's Project No.: _____                 |                                                              |                                  |                                |      |
| Project: _____                      |             |                                         |                                        |                         |                                                 |                                                              |                                  |                                |      |
| Contract: _____                     |             |                                         |                                        |                         |                                                 |                                                              |                                  |                                |      |
| Application No.: _____              |             | Application Period: From _____ to _____ |                                        | Application Date: _____ |                                                 |                                                              |                                  |                                |      |
| A                                   | B           | C                                       | D                                      |                         | E                                               | F                                                            | G                                | H                              | I    |
| Item No.                            | Description | Scheduled Value (\$)                    | Work Completed                         |                         | Materials Currently Stored (not in D or E) (\$) | Work Completed and Materials Stored to Date (D + E + F) (\$) | % of Scheduled Value (G / C) (%) | Balance to Finish (C - G) (\$) |      |
|                                     |             |                                         | (D + E) From Previous Application (\$) | This Period (\$)        |                                                 |                                                              |                                  |                                |      |
| Change Orders                       |             |                                         |                                        |                         |                                                 |                                                              |                                  |                                |      |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
|                                     |             |                                         |                                        |                         |                                                 |                                                              | -                                |                                | -    |
| Change Order Totals                 |             | \$ -                                    | \$ -                                   | \$ -                    | \$ -                                            | \$ -                                                         | \$ -                             |                                | \$ - |
| Original Contract and Change Orders |             |                                         |                                        |                         |                                                 |                                                              |                                  |                                |      |
| Project Totals                      |             | \$ -                                    | \$ -                                   | \$ -                    | \$ -                                            | \$ -                                                         | \$ -                             |                                | \$ - |



## Progress payment – EJCDC C-620-2018

### Progress Estimate - Unit Price Work

### Contractor's Application for Payment

|             |       |                           |       |
|-------------|-------|---------------------------|-------|
| Owner:      | _____ | Owner's Project No.:      | _____ |
| Engineer:   | _____ | Engineer's Project No.:   | _____ |
| Contractor: | _____ | Contractor's Project No.: | _____ |
| Project:    | _____ |                           |       |
| Contract:   | _____ |                           |       |

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| A                 | B           | C                    | D     | E               | F                              | G                                           | H                                            | I                                          | J                                                      | K                              | L                              |
|-------------------|-------------|----------------------|-------|-----------------|--------------------------------|---------------------------------------------|----------------------------------------------|--------------------------------------------|--------------------------------------------------------|--------------------------------|--------------------------------|
| Bid Item No.      | Description | Contract Information |       |                 |                                | Work Completed                              |                                              | Materials Currently Stored (not in G) (\$) | Work Completed and Materials Stored to Date (H+I) (\$) | % of Value of Item (J / F) (%) | Balance to Finish (F - J) (\$) |
|                   |             | Item Quantity        | Units | Unit Price (\$) | Value of Bid Item (C X E) (\$) | Estimated Quantity Incorporated in the Work | Value of Work Completed to Date (E X G) (\$) |                                            |                                                        |                                |                                |
| Original Contract |             |                      |       |                 |                                |                                             |                                              |                                            |                                                        |                                |                                |
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## Progress payment – EJCDC C-620-2018

### Progress Estimate - Unit Price Work

Owner: \_\_\_\_\_  
 Engineer: \_\_\_\_\_  
 Contractor: \_\_\_\_\_  
 Project: \_\_\_\_\_  
 Contract: \_\_\_\_\_

### Contractor's Application for Payment

Owner's Project No.: \_\_\_\_\_  
 Engineer's Project No.: \_\_\_\_\_  
 Contractor's Project No.: \_\_\_\_\_

|                  |                     |      |    |  |  |  |  |  |  |                   |
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| Application No.: | Application Period: | From | to |  |  |  |  |  |  | Application Date: |
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[illegible]

## Payment of material

- ☐ **Payment requests** should be **reviewed** for materials stored on-site or off-site.
- ☐ The **CM** should **verify** the material quantities through **delivery** tickets and/or personal inspection of the material.
- ☐ The **CM** must **determine** that the **contractor** has satisfied **all contract requirements** dealing with payment for such material.

## Payment of material

[illegible]

## Retainage on large projects

- ❑ On large projects, the **CM** may consider releasing portions of retainage as work is documented **substantially complete**,  
as dictated under the terms and conditions of the contract.

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## Retainage for sustainability

- ❑ If the project is **registered** with an authority to certify its level of sustainability, the **CM** should consider **recommending a separate retainage** be held **until the required documentation** is submitted and approved by the **overseeing authority** (i.e. USGBC, GBI, Envision, etc.).

