



مدیریت تغییرات قراردادی در پروژه‌های EPC

فرایند یکپارچه + نکات حیاتی

(بر اساس اسنادی از AACE و PMI و Long International)

ارائه دهنده:

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What we will learn?

- ❑ Introduction
- ❑ Change Order Definition and Other Change Order-related Considerations
 - ❖ Change Order Definition
 - ❖ Change Management Defined
 - ❖ Demonstrated Elements of a Change and Change Order
- ❑ Change Order Procedures

What we will learn?

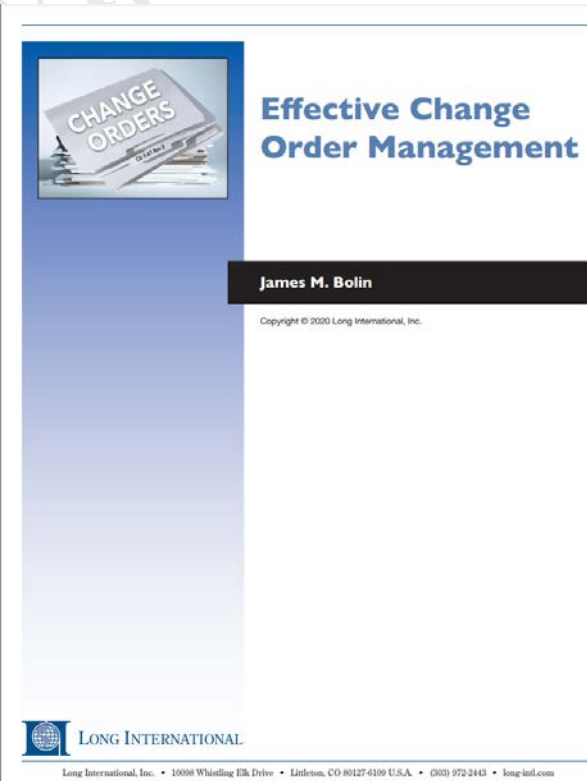
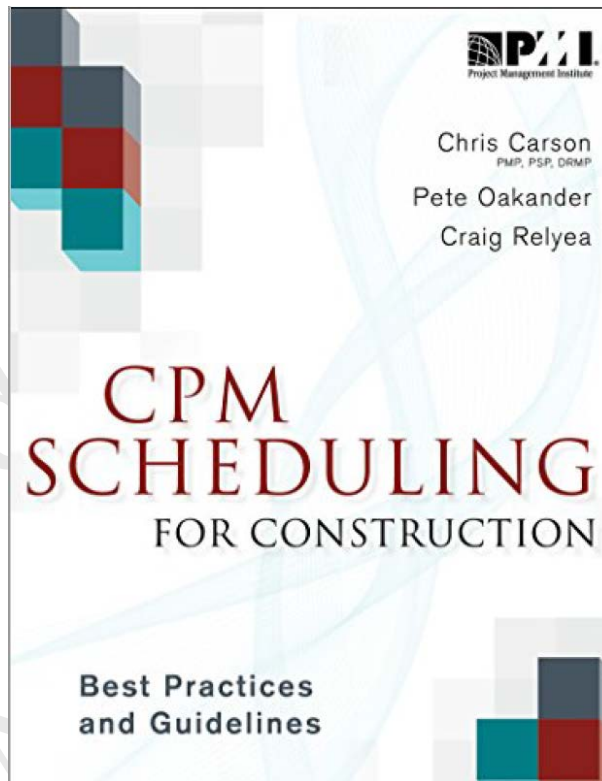
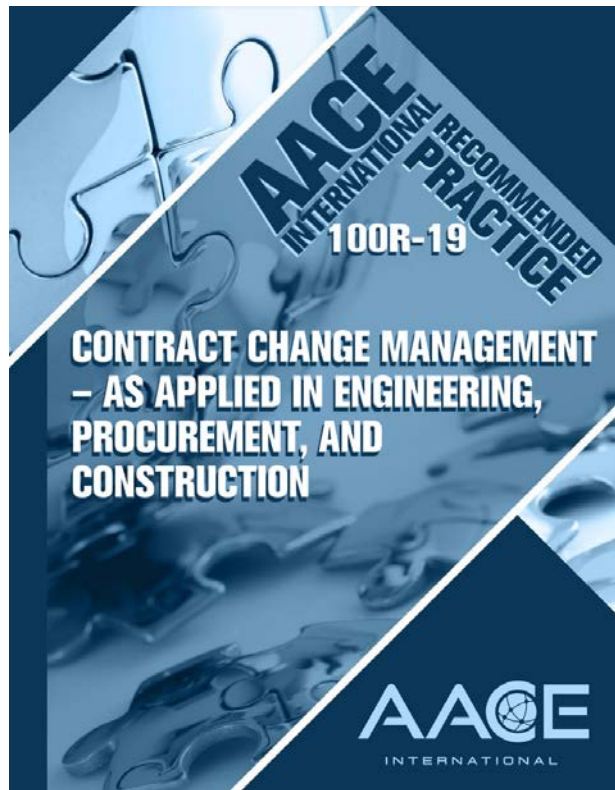
☐ Change Management Process

1. Identification of Potential Change to Contract
2. Contractor Submits Change Order Request to Owner
3. Owner Evaluates Contractor's Entitlement to Change
4. Contractor Revises or Cancels Change Order Request, or Disputes Owner's Change Order Request Rejection
5. Prepare the Proposed Change Order
6. Owner Reviews Proposed Change Order
7. Owner Decision to Approve or Request Further Discussion
8. Owner and Contractor Negotiate Change Order
9. Agreement Reached on Change Order
10. Parties' Decision to Revise, Cancel or Dispute PCO
11. Revise Proposed Change Order
12. Change Order Cancelled
13. Contractor Prepares Claim
14. Claim Submitted by Contractor to Owner
15. Finalization of Formal Change Order
16. Change Order Execution

What we will learn?

- ☐ Change Management Document Control
- ☐ Appendix: Sample Change Management Template
- ☐ Final Notes:
 - ❖ Conclusion
 - ❖ Other References
 - ❖ Contributors

Reference



Introduction



RP intention

- ❑ This recommended practice (RP) of AACE International addresses the **process** of change management as applied in **engineering, procurement, and construction**, given the **lack of one** in the terms of the **construction contract**.
- ❑ This process **applies across** various contracting strategies or delivery methods.

What this RP does not include?



RP intention

☐ This RP does **not** include

scope changes (allowable by contract)

associated with unit price work.

☐ **Nor does** this RP address the process concerning the **management of changes**

that are internal to a single party

that does **not affect another party** to a contract.

Is it a standard?



RP intention

- ❑ This RP is intended to provide **guidelines (i.e., not a standard)** concerning the change management process on a **capital construction project** that most practitioners would consider **good practice** for use where applicable.

Who can use?





RP intention

❑ This recommended practice is relevant to **stakeholders** on a capital construction project; for instance,

1. Owner,
2. Contractor,
3. Construction manager, or
4. Other stakeholders.

❑ **Although** this recommended practice is **written in the context** of a contract between owner and contractor,

it is **applicable to any parties** contracted to perform a project, including owners and architect-engineers (A/E), as well as general contractors and sub-contractors.



- ☐ It is recommended that change management **processes be agreed** upon before the work commences because experience has shown that one cannot go into projects **assuming a perfect world** whereby
 1. **Owner** never changes its mind,
 2. **A/E** never alters or errors with its design documents,
 3. **Contractor** never performs **poorly or mismanages** its work, and
 4. **Natural events** do **not interfere**.

- ☐ That perfect world does **not exist** in the context of capital construction projects.



❑ In 1775 **Samuel Johnson** said:

“Change is not made without inconvenience, even from worse to better.”

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Changes consequences

- ❑ After **more than 250 years**, this quote (citing the Dictionary of the English Language edited by Richard Hooker) still **holds meaning in the construction industry**.
- ❑ Changes on projects may create
 1. **Varying amounts** of tension and
 2. Potential **distrust**between the contract parties.

*However, in industries in which **projects are the norm**, it is now typically understood that change is endemic, brought on by an explosion in the development of technology and communications.*

How change is defined?





Change definition

❑ In the context of a project, a **change** is defined as an alteration or variation to

1. A scope of work and/or
2. The schedule/cost

for completing the work.

❖ However, **changes** can include more than alterations or variations to scope.

Change can also include **revisions** to contract terms and other administrative revisions.

❑ **Construction contracts differ** from most legal agreements in that they consider and expect that changes will occur.

How to deal?



Change definition

❑ In order to **deal** effectively with the changes that might arise on a construction project,

the project participants should have a comprehensive and workable process for

1. Identifying and
 2. Managing
- changes.

What are the types of changes?





Types of changes in RP

- ❑ **Two commonly** occurring categories of scope changes on construction projects are either
 1. Changes **directed** by the owner, or
 2. Changes identified by the contractor as a result of an action or inaction of the owner, also known as **constructive changes**.

- ❑ An **owner-directed change** may ultimately become a constructive change if the **contractor believes** it will be impacted by the **directed change**.

Does the owner have the right to issue a change?



Right to change

- ❑ It is common practice for the owner to have the **right** to make, or direct, **changes** to a **contractor's scope** of work during the design or construction phases.

Reasons for changes?



Reasons for changes

❑ Changes may come about for **many reasons**, such as:

1. Correction of errors in the drawings or specifications;
2. The owner exercising its prerogative to change the scope; or
3. The emergence of **factors or events** with magnitudes **none of the parties** could have anticipated or controlled.

**Change Order Definition
and
Other Change Order-related
Considerations**

Change order definition

❑ In the design and construction industries, the primary change management tool used to

1. Document and
2. Authorize

changes to the contract is the change order, also
referred to as a variation or contract modification.

Let's see the definition

Change order definition by AACE

❑ A change order is defined as:

❖ A **document**

1. requesting and/or
2. authorizing

1. scope and/or

2. baseline

1. Change or
2. Correction

**Does it differ from the perspective of
owner and contractor?**



Change order definition by AACE

1. From the owner's perspective,

it is an **agreement** between the project team and higher authority
approving a **change** in the project control baseline.

2. From a contractor's perspective,

it is an **agreement** between the owner and the contractor
to **compensate** for a **change** in scope or other conditions of a
contract.

❖ It **must be approved** by both the client and the contractor
before it becomes a legal change to the contract.

How it differs with other references'
definitions?





Change order definition by other references

- ❑ A **Change Order** is a **document** that contractually alters an original agreement between the **signed parties**.

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توسعه و مدیریت برنامه در فاز طراحی (Design Phase) برای مدیریت ادعاء و جلوگیری از دعاوی و اختلافات در پروژه

Potential killer contract clauses – Change orders

- ❑ AIA A201-2017: General conditions for construction

§ 7.2 CHANGE ORDERS
§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- 1 The change in the Work;
- 2 The amount of the adjustment, if any, in the Contract Sum; and
- 3 The extent of the adjustment, if any, in the Contract Time.

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ذکر مطالب فوق تنها در صورت ذکر منبع بلامانع است.

What was field order?





Change order definition

❑ Comparatively, **Field Work Orders (FWO)** are **directives** from an engineer or construction manager that either

1. Clarify or
2. Request

minor changes to the contract documents.

❑ FWOs are typically **minor revisions** that usually do not have a significant impact the contract budget or schedule.

Let's see the definition of AIA here!





Change order definition



مدیریت ادعاء و اختلافات در طول چرخه حیات پروژه

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Potential killer contract clauses – Change orders

☐ AIA A201-2017: General conditions for construction

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

What if the contractor implements the "Minor Changes" without prior notice?

It needs to have TIA analysis!
Remember I emphasized in the Delay Analysis course?

How does the scope play an integral role?



Change order definition

- ❑ It is important that the **scope of the work** for the project be completely defined in the contract so that **disagreements** over scope changes can be minimized.
- ❖ However, it is **common on projects** that the parties **find disagreement** over **what scope or factors** may comprise a change order and/or its impact.
 - ✓ This **disagreement is not unusual** because the nature of each change will predictably affect each party in different ways.

How disputed issues could become further intensified ?





Change order definition

- ❑ The **resolution** of Change Orders can also become the source of disputed issues between the owner and the contractor on projects.
- ❑ The **disputed issues** become further intensified if the **change order process** is inadequately managed.
- ❑ The owner's and the **contractor's diverging and competing interests** relative to the changes on a project may also become a factor in judiciously resolving the differences.

Why having the process matters other than dispute resolution?





Change order definition

- ❑ The **owner's priorities** are focused on predicting and controlling the **costs** so that the **funding**, which is budgeted for a project, does not become **jeopardized**.
- ❑ Also, the owner usually places a **high priority** on achieving a certain completion date for the project, and often will include contractual liquidated damages to be paid by the contractor if the contractual completion date is not achieved, absent any delays for which the contractor may be **entitled to a time extension**.

Let's see the change order from the contractor's perspective!





Change order definition

- ❑ **For the contractor**, Change Orders entail several factors, which can be potentially complicated.
- ❑ First, Change Orders are often viewed as a **means of increasing** the scope of a project and offer a source of additional revenue.
 - ❖ However, this **supplemental work** can also present the contractor with the problem of having to **proceed with the completion** of change-related scope of work **prior to negotiating and finalizing** the entitlement and payment for a change.

Why and how the contract affects?





Change order definition

- ❑ The **contract** may require the **contractor to proceed** with the extra work **pending the resolution** of the valuation of a Change Order, which may also **require the contractor to finance** the cost of the alleged additional work until resolution occurs.

When the contractor accepts to do that?





Change order definition

- ☐ The **contractor** will normally proceed with scope changes **if it is confident** that it will be fairly compensated for the alleged extra work at a later date.
- ☐ The contractor also has an **incentive to complete** the contract work in a timely manner because “time equals money,” i.e., the contractor’s field staff and other time-related costs **continue to rise** **if the contract work** is delayed beyond its planned completion date.

What construction contract clauses should consider regarding the change?





Change order definition

- ❑ Construction contracts often include **conflicting clauses** regarding changed work.
 - ❖ On one hand, a **contract may state** that the contractor cannot proceed with the work for a change in the **absence of a written and approved** Change Order.
 - ❖ On the other hand, language in a contract may **also state that** the **owner has the right to order** the contractor to perform extra work without an agreement for compensation.



Change order definition

❑ These **conflicting clauses** place the contractor in a position of having to **make a choice** between

1. **Performing** the extra work at the risk of having to **later possibly accept** a reduced payment, no payment, or making the decision to refuse to proceed with completing the work.
2. The later choice, however, may place the contractor in a **position of default**, which could possibly result in the contractor being **terminated** on a project by the owner.

Remember we talked about that?

Change management defined

❑ **Change management** is a broad topic and can be found in almost all industries. In the context of capital construction projects, according to the TCM Framework, change management is defined as:

❖ ...The **process of** managing

1. Any change to scope of work and/or
2. Any deviation,
3. Performance trend, or
4. Change to an approved or baseline project control plan.

How this process related to the project control cycle?



Change management defined

❑ **Change management** is a broad topic and can be found in almost all industries. In the context of capital construction projects, according to the TCM Framework, change management is defined as:

- ❖ The change management process is used to approve or disapprove changes in the **scope** and **baseline plans**,
thereby **closing** the project control cycle loop.



Change management defined

- ❑ It is **common** on capital construction projects that the contracts between the owner, designer, and construction contractor include a **clause addressing** the formal process by which changes are addressed once they are identified.
- ❑ This same clause also typically identifies roles and responsibilities among the owner, designer, contractor, and other stakeholders **concerning each step** of the change management process.



Demonstrated elements of a change and change order

❖ It **must be approved** by both the client and the contractor **before** it becomes a legal change to the contract.

❑ Typically, in order for an owner to **approve a change order requested** by a designer or contractor,

there are **three primary elements** that should be demonstrated. They are:



Demonstrated elements of a change and change order

1. Demonstration of Entitlement

1. The contractor **must demonstrate** that it has a contractual right to make the requested change and the change is not already contained in the scope of its current agreement with the owner.
2. That is, the contractor **must demonstrate** that
 1. The change was caused by the owner, or
 2. The owner was responsible for the changed condition.



Demonstrated elements of a change and change order

2. Demonstration of Causation

- ❖ The contractor **must demonstrate** the cause and effect relationship between
 1. Impact that was not its responsibility and
 2. Effects the impact will have on its ultimate **project cost** or ability to **complete** the project as originally contracted.
- ❖ The **element of causation** is often the most difficult to demonstrate of the three elements.

Demonstrated elements of a change and change order

3. Demonstration of Quantum

❖ The contractor **must demonstrate** that the cost or schedule **impacts** that

1. Have been or
2. Will be realized

as a result of the **change** are reasonable and supportable.



Demonstrated elements of a change and change order

☐ If the change was **owner-directed**,

the **contractor** is typically **not required** to demonstrate entitlement;

as the **contractor** would therefore have contractual compensation for **cost** and **schedule** impacts.

Change Order Procedures



Recommended practice

- ❑ **Changes** often have a **major impact** on the success of projects.
- ❑ The **procedures** that are defined for change management in the general conditions sections of most construction contracts **address the steps** to take following the **initiation of a Change Order**.
 - ❖ However, these guidelines do **not normally** identify the requirements for **managing the change** and its **impacts**.

Items that should be considered as part of a project's Change Order procedure include the following:



Recommended practice

❑ For the design and pre-construction phases of a project:

- ❖ Written contracts, agreements, procedures, and roles and responsibilities should be **established and accepted** during a project's early phases.
- ❖ **Difficulties** and **issues** may arise that may **affect the execution** of the work if these documents are **not in-place**.



Recommended practice

❑ For the design and pre-construction phases of a project:

❖ **Define** and **establish** a detailed change management process for the project that is part of the design plan and procedures for the project.



Recommended practice

❑ For the design and pre-construction phases of a project:

❖ **Anticipate** that changes will **inevitably occur** on a project and **plan** for it accordingly.

✓ If the necessary steps for managing changes are **not taken**, the Change Order process will **not be managed well** and the project will suffer.



Recommended practice

❑ For the design and pre-construction phases of a project:

❖ Attentively **monitor** the trending of the project's **design progress**.

❖ At the **completion of the work** related to the design,

it is important that the **owner initiate and communicate** a “freeze” of the design.

❖ **Any revisions** to the established scope of work will be measured against this **baseline for the design**.



Recommended practice

❑ For the design and pre-construction phases of a project:

- ❖ During the **design and pre-construction** phases of the project,
identify areas of uncertainty and areas lacking fully defined scope.
- ❖ **Evaluate** the **risks** that may be associated with these areas.



Recommended practice

❑ For the design and pre-construction phases of a project:

❖ **Conduct** constructability reviews and **institute** a value engineering program to **assess the feasibility** of the project's design and defined work scope.



Recommended practice

❑ For the design and pre-construction phases of a project:

- ❖ **Introduce** changes as **early as possible** during a project in order to help minimize the impact of the change.
- ❖ **Comparatively**, it is **more cost effective** to include changes early in a project **than to wait until** the later stages of the project.



Recommended practice

❑ For the design and pre-construction phases of a project:

- ❖ **Fully define** the work scope for **each change** in terms that are understood by all parties.
- ❖ This **clear and concise definition** helps to reduce confusion or the **misinterpretation** of the requirements of a change by the parties.



Recommended practice

❑ For the design and pre-construction phases of a project:

❖ **Avoid** delaying the approval of changes that **will ultimately be approved**.

- ✓ **This tactic** results in the changes being **pushed to later** in the project where they become **more costly** to implement.
- ✓ It is a **misconception** to believe that the **issues** related to Change Orders **resolve themselves**.



Recommended practice

❑ For the design and pre-construction phases of a project:

- ❖ **Authorization** for a change should be mandatory before implementation,
regardless of the **type of agreement or contract**.
- ❖ **Authorization** should be timely and decisive.



Recommended practice

❑ For the design and pre-construction phases of a project:

❖ In **advance of releasing** the project design and bid package documents for tender and construction,

ensure that the **documents** are complete and fully definitive.



Recommended practice

❑ For the construction phase of a project:

❖ **Evaluate** the contractor's bid proposal to ensure that

- ✓ **Documents** are complete and
- ✓ **Cost and schedule** reasonably represent the scope objectives and timelines required for the project.



Recommended practice

❑ For the construction phase of a project:

❖ **Review** the **contractor's construction** procedures, methods, and resources to confirm the contractor's capabilities and flexibility to handle

1. Types,
2. Magnitudes, and
3. Quantities of

change orders that are expected for the project.

Recommended practice

❑ For the construction phase of a project:

❖ Establish a **comprehensive system** for budget and schedule baseline control.



Recommended practice

☐ For the construction phase of a project:

❖ Process, approve, and execute Change Orders

in a **timely manner** to avoid **disputes and claims** that may affect the progress and completion of the project.

Recommended practice

☐ For the construction phase of a project:

- ❖ Do **not proceed** with the **work** for Change Orders without authorization and avoid verbal authorization.

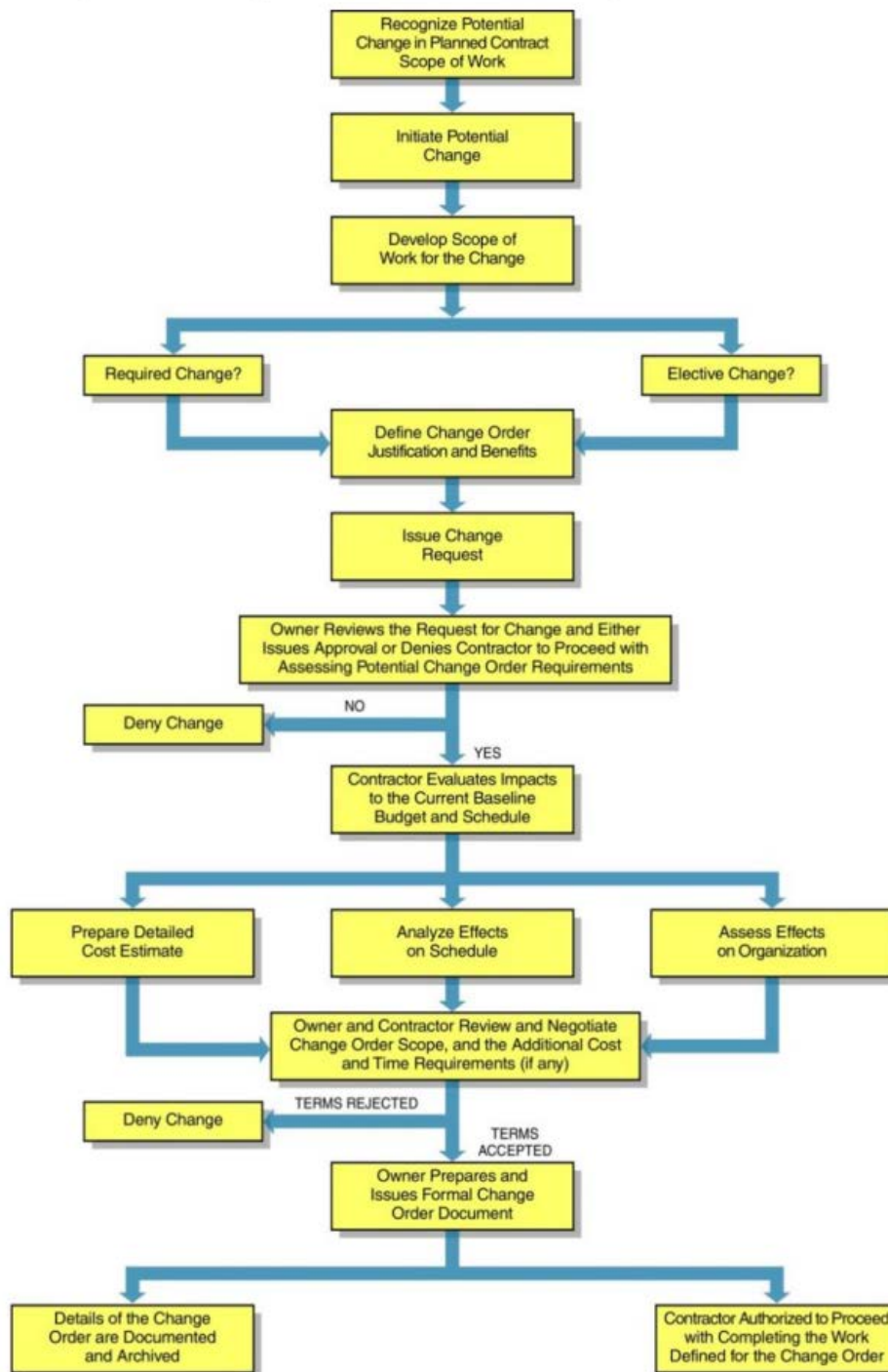


Recommended practice

❑ For the construction phase of a project:

- ❖ To **avoid confusion** and **misinterpretations** of the work scope and requirements that are defined for Change Orders,
work to ensure that the packages for each change are **complete**.
- ❖ **Actively follow up** with the parties involved and **solicit any questions** or requests for clarification.