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## Liquidated damages

- ❑ After the **value of work completed** for the period has been determined, any retainage, liquidated damages for **intermediate milestones missed**, penalties, or applicable back charges are **deducted** from the value of work completed.

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## Monthly updates

- ❑ The **CM forwards** the completed payment request to the **owner**,  
**indicating** the contractor's net reimbursement for the period and  
the **CM's recommendation** for payment.

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# **STATUS REPORTS**



## Reporting system

- ☐ The **CM** has responsibility for **establishing** a reporting system for keeping the owner **informed** of project events and progress.
- ☐ The type, format, and frequency are usually **established** in the PPM for the project.

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## Schedule

- ❑ After **analyzing** the results of the updated monthly schedules, the CM should **prepare** a monthly narrative progress report that will **address the project status** to include all critical project elements.
- ❑ The **report** should provide an updated narrative
  1. Describing status of schedule float (if using CPM),
  2. Changes in work sequence,
  3. Planned schedule milestone slippage, and
  4. Plans of recovery.
- ❑ An **open issues status log** is also provided with a discussion of all known problems and their potential impact on the schedule.
- ❑ Finally, the CM **reports** the estimated time to completion based on actual progress.

## Cost

- ☐ The **monthly report** to the owner regarding project budget should **include overall costs to date** with actual versus estimated percentage completion.
- ☐ The report should also identify **all potential** and **actual** construction change requests/orders and claims, including **status** of negotiations and estimated cost.

## Cash flow projection

- ❑ The **CM** should provide a cash flow chart showing
  1. Projected monthly and
  2. Cumulative expendituresfor the **contract** based on the
  1. Master schedule,
  2. Schedules submitted by the contractor(s) and
  3. Schedule(s) of value.

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## Cash flow projection

1. The current estimate and cash flow should be analyzed in **detail** by the **CM** on at least a quarterly basis and
2. A **report prepared** for the owner including **recommendations** for budget adjustments based upon the **CM's current estimate** to complete the project.

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## Executive summary

- ❑ The **CM** should **prepare** a summary narrative for the **owner**  
**pointing** out impacts, exceptions, and revisions to the **CMP**.
- ❑ **This report** should **identify**
  1. Problems,
  2. Impacts,
  3. Changes,
  4. Delays and
  5. Describe the planned approachto resolving/mitigating the effect of these items.

## Sustainability goals

- ☐ The **CM** should prepare a monthly sustainability report documenting the **progress** toward the sustainability goals.

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## Claims mitigation/evaluation

- ❑ **Proactively** implementing all the previously discussed procedures will help **avoid** or **mitigate** most issues that arise.
- ❑ **On large projects**, establishing a Disputes Review Board (DRB) can also assist in resolving **disputes** at the project level.
- ❑ **Unfortunately**, even on the **best run construction projects**, **claims can occur**.
- ❑ It is important that the **CM**
  1. Receives and evaluates all **notices of claims** from the contractor and
  2. Makes **recommendations** to the owner in a **timely manner**.

## Claims mitigation/evaluation

- ❑ The evaluation of any claim can usually be divided into **two separate distinct parts**.
  1. Entitlement evaluation
  2. Damages assessment

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# ENTITLEMENT EVALUATION

## Claims mitigation/evaluation

- ☐ The **contractor submits** its claim notification to the **CM**.
- ☐ This notification **may or may not** include the contractor's proposed settlement value.
- ☐ If the **contractor** provides a verbal notice of claim,  
it should be **documented** in the project records and  
the **contractor advised** to provide written notice immediately.
- ☐ Upon receipt of **written notification** by the contractor,  
the **CM** responds in writing, **acknowledging receipt**, and  
**requesting** any appropriate additional information required for  
**evaluation**.
- ☐ **Copies** of this correspondence are sent to the **owner**.

## Entitlement

- ❑ The **CM investigates** the claim for entitlement to determine whether the contractor has a **valid claim under the terms** of the contract.
- ❑ The **merit** of a claim must be determined **before** any effort is expended in determining the **compensation** owed to the contractor.
- ❑ The **entitlement analysis** should be performed by personnel not associated with the actual occurrences to ensure an **objective analysis**.
- ❑ The **CM** then prepares a **recommendation** to the owner regarding the merit of the claim, including the **impact of any special circumstances** involved.
- ❑ **Once** the **owner agrees** with the merit recommendation, the **contractor** is **notified** of the entitlement evaluation results.