Change Management Process



Recommended practice

- ☐ The **change management process** is most often a stepped, sequential process.
- ☐ The steps that take place are listed as follows:

1. Change Identification and Initiation

- a. Identification
- b. Notifications
- c. Reviews

Recommended practice

- ☐ The **change management process** is most often a stepped, sequential process.
- ☐ The steps that take place are listed as follows:

2. Preliminary Submittals

- a. Preliminary Change Request
- b. Reviews and Responses

Recommended practice

- ☐ The **change management process** is most often a stepped, sequential process.
- ☐ The steps that take place are listed as follows:

3. Change Order Submittal

- a. Potential Change Order Document
- b. Review and Responses

Recommended practice

- ☐ The **change management process** is most often a stepped, sequential process.
- ☐ The steps that take place are listed as follows:

4. Approvals, Rejections and Recourse

Recommended practice

- ☐ The **change management process** is most often a stepped, sequential process.
- ☐ The steps that take place are listed as follows:

5. Change Order Execution

Recommended practice

- ☐ The **change management process** is most often a stepped, sequential process.
- ☐ The steps that take place are listed as follows:

6. Claims



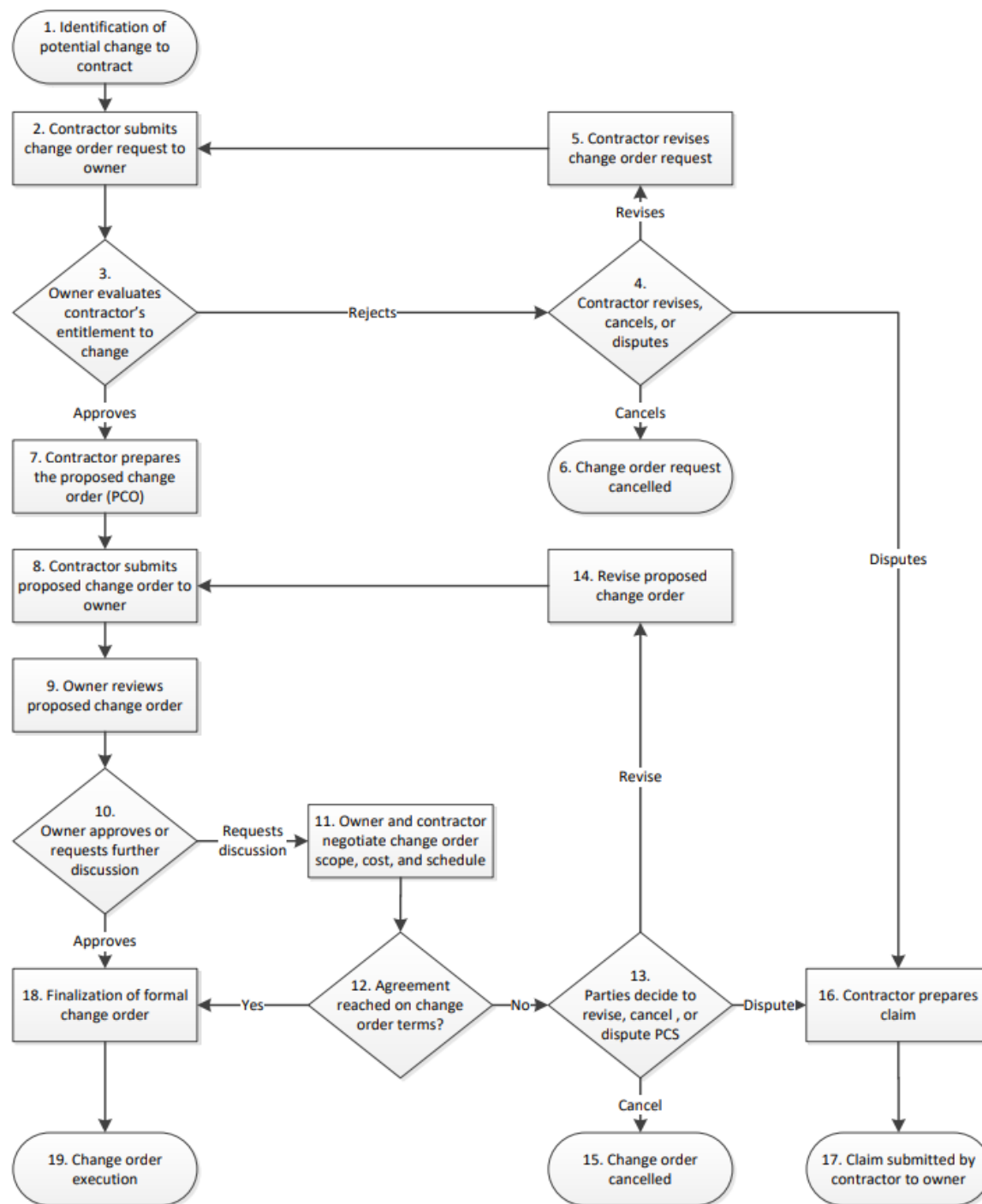
Recommended practice

- ❑ Typically, **every** construction project's change management process includes **some form of each** of these categories.
- ❑ The **nomenclature** may be different, and there may be **interim steps** included, but the **above categories** are **common** throughout the construction industry



Recommended practice

- ❑ **Figure 1** summarizes in more detail the change management process for a **typical capital construction project**.
- ❑ **This process flow chart** is a more detailed version of the one found in **Section 10.3** of AACE's Total Cost Management Framework.





Recommended practice

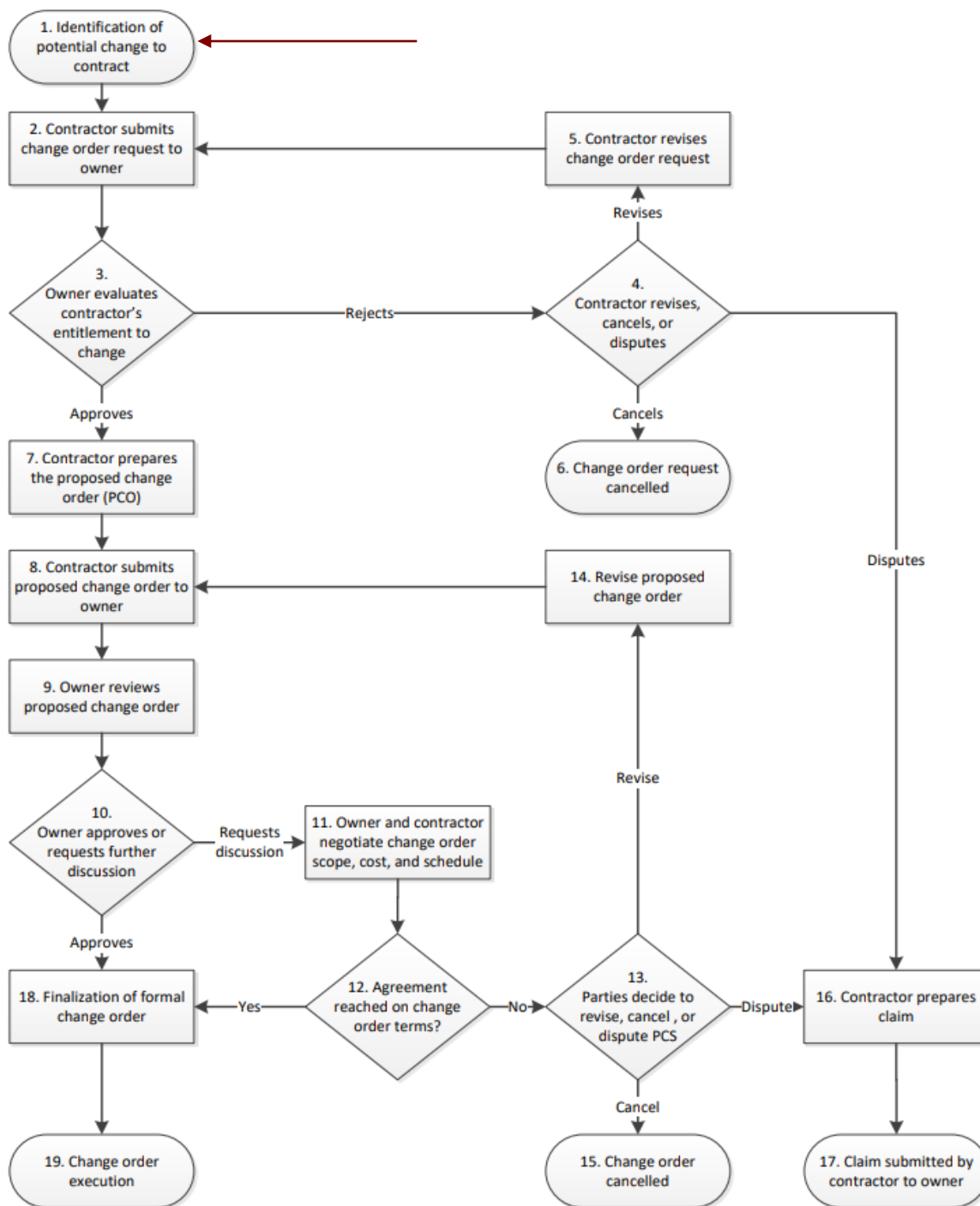
- ☐ This process flow chart **works equally** well for a **singular** designer, construction contractor, or design/build (EPC) contractor.
- ☐ It is **recommended** that the owner and contractor **assign members** from their respective teams to be **responsible** for
 1. Executing,
 2. Reviewing, or
 3. Supportingeach aspect of the change management process identified in Figure 1.



Recommended practice

- ❑ In the following paragraphs, **each numbered stage (box)** found in Figure 1, the Summary Change Management Process flow chart, is **further described**.

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1. Identification of Potential Change to Contract (Box 1)

- ☐ It is important that the **parties** to a design and/or construction contract understand and act in **good faith** in accordance with the terms of the contract.
- ☐ A **change** to the contract can **only occur** if the parties **recognize** that a change has occurred.
- ☐ Changes can be identified **by any party** to a project contract and can be **associated** with **myriad causes**.

Most changes can be classified as having one or more of the following causes:



1. Identification of Potential Change to Contract (Box 1)

❑ Design Modifications

- ❖ These involve revisions to the contract drawings and specifications on a project, and they are **usually initiated** by the owner, the owner's representative or the owner's engineer.
- ❖ It should be noted that if the owner **initiates** a revision to any aspect of the design before it has been completed, the designer may be entitled to additional costs and/or a time extension.



1. Identification of Potential Change to Contract (Box 1)

❑ Design Modifications

❖ This point is especially important on a project that is delivered using the design/build methodology, also known as EPC,

because in addition to the impacts that may affect the **designer's ability** to

1. Complete on time and
2. Under budget,

the design modifications **may also affect**

1. Procurement,
2. Construction costs and schedule

depending on **what point in time** of the project the change occurred.



1. Identification of Potential Change to Contract (Box 1)

❑ Errors and Omissions

- ❖ These **address the items** that are determined to be defective or missing in the contract set of **drawings and specifications**.
- ❖ Several studies reveal that on construction projects that use the traditional design-bid-build delivery process,
design errors and omissions generally account for the **primary cause of change orders**.



1. Identification of Potential Change to Contract (Box 1)

☐ Changes to Means and Methods

- ❖ These occur when the **owner or outside agencies** impact the contractor's planned means and/or methods for executing the work.



1. Identification of Potential Change to Contract (Box 1)

☐ Changed Conditions

❖ These reflect **actual physical conditions** encountered

but were unforeseen and materially differed from the conditions

that were identified in the contract documents or were
conditions not normally found in the area of the project site.



1. Identification of Potential Change to Contract (Box 1)

☐ Additional / Reduced Work Scope

❖ At the **owner's discretion**,

the **contract scope of work**

1. May be **expanded** as a result of enhancements to the design or
2. May be **reduced** because of budget considerations and value engineering.



1. Identification of Potential Change to Contract (Box 1)

☐ Owner-Directed Schedule Acceleration or Slowdown

- ❖ Based on the **owner's directive** to modify the contractor's planned performance on a project,

the contractor may incur **additional costs** and **expenses** when the scheduled project performance is accelerated or delayed.

- ❖ In addition, if the contractor does **not receive** justifiable time extensions for excusable delays,

it may require that the **contractor accelerate** the work to compensate for the delays in order to meet the **contractual milestone dates**.



1. Identification of Potential Change to Contract (Box 1)

❑ Work Sequencing

- ❖ This change is a result of the **owner's requirement** to **revise** the contract's planned sequence for completing the work tasks on a project.
- ❖ The **owner's directive** may impact
 - ✓ Contractor's scheduled and
 - ✓ Available labor, material, and equipment,
 - ✓ As well as the contract time for completing a project.



1. Identification of Potential Change to Contract (Box 1)

❑ Adjustments to the Unit Pricing

- ❖ This change is based on **cost overruns** that result from revisions to the **contract unit prices**.
- ❖ **Increases** in a contract item budgeted quantity or material item budgeted quantity are the **most common** reasons for an adjustment to a **unit price**.



1. Identification of Potential Change to Contract (Box 1)

☐ Force Majeure Delays

- ❖ These generally include **extensions** to the project schedule based on events for **which neither** the owner nor the contractor is **accountable** or have the ability to control, such as:

acts of God, strikes and labor disputes, and unusual weather-related delays.



1. Identification of Potential Change to Contract (Box 1)

☐ Added Cost Incentives

❖ These are **implemented by the owner** to

❖ **Encourage** the contractor's participation in **value engineering** on a project

or

❖ **Entice** the contractor to **accelerate** the completion of a project.



1. Identification of Potential Change to Contract (Box 1)

☐ Delayed, Denied, or Restricted Access to a Project Site

❖ This occurs when a **contractor** is unable to **fully access a project site** due to

- ✓ Owner's inability to grant access or
- ✓ Obtain the necessary permits.



1. Identification of Potential Change to Contract (Box 1)

☐ Inappropriate Rejection of the Contractor's Work

- ❖ This is based on the **owner's incorrect rejection** of work elements that **were completed** by the contractor.
- ❖ A change order may be **appropriate if** **subsequent investigation** indicates that the work completed was acceptable and in accordance with the terms and conditions of the contract.



1. Identification of Potential Change to Contract (Box 1)

☐ Delays to Owner-Supplied Services and Materials

❖ These are **impacts to a project schedule** resulting from the owner's inability to provide

services, permanent materials, and/or equipment

within a timeframe that is consistent with the requirements defined in the contract.

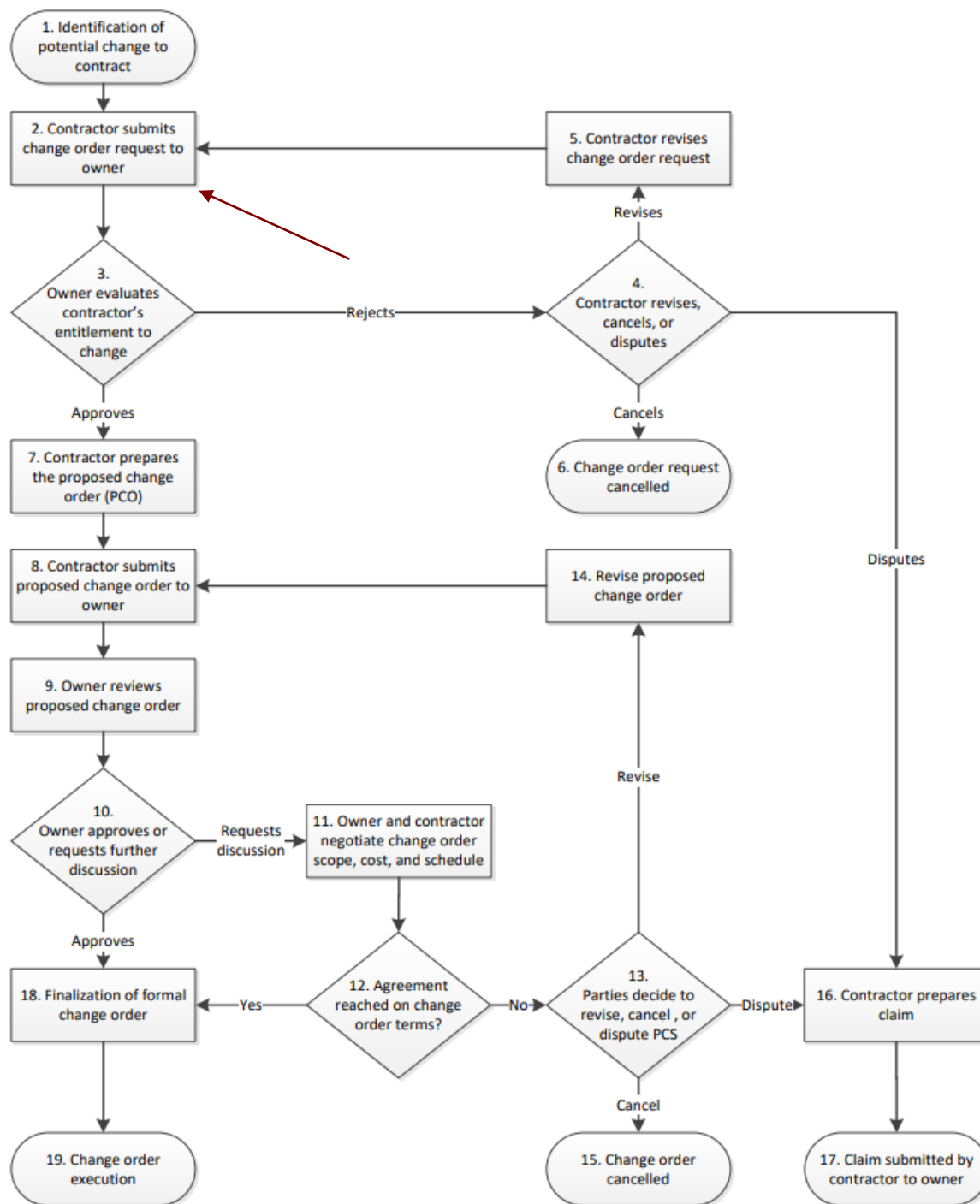
1. Identification of Potential Change to Contract (Box 1)

☐ Owner Interference

❖ This results from the **owner directing**

subcontractors, sub-consultants or vendors

without direct contractual authority (bypassing the prime contractor).





2. Contractor Submits Change Order Request to Owner (Box 2)

☐ Procedures for initiating a change order

❖ The **procedures** for initiating a Change Order have a tendency to **differ between projects**,

as **owners** and **construction managers** each have their **own established requirements and preferences**.

Although there may be some variances, the following items address the practices that are normally expected on a project.



2. Contractor Submits Change Order Request to Owner (Box 2)

- ☐ Once the designer or contractor **determines** that a **potential change** has occurred, timely written notice should be provided to the **owner** communicating that a **potential change** to the project has been identified.

What is the name of this notice?



2. Contractor Submits Change Order Request to Owner (Box 2)

☐ The notice, **often referred** to as

- ❖ Change order request (COR) or
- ❖ Potential change notice (PCN),

is typically **conveyed**

1. **Formally** through letter and/or template form, or
2. **Informally** as an email or other manner allowed by the contract.

Is it acceptable to verbally notify?



2. Contractor Submits Change Order Request to Owner (Box 2)

☐ Although an **attorney should be consulted**,

unless otherwise **specified** in the contract,

verbally informing of a potential change during a meeting between the parties is **not usually an acceptable** means of providing notice

unless it is **followed up in writing** via

1. Meeting minutes or
2. Correspondence.

**What criteria this notice of change
should include?**





2. Contractor Submits Change Order Request to Owner (Box 2)

☐ Notice of a change should include the following **four criteria**:

1. Notice should be in an acceptable written form;
2. The **content** of the notice should **describe** the event or occurrence causing
 - ❖ Change,
 - ❖ Effect on the contractor's work, and
 - ❖ Expected cost and schedule impact;
3. The notice should be **submitted to the owner** in a timely manner, which is often specified in the contract; and
4. The notice must be given to the proper recipient.

Why timely notice is important for owner?





2. Contractor Submits Change Order Request to Owner (Box 2)

- ☐ The **primary reason** for providing a COR is that it **allows the owner** **timely opportunity** to mitigate the effects of the change with the **least amount of impact** to the project's cost or schedule.



2. Contractor Submits Change Order Request to Owner (Box 2)

- ☐ Once a changed condition has been **identified**,
construction contracts often have a **notice clause** that specifies
the **number of days** by which a contractor has to formally
communicate to the owner
that a potential request for change to the contract is being
evaluated and may be submitted.
- ☐ Change order requests are typically a **one to three-page form letter**.

What COR should include?





2. Contractor Submits Change Order Request to Owner (Box 2)

❑ The COR should include:

- ❖ A **short (one to two paragraphs) description** of the reason for and nature of the changed condition.
- ❖ **Detailed description** of the **affected scope**, e.g. unit, geographic location, level, etc.
- ❖ The **date** on which the changed condition was **identified**.
- ❖ A **rough order estimate** of the potential cost and schedule impacts, **if quantifiable**.
- ❖ The proposed reimbursement terms; e.g. unit price, lump sum, reimbursable, etc.
- ❖ Any **other details** that will aid the owner relative to the change and **development of mitigation strategies** regarding the potential cost or schedule impacts.
- ❖ **How the change** will affect the performance measurement baseline (PMB).



2. Contractor Submits Change Order Request to Owner (Box 2)

- ☐ It is also important that the **date the notice was submitted** is **identified** on the change order request.
- ☐ If the request is submitted as a **formal letter or form**, the **owner's document control staff** may **stamp** the letter with the date it was received.
- ☐ The **submittal date** is important as the contract terms may **specify the number of days** after a change has been identified by which the **COR must be submitted**.

Should the contractor start preparing a draft change order at this stage?





2. Contractor Submits Change Order Request to Owner (Box 2)

- ☐ **Prior to allowing** the contractor to proceed with preparing a draft change order,
owners typically want to determine **whether they agree** to the contractor's entitlement to the potential change.
- ☐ **Approval** typically means that the owner concurs that, according to the terms of the contract,
the **conditions do exist** in which the contractor is entitled to a change to the contract.

What if the owner directed a change?





2. Contractor Submits Change Order Request to Owner (Box 2)

☐ If the **owner directed the change**,

then by default,

the contractor would be **entitled to request relief** from potential cost and schedule impacts.

What is the responsibility of the contractor here?



2. Contractor Submits Change Order Request to Owner (Box 2)

☐ On these occasions when the owner has **directed the change**,

the **contractor's responsibility** is to **submit**

1. Cost estimate and
2. Resulting schedule impacts

to the owner.



2. Contractor Submits Change Order Request to Owner (Box 2)

- ❑ It is recommended that **both parties** to a COR keep complete and organized records as the **issue transforms** from a COR to a proposed change order and then to a change order.

What should these records include?

2. Contractor Submits Change Order Request to Owner (Box 2)

☐ These records **should include**

- ❖ Correspondence,
- ❖ Drafts,
- ❖ Analyses, and
- ❖ Any other information relevant to the potential change.



2. Contractor Submits Change Order Request to Owner (Box 2)

☐ DEVIATION REQUEST [FORM 013]

- ❖ The **contractor** completes and submits a “**Deviation Request**” form to the owner or its representative on a project.
- ❖ The purpose of this form is to **document the deviations** that have been determined from the **original contract documents**.
- ❖ This form serves as a **notification by the contractor** of any changed conditions, omissions, or discrepancies that may result in extra work.
- ❖ The owner can either **approve** or **disapprove** the request, dependent on the **validity or justification** of the change.

Deviation request: Sample form 01

DEVIATION REQUEST

No. _____

Owner _____

Contractor _____

Project _____

Project No. _____

Date _____

Subject _____

Drawing Nos. _____

Specification Nos. _____

Original Contract Requirements _____

Reason for Deviation Request _____

Proposed Deviation _____

Any Change to Contract Cost? ☐ Yes ☐ No If Yes, Describe _____

Any Change to Contract Time? ☐ Yes ☐ No If Yes, Describe _____

☐ APPROVED ☐ DISAPPROVED

CONTRACTOR _____ DATE _____ OWNER / OWNER'S REPRESENTATIVE _____ DATE _____



2. Contractor Submits Change Order Request to Owner (Box 2)

❑ INITIATOR CHANGE ORDER REQUEST [FORM 02]

- ❖ This form can be **initiated** by the owner, the owner's representative, a project engineer, or the contractor.
- ❖ The preparation and submittal of this form are **intended** to define the scope of work

that is involved in completing a potential change and to demonstrate the **justification for the change**.

- ❖ The owner's signed endorsement indicates its **authorization to proceed** with the issuance of a Change Order.
- ❖ The Change Order Request offers **notification** on a project that the **possibility exists** for an **adjustment** to the contract price and schedule as a result of a potential Change Order.

Initiation change order request: Sample form 02

INITIATOR CHANGE ORDER REQUEST

No. _____

Project _____

Project No. _____ Contract No. _____ Contract Date _____

Contractor _____

Proposed / Submitted By ☐ Owner ☐ Owner's Rep ☐ Engineer ☐ Contractor

Name _____ Date _____

Change Order Justification _____

Description of Work to Be Performed _____

Contractor is authorized to proceed with this Change ☐ Yes ☐ No On _____ DATE

Approved _____ OWNER _____ DATE



2. Contractor Submits Change Order Request to Owner (Box 2)

☐ CHANGE ORDER TECHNICAL JUSTIFICATION [FORM 03]

- ❖ This form is usually **prepared** by the owner's representative or a project engineer.
- ❖ The **intent** of this form is to **provide the owner** with documented credibility and justification

relative to **completing** the work scope for a **potential** Change Order.

Change order technical justification: Sample form 03

CHANGE ORDER TECHNICAL JUSTIFICATION

Potential Change Order No. _____
Contract Change Order No. _____
Contractor _____
Contract No. _____
Prepared / Submitted By ☐ Owner's Representative ☐ Engineer
Name _____ Date _____

Description of Change _____

Reason for Change _____

Alternatives Considered _____

Impact of Non-Incorporation _____

Approved _____
OWNER DATE

Design phase trend tracking log

[illegible]



2. Contractor Submits Change Order Request to Owner (Box 2)

- ☐ An **important step** in the initiation process is
 1. For the **originator** to classify whether the change is **required or elective**, and
 2. For the **owner** to confirm and approve this **designation**.

- ☐ The **determination** of whether a change is **required or elective** will influence
 1. **Justification** for the change and
 2. **How** the change will be **evaluated**.

The differences between the two classifications include the following:

2. Contractor Submits Change Order Request to Owner (Box 2)

☐ Required changes must be implemented, and typically include those changes that are necessary to meet:

- ❖ Basic, defined venture/business objectives;
- ❖ Regulatory or legal requirements; and/or
- ❖ Defined safety and engineering standards.

2. Contractor Submits Change Order Request to Owner (Box 2)

- ☐ Elective changes are those that are proposed to **enhance the project**, but are **not required to meet** the original project objectives.
- ❖ Therefore, elective changes **may or may not be implemented**.
- ❖ This type of change is **not mandated**.



2. Contractor Submits Change Order Request to Owner (Box 2)

☐ Change order backlog

- ❖ It is **advantageous to both** the owner and the contractor that potential Change Orders on a project are processed in a fair, equitable, and timely manner.
- ❖ The failure to do so most often results in an **increased probability** of extended disputes and claims between the owner and the contractor.