# **DAMAGE ASSESSMENT**



## Damages

- ☐ Upon determination that the **contractor's claim has merit**, the **calculation of damages** can start.
- ☐ **All records pertinent** to the **claim** should be retrieved, copied, numbered, and retained in a **separate file** pertaining only to the claim.
- ☐ Using these records, the CM **assesses** the full impact to the **contractor attributable** to its claim.
- ☐ The **CM** should analyze both direct and indirect costs relating to the claim to determine the **total compensation** due to the contractor.

## Damages

- ☐ The **results** of the claims analysis are presented to the owner in **report form**,  
**documenting** the strengths and weaknesses of  
both the **contractor's and owner's positions**.
- ☐ This **report** contains
  1. CM's **proposed** settlement **value** and
  2. **Recommendations** on proceeding with **settlement negotiations** (if applicable).

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**RECORD DRAWINGS  
&  
AS-BUILT DRAWINGS**

## Procedures and hard copy

### ☐ The CM

1. **Establishes** procedures for assembling and handling **record drawings** and **as-built drawings**
2. **Reviews** these drawings **before** approving final payment.

### ☐ The **construction contract** typically requires the **contractor** to maintain a set of hard copy record drawings

by **marking all changes** from the original drawings as bid

which the CM periodically **reviews** for completeness.

*Record drawings are usually drawn and compiled as an “architect approved” set of on-site changes made exclusively for the owner as per the architect-owner contract. It is **more reliable than as-built drawings**.*

## Drawings, BIM, and payment

- ☐ Often the condition of the **record drawings** and **as-built drawings** is part of the pay application process.
- ☐ With **many facilities designed in a BIM** environment, the owner will want the **BIM model** to reflect the as-built condition.
- ☐ Consequently, the **CM** must **understand the contract requirements** that designate
  1. **Who is responsible** for updating the BIM model and
  2. **When those updates must** occur.

## Time and process of preparation

- ❑ **Record drawings** should be prepared in a timely manner,  
while the information is **current and available**.
  - ❖ To accomplish this, **one set** of contract drawings should be maintained in the **contractor's field office** for the express use of recording as-built information.
- ❑ Periodically, the **CM's staff examines** the contractor's as-built drawings to ensure that **pertinent information** is being **recorded** in an accurate and timely manner.
- ❑ If **adequate as-built records** are not being maintained, an appropriate **reduction** in the contractor's **periodic payment request** should be considered.

## Time and process of preparation

- ☐ **Record drawings** are sent to the **design team** for their review and approval as well.
- ☐ **Time** should be included for their review, input, and final approval when contracted to do so.

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# **PUNCHLIST**

## Inspection and corrective action

- ☐ The **CM** will normally provide for **inspection** of the project work, noting both the status and quality of work in place.
- ☐ Items that require **corrective action** are placed on a punchlist and the contractors are required to make necessary corrections.
- ☐ This process is **continuous**, and all punchlist items must be remedied **before a project is closed out** and accepted by the owner.
- ☐ The **owner and/or the designer** will also inspect and possibly add items to the punchlist when the **contractor** declares **substantial completion**, and **corrective action** will be managed by the **CM**.

Satisfying a punchlist may be tied to release of retention depending on a contract.

# **COMMISSIONING (Cx) AND FUNCTIONAL PERFORMANCE TESTING**



- ☐ The **commissioning team** led by the **commissioning agent (CxA)** will perform final testing on **all operational equipment** of the project.
- ☐ These tests will be documented, and any **deficiencies** will be logged.
- ☐ **All deficiencies** must be cleared before the commissioning process can be **completed**.
- ☐ **Not every project** will have an independent commissioning agent (CxA).