2. Contractor Submits Change Order Request to Owner (Box 2)

☐ Change order backlog

- ❖ A **significant amount** of Change Order backlog, in terms of quantity and value, is **indicative** of a project that is in **trouble**.
- ❖ The backlog is typically attributed to
 1. Above-average submission of change order **requests** by the contractor and/or
 2. Owner's inability or reluctance to promptly process the potential change orders.



2. Contractor Submits Change Order Request to Owner (Box 2)

☐ Change order backlog

- ❖ A large backlog of **unresolved potential Change Orders** generally falls into one of the following categories:

1. **UNDISPUTED**

- ✓ Includes potential Change Orders that
are **not in contention** and
their **processing** is delayed because of inadequate
administrative support, procedures, or funding.

2. Contractor Submits Change Order Request to Owner (Box 2)

☐ Change order backlog

- ❖ A large backlog of **unresolved potential Change Orders** generally falls into one of the following categories:

2. **DISPUTED**

There are **two reasons** for a potential Change Order to be disputed.



2. Contractor Submits Change Order Request to Owner (Box 2)

❑ Change order backlog

- ❖ A large backlog of **unresolved potential Change Orders** generally falls into one of the following categories:

2. **DISPUTED**

- ✓ In the first case, the owner and the contractor are **unable to come** to an **agreement** that

the **scope of work** that is identified in the potential Change Order

actually **represents a change** to the contract scope.



2. Contractor Submits Change Order Request to Owner (Box 2)

☐ Change order backlog

- ❖ A large backlog of **unresolved potential Change Orders** generally falls into one of the following categories:

2. **DISPUTED**

- ✓ In the second case, the owner and the contractor both **agree that the work scope** is a change to the contract scope of work,
but are unable to agree on the value or cost of the potential Change Order and/or its time impact.



2. Contractor Submits Change Order Request to Owner (Box 2)

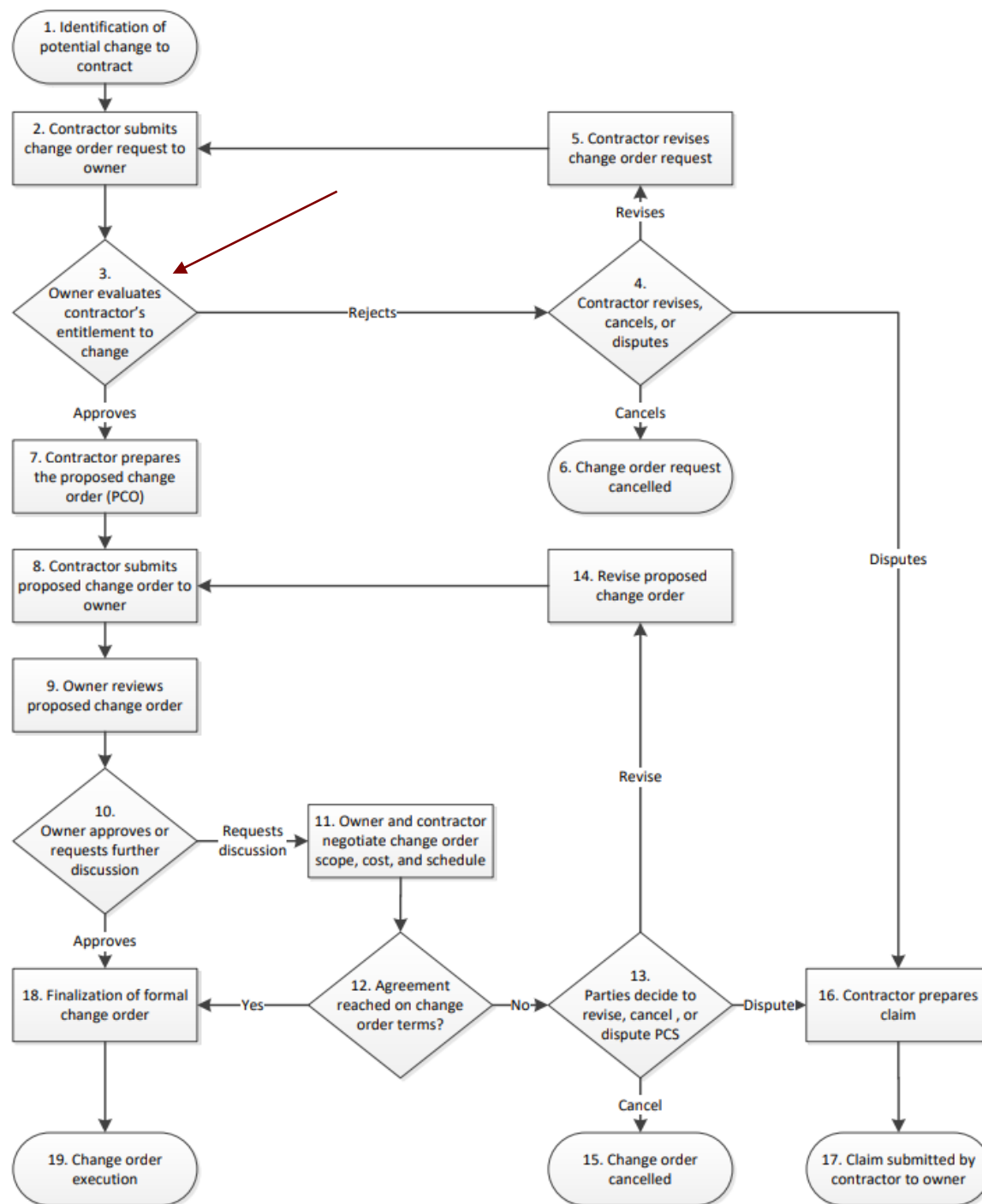
☐ Change order backlog

- ❖ A large backlog of **unresolved potential Change Orders** generally falls into one of the following categories:

2. **DISPUTED**

For potential Change Orders that are **disputed**, the approval and compensation may be **delayed**.

The issues, if they are ignored or unresolved, can later **become claims**.





3. Owner Evaluates Contractor's Entitlement to Change (Box 3)

- ❑ Often a step is **added** in the change process **where the owner** is given the **opportunity to approve or reject** the change order request **before** the contractor moves towards developing a formal change order.
- ❖ The purpose for the **owner's review** is to provide the **owner an opportunity to decide** whether the contractor has **entitlement** to the change.
 - ✓ *That is, the owner or one of his representatives evaluate the details provided by the contractor concerning the change to ensure that the proposed scope change was not previously part of the contractor's scope of work and that it aligns with the intended purpose of the project.*

What happens then?



3. Owner Evaluates Contractor's Entitlement to Change (Box 3)

☐ If the **owner agrees** that the contractor is **entitled** to submit a change order proposal,

this step is typically where the **owner would determine**

whether the potential change is the **result of**

1. Being extra work,
2. Contingency,
3. Force majeure,
4. Etc.

Why is this important to the owner?

3. Owner Evaluates Contractor's Entitlement to Change (Box 3)

- ☐ This **decision is important** to the owner
as it often **identifies** the line item source
within its **internal budget** from which **funding for the change** will
come.

What if the owner rejects?



3. Owner Evaluates Contractor's Entitlement to Change (Box 3)

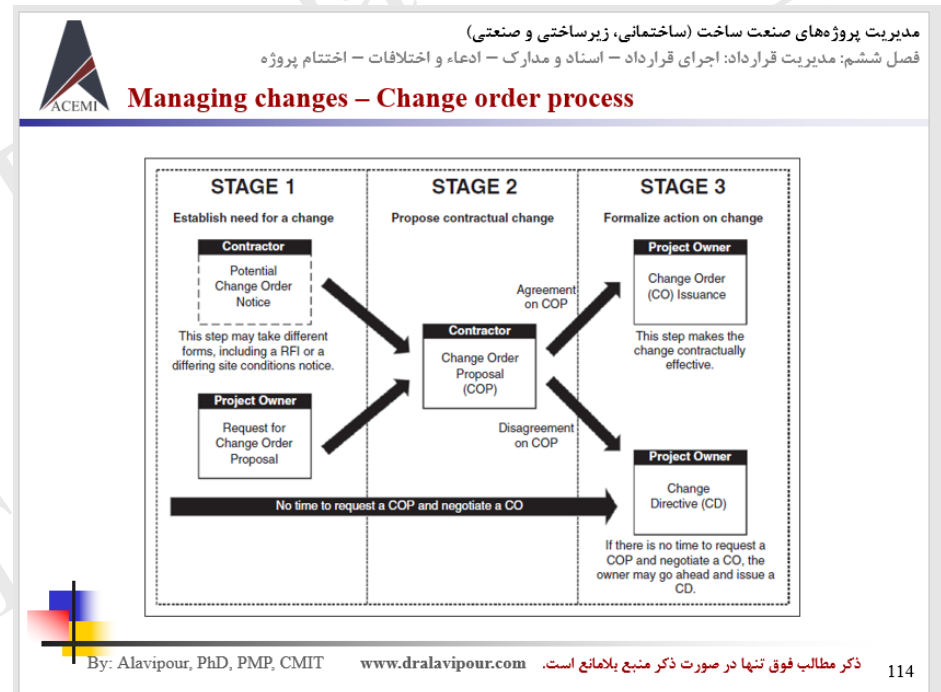
- ☐ If the **owner rejects** the change order request as submitted, the **contractor** may be **informed** as to whether **resubmission** of a modified version of the change order request will be considered.

What if the owner approves?



3. Owner Evaluates Contractor's Entitlement to Change (Box 3)

- ❑ If the **owner approves** the contractor's PCN or COR,
then the next step is for the **formal change order** to be prepared.



Can the work affected by a change be performed until a change order is executed?





3. Owner Evaluates Contractor's Entitlement to Change (Box 3)

- ❑ It is **common** in the construction industry that **work affected by a change cannot** be **performed until** a change order is executed.
- ❖ However, if the construction contract **does not state otherwise**, the **contractor may be allowed** to proceed with the changed work **before a formal** change order has been executed.

Should the owner respond to the notice?

3. Owner Evaluates Contractor's Entitlement to Change (Box 3)

- ☐ **Sometimes**, submittal of a potential change notice from the contractor to the owner requires **no response** from the owner and **serves only** as a notification to the owner.

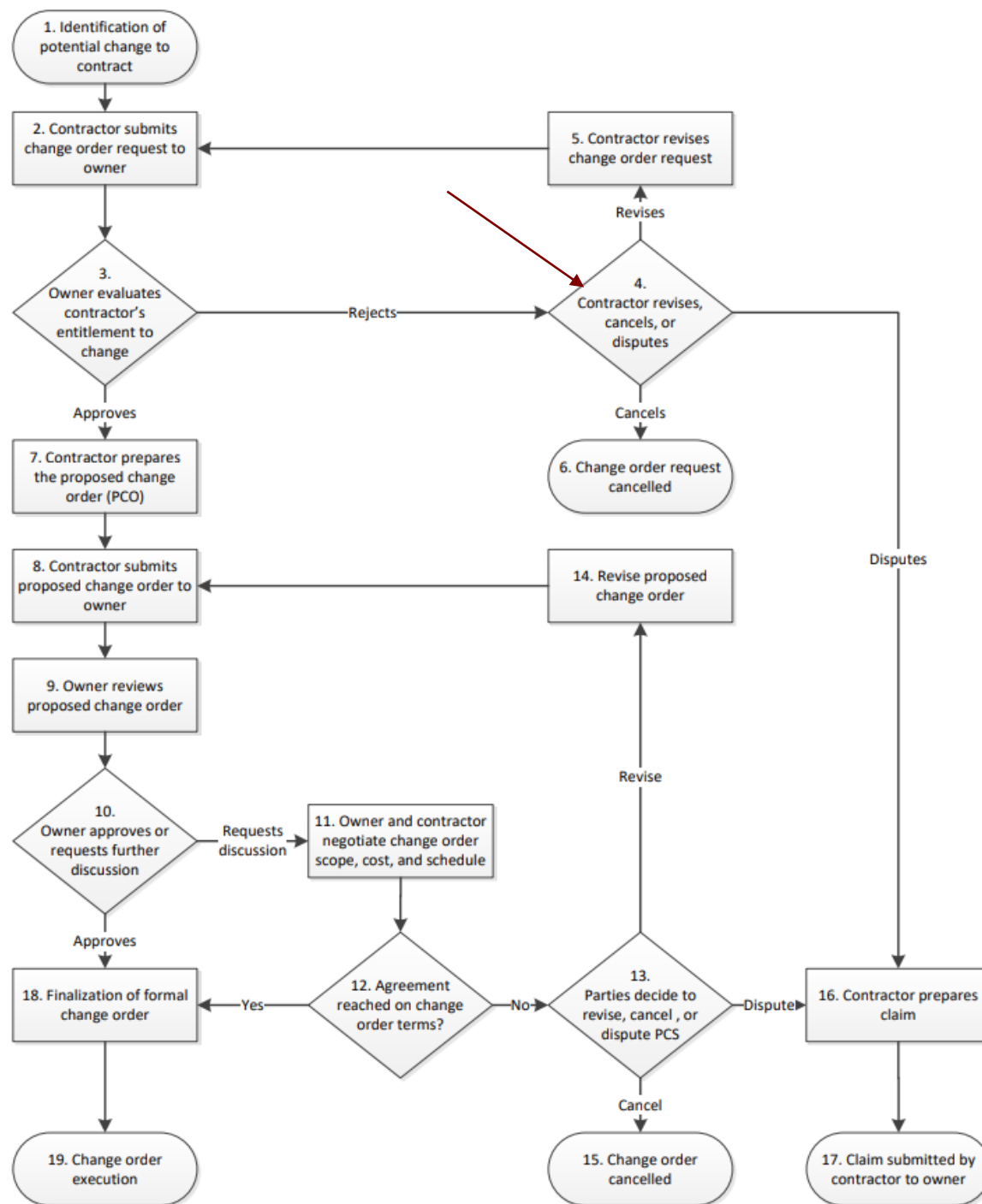
What if the change is directed by the owner?



3. Owner Evaluates Contractor's Entitlement to Change (Box 3)

☐ If the change is **directed by the owner**, then **review of entitlement** is not necessary.

☐ For a **unilateral change** the **amount** for cost and schedule impact is determined by the owner and is not negotiated.



4. Contractor Revises or Cancels Change Order Request, or Disputes Owner's Change Order Request Rejection (Box 4)

- ☐ If the **owner** rejects a change order **request submitted** by the contractor, the contractor has **three options** concerning how it should proceed with the change request.

Those options are:

4. Contractor Revises or Cancels Change Order Request, or Disputes Owner's Change Order Request Rejection (Box 4)

a) Revise the Change Order Request & Resubmit (Box 5):

- ☐ There may have been a **particular detail** about the change request that **cause rejection** by the owner.
- ☐ The detail may be **small or a significant portion** of the change.
- ☐ The **owner may recommend** resubmitting the change request with the specified changes.
- ☐ The contractor, therefore, has the option to **make the recommended change**, and **resubmit the change request**.

4. Contractor Revises or Cancels Change Order Request, or Disputes Owner's Change Order Request Rejection (Box 4)

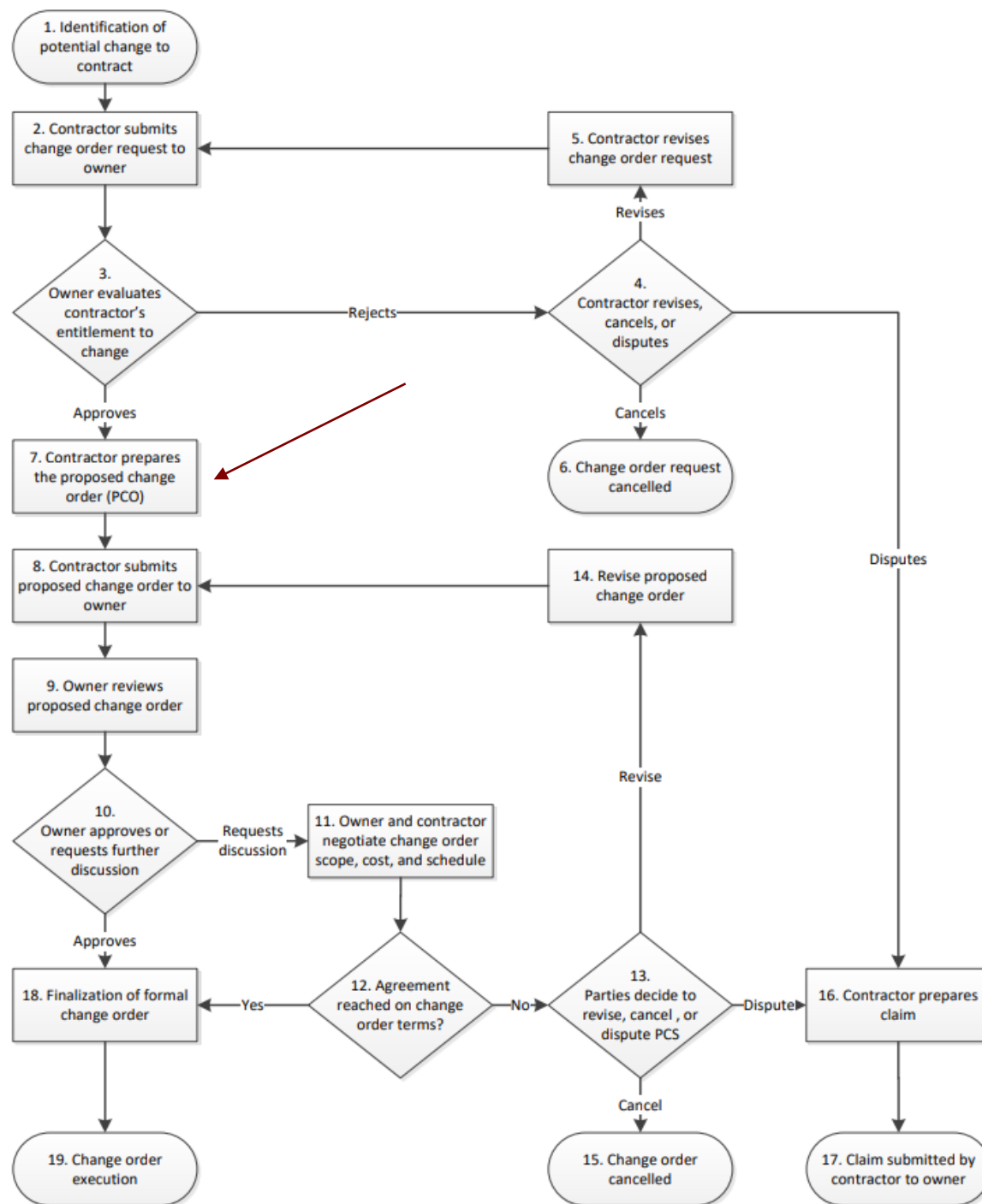
b) Cancel the Change Order Request (Box 6):

- ☐ Possibly as a result of **learning new facts** about the circumstances concerning the change request or for other reasons,
the contractor may choose to **cancel** the change request.

4. Contractor Revises or Cancels Change Order Request, or Disputes Owner's Change Order Request Rejection (Box 4)

c) Dispute Owner's Rejection:

- ☐ If it appears that the **owner is unwilling** to acknowledge the contractor's entitlement to a change,
the contractor has the **option** to prepare and submit a formal claim (Boxes 16 & 17).

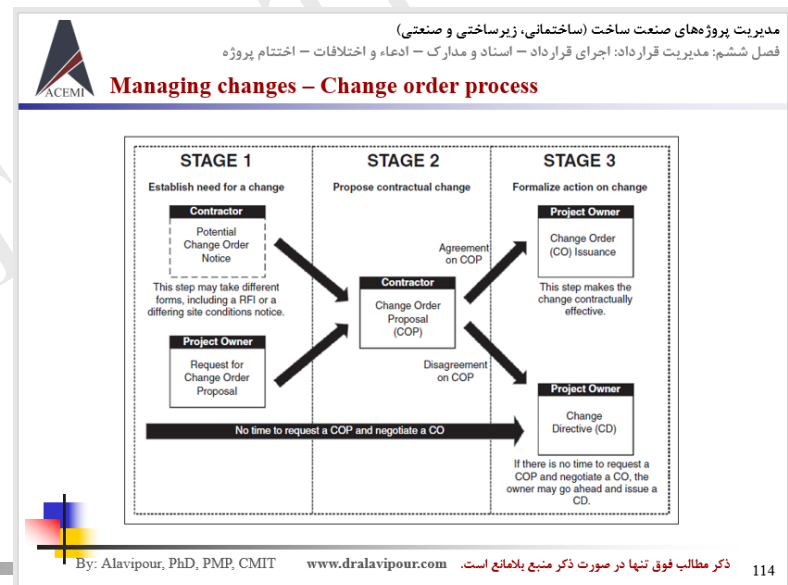




5. Prepare the Proposed Change Order (Box 7)

□ Once

1. COR has been initiated and **approved by the owner**, or
2. If the **owner has approved** the contractor's pricing estimate and schedule impacts in response to a directed change,
the **next step** for the contractor is to prepare a proposed change order document for the owner to evaluate.





5. Prepare the Proposed Change Order (Box 7)

☐ Factors resulting from change orders that influence a project's performance and costs

- ❖ The work for Change Orders can **necessitate** that the contractor **redirect** the labor, material, and equipment resources that were **originally** budgeted, scheduled, and designated to be used to support the **completion** of the tasks identified for the contract scope of work.
- ❖ As a result, the **contractor's plan** for completing the project may be **impacted**.
- ❖ The **factors from Change Orders** that may **affect the planned performance** of a project include the following:



5. Prepare the Proposed Change Order (Box 7)

❑ Factors resulting from change orders that influence a project's performance and costs

❖ ORIGINAL PROJECT SCOPE

- ✓ Change Orders can have a **combination** of direct, indirect, and cumulative impact on the **cost** and **schedule** to perform the original scope of work on a project.
- ✓ During the **later phases** of a project, the **impacts** that are the result of a change can become **even more significant and complex**.
- ✓ The **reason** for this is because during the later stages of a project, **construction is in full swing** and there are **more parties and elements engaged**.
- ✓ It also becomes **more difficult** and **less efficient** to implement a change as time progresses on a project.



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

❖ LOSS IN PRODUCTIVITY

- ✓ The contractor will **evaluate**
 1. **How** the work for the change will be **performed** and
 2. **What effect** that this added work will have on the **original contract scope of work**.
- ✓ If the work related to a change places the **contractor's labor and equipment resources** in competition with the original project scope of work,
the performance of project work may be **adversely affected**.



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

- ❖ LOSS IN PRODUCTIVITY

- ✓ The **Construction industry Institute** notes that
“on projects with less than six percent of hours spent on changes, productivity was better than planned.”
- ✓ Conversely, when **more than six percent** of **planned hours** were spent on changes, productivity was **worse than planned**.



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

- ❖ SCHEDULE INTERFERENCES

- ✓ The contractor should consider whether the work defined for a **change** will have any **effect** on
the sequence and duration of the activities in the contract schedule.
- ✓ If the activities on the schedule's **critical or near-critical** paths are impacted by scope changes,
the **contract completion date** of a project may be extended
unless **acceleration** of the work is **performed**.



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

❖ SCHEDULE INTERFERENCES

- ✓ The **dates for contractual milestones** may also be affected by the additional work scope.
- ✓ **Disruptions to the schedule** from a Change Order may result in **additional costs**,
irrespective of any change to the **completion date**.



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

❖ SUBCONTRACT IMPACTS

- ✓ The contractor **notifies** and **shares** with its subcontractors, the **documentation** for each potential Change Order affecting a given subcontractor's work.

Who should evaluate cost and schedule impact?



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

❖ SUBCONTRACT IMPACTS

- ✓ Based on this information, the **contractor instructs** its **subcontractors** to fully evaluate the **cost** and the **schedule** impact that a potential Change Order may have on their contract work scope.
- ✓ This information is **then incorporated** into the **Change Order documentation** that is submitted by the contractor to the owner.



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

❖ CUMULATIVE IMPACT OF MULTIPLE CHANGES

- ✓ The **contractor** must evaluate the collective impact that Changes Orders have on the contractor's resources, including its
 - o Administration,
 - o Field supervision,
 - o Labor,
 - o Equipment,
 - o Schedule,
 - o Site congestion,
 - o Etc.



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

- ❖ CUMULATIVE IMPACT OF MULTIPLE CHANGES

- ✓ As the **number of Change Orders** becomes more **prevalent** and the **performance of the work** related to the Change Orders becomes **more compressed**,

the **contractor's planned productivity** for performing the original contract work scope can **become diminished**.

Therefore, it is important that the contractor assess the collective impact that the numerous change orders may have as the project progresses.

What does it include?





5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

- ❖ CUMULATIVE IMPACT OF MULTIPLE CHANGES

- ✓ This includes

identifying and appraising the **anticipated cumulative demands** that the extra work places on the **planned** work effort and resources.

What happens if we fail to do that?



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

❖ CUMULATIVE IMPACT OF MULTIPLE CHANGES

- ✓ The **failure** to do so may **require the contractor** to file a claim at the **end of a project**
to **collect for the cumulative impact** from all the Change Orders.
- ✓ It is also important to note that the impact and effect of the Change Orders may be **more important than the number** of changes.



5. Prepare the Proposed Change Order (Box 7)

- ❑ Factors resulting from change orders that influence a project's performance and costs

- ❖ EXPOSED RISK

- ✓ **Contractors** should also take into account any **uncertainties** that may be **associated** with the revised work scope as part of the **assessment** of a potential Change Order.
- ✓ **Additional cost and time** should be added by the contractor to its cost **proposal submittal** for a potential Change Order as a **contingency** to compensate for the possible impact from these undefinable factors.