## Commissioning best practices

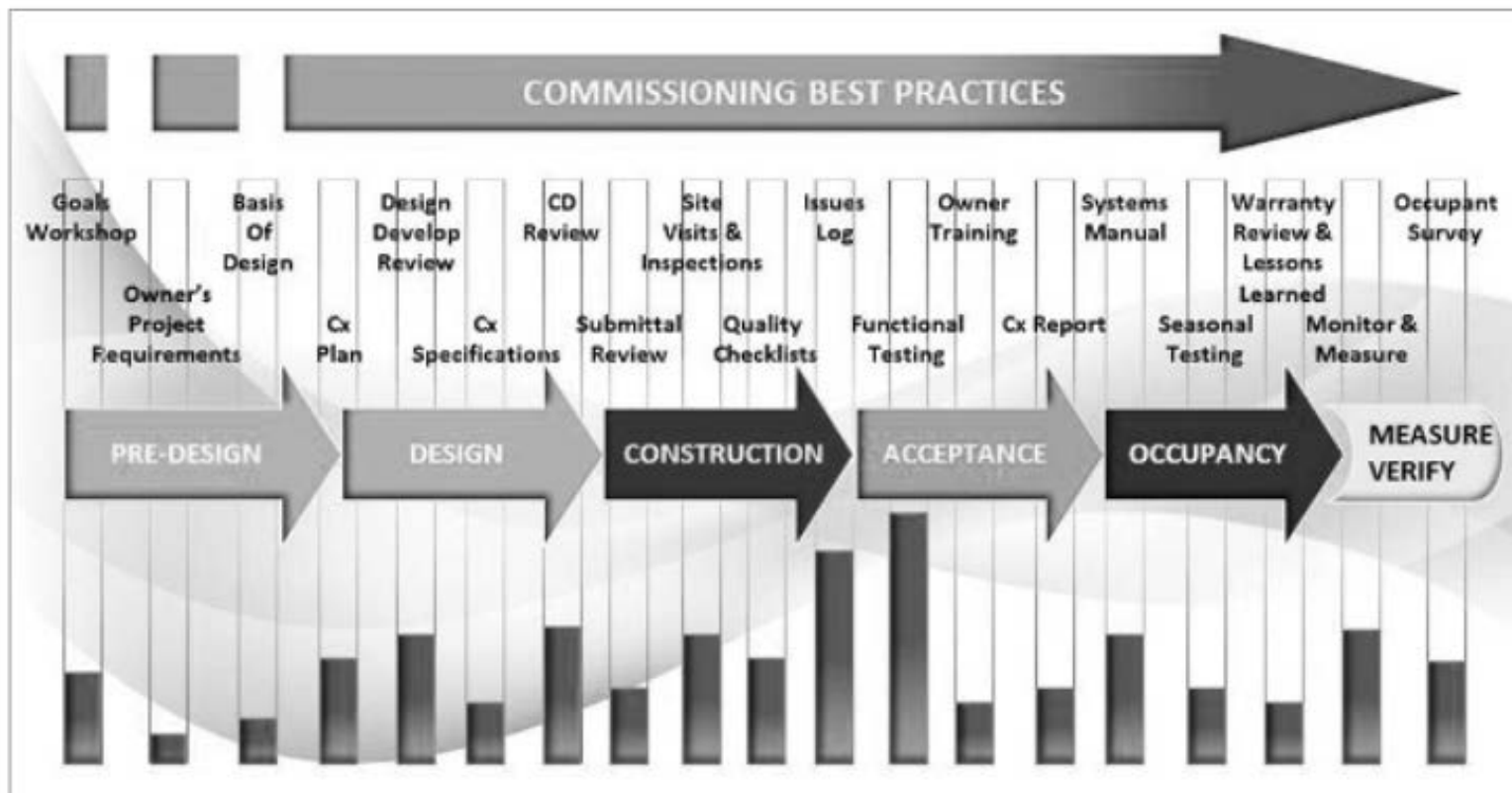


Chart provided courtesy of Jim Ogden & 3QC ©

## Construction phase commissioning activities

- ☐ **Verify** that the controls system and system sequences are complete, verifiable, coordinated, and meet the OPR.
- ☐ **Develop** the master list of **commissioned equipment**.
- ☐ **Complete development** of project-specific construction verification checklists and startup documentation.
- ☐ **Develop** functional testing procedures and test data forms.
- ☐ **Conduct** **regularly scheduled** commissioning coordination meetings.

Read it yourself and if you have any questions ask me

## Construction phase commissioning activities

### ☐ The CxA **reviews**

- ❖ Contractor startup QC testing documents and
- ❖ Witnesses selected or critical startups and
- ❖ Contractor QC tests (e.g., system pressure tests, generator load bank tests, etc.).

### ☐ **Review** the testing, adjusting, and balancing (TAB) plan and report.

### ☐ The CxA **confirms** test readiness for **construction phase activities**

(field observation, review of startup reports and construction checklists, observation of control system, and equipment operation).

**Read it yourself and if you have any questions ask me**

## Construction phase commissioning activities

- ☐ The **commissioning team** is responsible for **executing** all functional tests and the CxA coordinates, witnesses, and documents the functional tests as **defined** in the commissioning plan and specifications.
- ☐ **Review** contractor record documents, warranties and O&M manuals and **verify** they meet contract documents.
- ☐ **Compile** the construction phase commissioning report.
- ☐ **Prepare** a systems manual.

**Read it yourself and if you have any questions ask me**

## موسسه مهندسی و مدیریت ساخت علوی پور (ACEMI)

دفتر آموزش



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



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