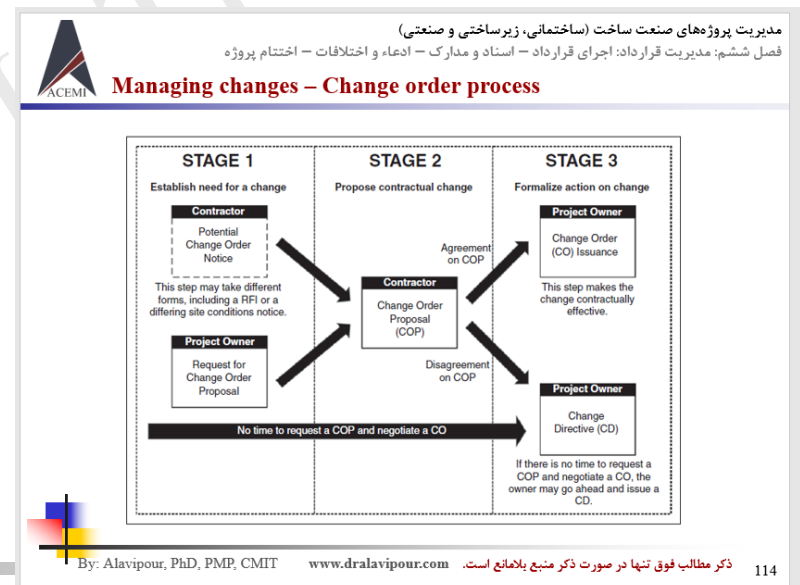


5. Prepare the Proposed Change Order (Box 7)

□ Once

1. COR has been initiated and **approved by the owner**, or
2. If the **owner has approved** the contractor's pricing estimate and schedule impacts in response to a **directed change**,
the **next step** for the contractor is to prepare a proposed change order document for the owner to evaluate.

What to include in PCO?





5. Prepare the Proposed Change Order (Box 7)

- ☐ The **proposed change order (PCO)** should contain or reference a detailed written narrative indicating:
- a) scope change, entitlement, causation for the change;
 - b) estimated cost; and
 - c) time impacts, along with the associated analyses.

*This step in the change management process often **cannot be completed until the contractor has acquired the necessary data and other information** associated with the change.*

What the scope of work portion of the PCO should primarily include?



5. Prepare the Proposed Change Order (Box 7)

a) The scope of work portion of the PCO should primarily include:

- 1) a **detailed description** of the scope of work of the change, including **references** to related drawings and specifications, owner requests, etc., and
- 2) a **comprehensive discussion** of what caused the change.



5. Prepare the Proposed Change Order (Box 7)

a) The scope of work portion of the PCO should primarily include:

- ❖ The **proposed change order** scope of work document is a narrative that should be **organized** and **written** in **simple terms**.
- ❖ The **person writing** the scope of the potential change should be **cognizant** of the audience that eventually could be **reading** the document, including attorneys and adjudicators.
 - ✓ Therefore, work acronyms should be **avoided** **unless** they are **clearly defined** in the document or contract documents.

What about price estimate of the change?



5. Prepare the Proposed Change Order (Box 7)

b) A price estimate of the change in scope should be included with the PCO.

❖ The **estimate** should be well **documented and supported** with

- ❖ Drawings and specification references,
- ❖ Take-offs, vendor quotes,
- ❖ Labor hour quantifications,
- ❖ Unit costs, and
- ❖ Any other information

that will be helpful to the owner in understanding how the estimate was developed.

What other information the PCO should identify?



5. Prepare the Proposed Change Order (Box 7)

b) A price estimate of the change in scope should be included with the PCO.

- ❖ The PCO should also **identify**

how the actual costs will be incurred;

i.e., whether the cost of the change will be accrued as **fixed-price**, **reimbursable**, **unit price**, etc.

- ❖ If there are **time-related costs** that result from a forecasted delay to the project, those costs must be in **alignment** with any resulting time extensions requested.

How about the time extension?



5. Prepare the Proposed Change Order (Box 7)

c) If the end date of the contractor's schedule is forecasted to be delayed as a result of the change,

the **PCO** should include the number of resulting impact days for which it is requesting an **extension of time**.

Do we need delay analysis here?



5. Prepare the Proposed Change Order (Box 7)

c) If the end date of the contractor's schedule is forecasted to be delayed as a result of the change,

the **PCO** should include the number of resulting impact days for which it is requesting an **extension of time**.

- ☐ It is important that the **delay quantification** be **supported** by a delay analysis.
- ☐ The **most common** delay analysis methodology used to calculate an extension of time during a project that is in progress is the **time impact analysis (TIA)**.
- ☐ The delay analysis should be adequately supported and replicable so that the **owner is able to validate it**.

❖ *All data and information used to perform the delay analysis should be included and submitted with the PCO. AACE Recommended Practice 29R-03 is recommended as the guideline to choose the appropriate analytical approach.*

Methods for change order basis of calculation?



5. Prepare the Proposed Change Order (Box 7)

❑ Methods for change order basis of calculation

- ❖ The **pricing** for potential Change Orders can be developed using one of several methods.
- ❖ The **choice of method** can be established by the contract,
 1. From a post contract agreement between the owner and the contractor, or
 2. At the contractor's discretion.
- ❖ Each of the methods has **distinct advantages and disadvantages** that are dependent upon the nature of a project and the requirements specific to the given change.

The pricing is typically based on one of the following practices:



5. Prepare the Proposed Change Order (Box 7)

☐ Methods for change order basis of calculation

❖ UNIT PRICE

- ✓ Based upon the **unit price items that are approved** as part of a project's construction contract between the owner and the contractor.



5. Prepare the Proposed Change Order (Box 7)

☐ Methods for change order basis of calculation

❖ LUMP SUM

- ✓ The owner and the contractor **agree** that the added work scope, which is defined by the change, will be completed on a fixed price basis, including the costs of the **contractor's overhead and profit**.
- ✓ A **contractor** accepts the risks and liabilities that are associated with completing the extra work for an **agreed to price** when the extra work is completed using this method.

What is the choice of the contractor here?



5. Prepare the Proposed Change Order (Box 7)

❑ Methods for change order basis of calculation

❖ LUMP SUM

- ✓ To **ensure that adequate compensation** is included in the contractor's pricing for the proposed Change Order,
the contractor will include **additional costs for contingency**
to offset the risks and unknowns that it perceives to be associated with the added work scope.
- ✓ The **estimated costs** are then evaluated and negotiated between the owner and
the contractor to ensure that the **finalized cost** for completing the extra work is **fair and reasonable**.



5. Prepare the Proposed Change Order (Box 7)

❑ Methods for change order basis of calculation

❖ TIME AND MATERIALS (T&M)

- ✓ In using this method, the **value of the scope** of the extra work that is identified for a potential Change Order is based on the actual direct expenses

for supervision, labor, materials, equipment, etc., that are incurred by the contractor.

- ✓ **Factors** are also included that address the **allowances** for the contractor's overhead and profit requirements.

- For many projects, the **provisions** for the contractor's overhead and profit factors are addressed in the **General Conditions section** of a project's specifications or in the Changes section of the Contract.

Who tolerates the risk?



5. Prepare the Proposed Change Order (Box 7)

☐ Methods for change order basis of calculation

❖ TIME AND MATERIALS (T&M)

- ✓ When the extra work for a potential Change Order is completed on a T&M basis, the **associated risks and liabilities** become the **owner's responsibility**.

When to use?



5. Prepare the Proposed Change Order (Box 7)

☐ Methods for change order basis of calculation

❖ TIME AND MATERIALS (T&M)

✓ The T&M method for basing the cost estimate is **often used**

1. If an **agreement** on the value of the extra work for a potential change order **cannot be reached** between the owner and the contractor or
2. If the **full scope** of the change **cannot be clearly defined** at the time that the change order is **identified** and
the **owner directs** the contractor to proceed with completing the work.



5. Prepare the Proposed Change Order (Box 7)

☐ Methods for change order basis of calculation

❖ TIME AND MATERIALS (T&M)

✓ Also, the **contractor may opt to use the T&M method**

if the **contractor prefers not to assume the risks** that may be associated with a potential Change Order.

What should be done next?



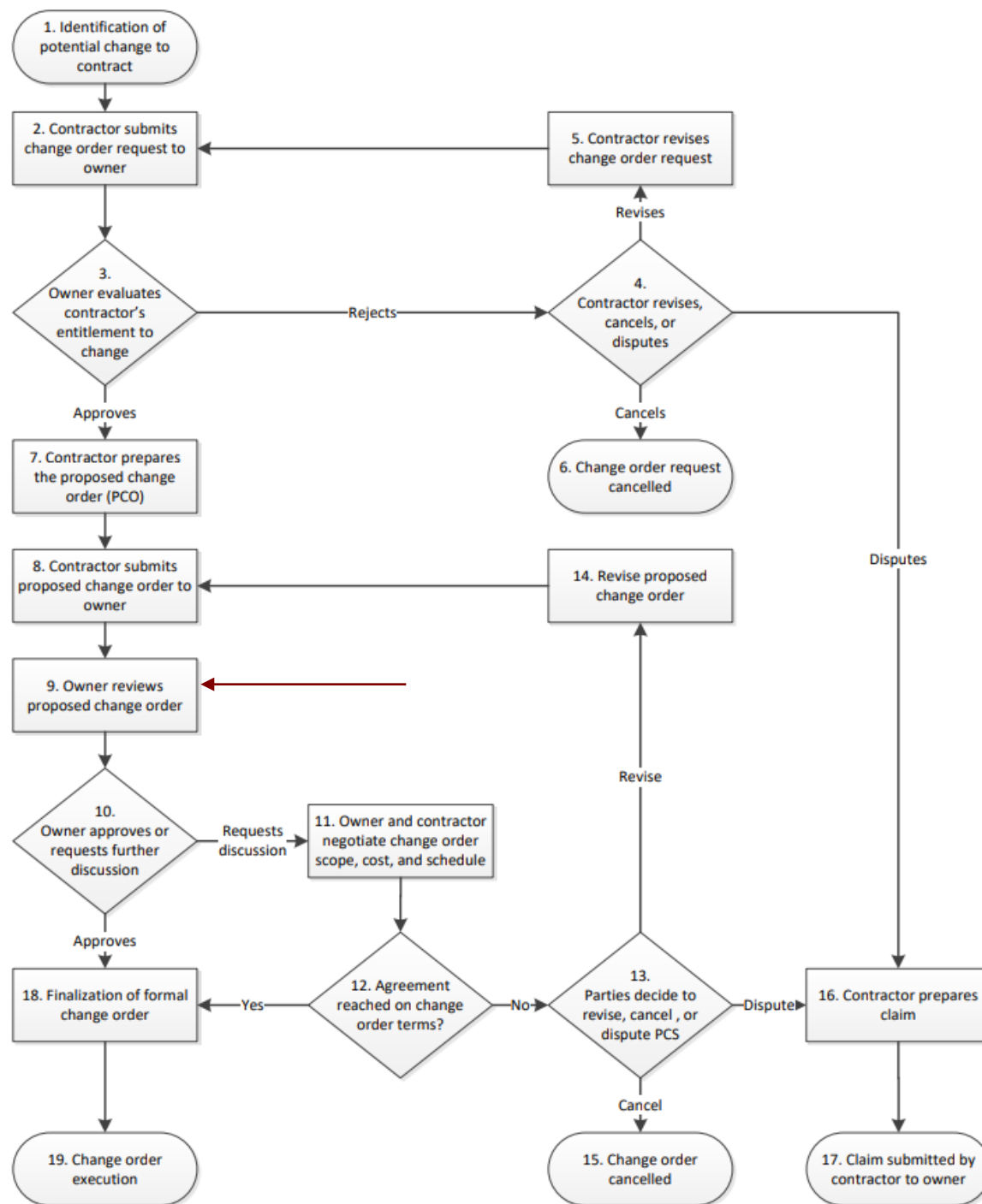
5. Prepare the Proposed Change Order (Box 7)

- ☐ The **proposed change order** may **add or subtract** scope, cost, and/or time from the contractor's contract.
- ☐ With the **creation** of the first proposed change order on a project, a **PCO record file** should be **started**.
- ☐ Each **PCO submitted** to the owner should be **identified** with a unique identification number for **tracking and identification** of supporting documentation.
- ☐ The **name** of the change order initiator should be identified on the **PCO document**.



5. Prepare the Proposed Change Order (Box 7)

- ☐ Once the **contractor has completed** preparation of the **PCO**, it is **submitted to the owner** for consideration. (Box 8)
- ☐ It is recommended that the contract be reviewed concerning the **time the contractor is allowed** to prepare a proposed change order, as well as the **necessary steps** required to request additional preparation time to **gather data** or other necessary information.





6. Owner Reviews Proposed Change Order (Box 9)

- ☐ The **contract** between the owner and contractor allows the owner a certain, **but not always,**

specified amount of **time to review** the **contractor's PCO submittal** before responding to the contractor.

Why the owner needs this time?





6. Owner Reviews Proposed Change Order (Box 9)

- ☐ The **time spent by the owner** is used to **verify** that
 1. The **original scope** of the **change** and
 2. The **cause** for the change
 1. Has been **adequately explained**, and
 2. That the **cost** and **schedule analyses** are reasonable and supportable.

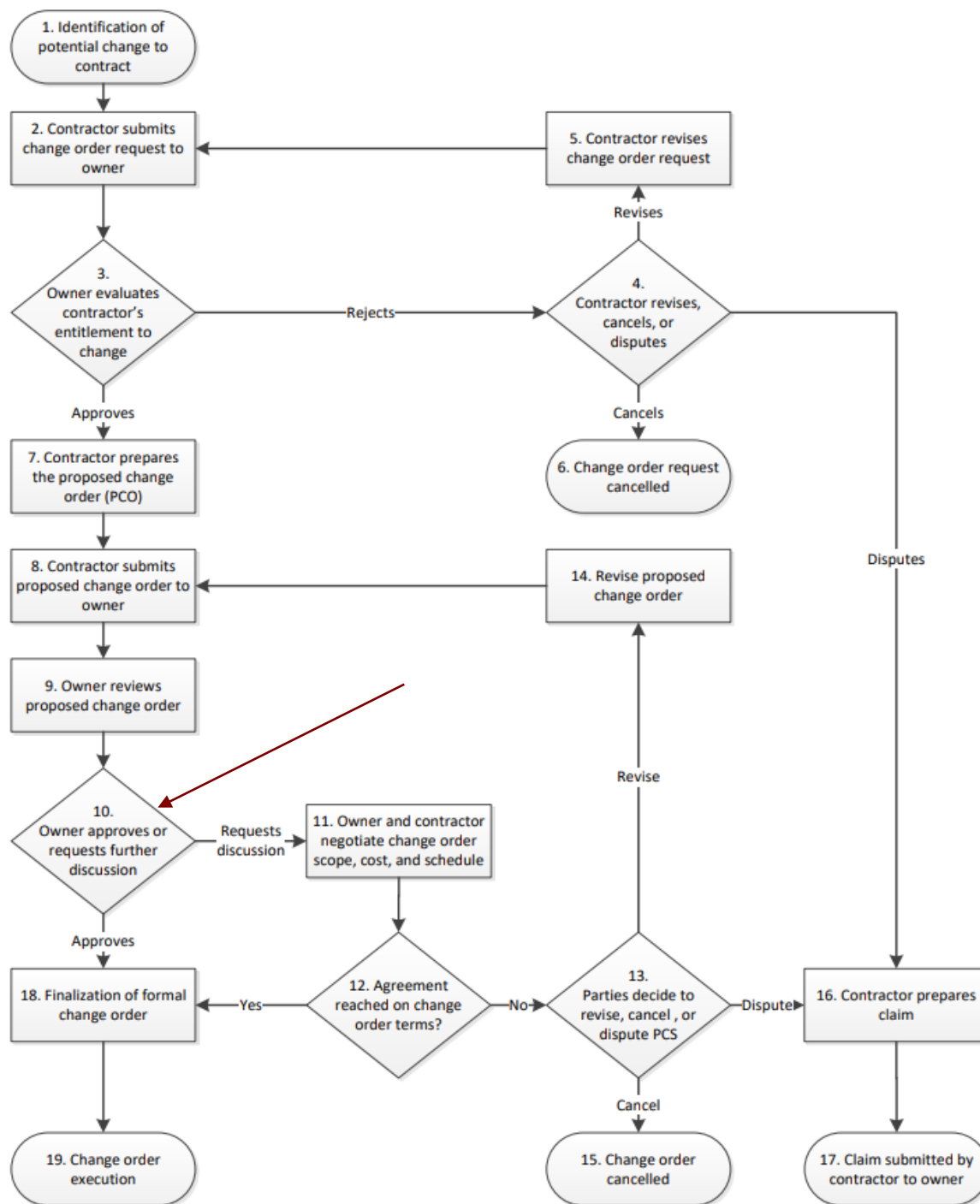
What if the owner needs more information?





6. Owner Reviews Proposed Change Order (Box 9)

- ☐ During this point in the process, the **owner may request** more information from the contractor in order to complete its review of the PCO.
- ☐ The **owner's requests** should be reasonable and **not meant** to extend the review time.
- ☐ The **contractor** should **respond** to the owner's requests in a **timely** manner.





7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ **After** the owner has

1. **Received** the **information** it needs concerning the PCO and
2. **Completed** its **review**,

the owner typically has three response options:

- a. **Accept** the PCO document as it is with no further questions or recommended revisions and proceed to **finalizing the change order** for signatures.

(Box 18)



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ **After** the owner has

1. **Received the information** it needs concerning the PCO and
2. **Completed** its **review**,

the owner typically has three response options:

b. Meet with the contractor to

1. Discuss any questions or
2. Negotiate scope, cost or schedule aspects of the PCO

(Box 11).

This step may **occur less formally**; e.g. via phone call or email.

7. Owner Decision to Approve or Request Further Discussion (Box 10)

❑ **After** the owner has

1. **Received** the **information** it needs concerning the PCO and
2. **Completed** its **review**,

the owner typically has three response options:

- c. An **option seldom used by owners** at this point in the change management process would be to **reject the PCO** and make no **further effort** to **negotiate** the scope, cost or time impacts.

❖ This step is not **included in the process diagram (Figure 1)** since it is **not recommended**

after the **owner** has already recognized and approved **entitlement**.

How the owner should evaluate costs and time?

7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

- ❖ The owner must have **confidence** that the **contractor's assessment** of the costs to complete the extra work for a potential Change Order is **fair and reasonable**.
- ❖ There are **several actions** that the owner can undertake to avoid being overcharged.

What are those actions?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

- ❖ The **owner's approach** in reviewing the proposed costs for a potential Change Order is **dependent** upon the method of calculation that was **used by the contractor** and **agreed** to by the owner in preparing the estimate.
- ✓ How the costs are reviewed and verified is determined by whether the costs were based on a unit price, lump sum, or a T&M type of estimate.

The requirements for evaluating estimates that are based on one of these three methods are discussed below:



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Unit price

- ✓ In many **construction bid forms**, the owner includes a listing of unit price items

that the contractor completes by filling in the **rates for each item** as part of its **bid proposal submittal**.

Should it include also a contingency?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Unit price

- ✓ These **unit price rates** are typically inclusive of the **total estimate** of direct and indirect costs, including the contractor's overhead, profit, contingency, etc.
- ✓ Therefore, the **construction contract** between the owner and the contractor will include the **unit prices** that were proposed by the awarded contractor.

What the owners need to do here?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

❑ Evaluation and verification of costs

❖ Unit price

✓ For **validating** the costs of a proposed Change Order,

the **owner** needs to

1. **Verify** the material quantities that the contractor is **reporting** for the extra work and

2. **Compare** the unit prices that the contractor has **applied** to the material quantities with those unit prices that are **identified** in the contract.

o The **proposed** change order **unit prices** should be the same as the unit prices that are **included in the contract**.



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

- ✓ The **owner** should **prepare** an independent cost estimate of the scope of work for each potential Change Order.
- ✓ This cost estimate should be **detailed** and **comprehensive** in format because it is used as the basis for **comparing** and **validating**
 1. Material quantities,
 2. Labor production rates, and
 3. Pricingthat are **proposed** in the **contractor's submittal** for the potential Change Order.

Does the owner need to prepare independent estimate?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ **Lump sum**

- ✓ If possible, the **independent cost estimate** should be completed in advance of receiving the potential Change Order pricing from the contractor so that a **review** can be completed without delay.

How this independent estimate should be prepared?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

- ✓ The **owner's independent cost estimate** should be based on
 1. Current market rates and costs as well as
 2. Those **rates and costs** that may be specifically established in the contract documents.

The direct and indirect costs should take into account the following:



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ WAGE RATES

- If a project is **supported** by union craft labor, the current hourly rates are generally available for the location specific to a project in a **published format or on the Internet.**
- The **rates that are used** in developing the **independent estimate** need to be inclusive of
 - payroll burdens,
 - taxes, and
 - insurance.

What if these rates are not included?





7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ WAGE RATES

- If it is **apparent** that these rates do **not include** those provisions, a factor of **approximately 30 percent** can be added.

What other items may need to be considered?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ WAGE RATES

- o However, **consideration** must also be given to **other elements** that may be required for a project and which may increase the cost of labor, such as
work schedule (i.e., overtime work),
and transportation allowances,
etc.

How to base the estimate for permanent material?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ MATERIAL COSTS

o For its estimate, the contractor will generally **base the unit costs** of the **permanent materials** on

1. Actual invoiced costs, or
2. Quoted costs

that are **solicited** from the material vendors and suppliers.

- This information, however, is **often not made available** to the **owner**.

What are the options for obtaining this information?

7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ MATERIAL COSTS

o The options for obtaining this information are to either

1. **Contact and request the information directly** from vendors or suppliers, or
2. Base the unit material costs on the **current rates that are published** in a cost guide, such as R.S. Means, Lee Saylor Construction Cost Index, Page, Richardson Process Plant Construction Estimating Standards, etc.

Do we need to consider allowance here?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ MATERIAL COSTS

o If required, **additional allowances** for

1. Handling,
2. Shipping,
3. Storage,
4. Tariffs, and
5. Duties

should also be considered and appropriately accounted for where required.

How to estimate equipment costs?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ EQUIPMENT COSTS

o The contractor commonly will use

1. Its **corporate rates** for owned equipment or

2. Rental rates on leased equipment

as the basis for the estimated equipment costs.

o The **owner** usually will **not have access** to the rates that the contractor used

unless such **rates are included** in the contract.



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ EQUIPMENT COSTS

- As an **alternative**, equipment rental firms can be contacted directly and the rates for the equipment solicited.
- Also, estimating publications such as R.S. Means address the average monthly, weekly, daily, and hourly rental rates for many equipment items and the hourly operating cost for each.

How about subcontract costs?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ SUBCONTRACT COSTS

- If the work or part of the work for a proposed Change Order is to be **completed by a subcontractor,**

the **contractor will often attach a copy** of a subcontractor's quotation or estimate.

- The **contractor** will apply an additional percentage to a subcontractor's price to cover the **contractor's costs** for

- Supervision,
- Administration, and
- Profit.



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ SUBCONTRACT COSTS

- o If the extra work **delays the contract schedule**, the contractor may also request additional compensation to cover the extended overhead on a project.
- o The **owner's approach** to evaluating a subcontractor's costs for labor, materials, equipment, overhead and profit should follow the **same process** that the owner uses in verifying the reasonableness of the contractor's costs.

How about small tools and consumables?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ SMALL TOOLS AND CONSUMABLES

- ✓ The contractor normally includes an **allowance** to **offset** the replacement cost for

1. Small tools and
2. Purchase of construction supplies and consumable items.

How about small tools and consumables?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ SMALL TOOLS AND CONSUMABLES

✓ This **allowance** is most often calculated as

1. A **percentage** of the total direct labor cost, or
2. A **cost per man hour** basis.

How about overhead and profit?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ OVERHEAD

- o To cover the costs of the contractor's home office and field management and overhead,

the contractor will include a **cost allowance** that is based on the **actual financial requirements** for the corporate and the field offices.

- The percentage, as a factor of the total direct cost for the extra work, **varies** between contractors and projects.

Percentages between 8.0 percent and 15.0 percent are usually considered reasonable.





7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Lump sum

✓ PROFIT

- o The contractor's profit, as a **percentage** of the sum of the total direct and indirect costs, should be within a **reasonable range**.
- o Typically, the contractor's profit on change order work is **not expected to exceed 10.0 percent**, and could be lower.

How about time and materials?





7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Time and materials

- ✓ For extra work that is completed on a T&M basis, the **contractor's unit rates and markups** for overhead and profit that are applied to the **contractor's actual costs** for Change Orders are based on either

- 1) the **rates** that were solicited during the bidding phase of a project and included as part of the project's construction contract between the owner and the contractor, or
- 2) the **unit pricing and markups** that were negotiated between the owner and the contractor **following the award** of a construction contract.

When and how to report the work?





7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Time and materials

❖ At the **completion** of the work for a Change Order,

the contractor will **submit the copies** of the daily work reports for the extra work to the owner

as part of the contractor's monthly payment request submittal.

What the reports should document?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Time and materials

❖ These reports document the **actual**

labor, material, and equipment resources

that were **expended** by the contractor on an hourly or daily basis to complete the extra work scope that is defined by the Change Order.

Do we need invoices?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation and verification of costs

❖ Time and materials

✓ In addition to the daily work reports,

the owner can **request** that the contractor **submit as backup**,
copies of the invoices from its

1. Subcontractors,
2. Material vendors, and
3. Suppliers

that were involved in supporting the work for the Change Order.

How about evaluation of the time?



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation of the time impact

❖ The **contract schedule** for a project may be impacted or delayed by the work involved in completing a Change Order.

1. If the extra work is determined to be **non-critical** as a result of the absorption of the total float on the affected activities, the completion date of the contract schedule will **remain unchanged**.
2. However, if the changed work is found to **extend or delay** the completion of activities that are on the **critical path** of the schedule, the completion date of a project will **slip from the planned date**.

When evaluating the potential time impact for Change Orders, consideration should be given to the following:

Independent analysis for time?

7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation of the time impact

❖ It is important for the **owner to complete an independent analysis** of the contract schedule for a project to

1. **Identify** the **activities** that are **affected by the proposed changed work** and
2. **Verify** whether the scope of work for a potential change order **impacts the schedule** and the **contract completion date**.

Cumulative impact?

7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation of the time impact

- ❖ Consideration should also be given to the cumulative impact of multiple Change Orders on the contract schedule,
which could affect the **labor productivity** of the unchanged work and delay its completion.

7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation of the time impact

- ❖ The **timely identification** of potential issues and delays on projects permit the development of recovery schedules that may help to **mitigate some** or **all** of the potential delay.



7. Owner Decision to Approve or Request Further Discussion (Box 10)

☐ Evaluation of the time impact

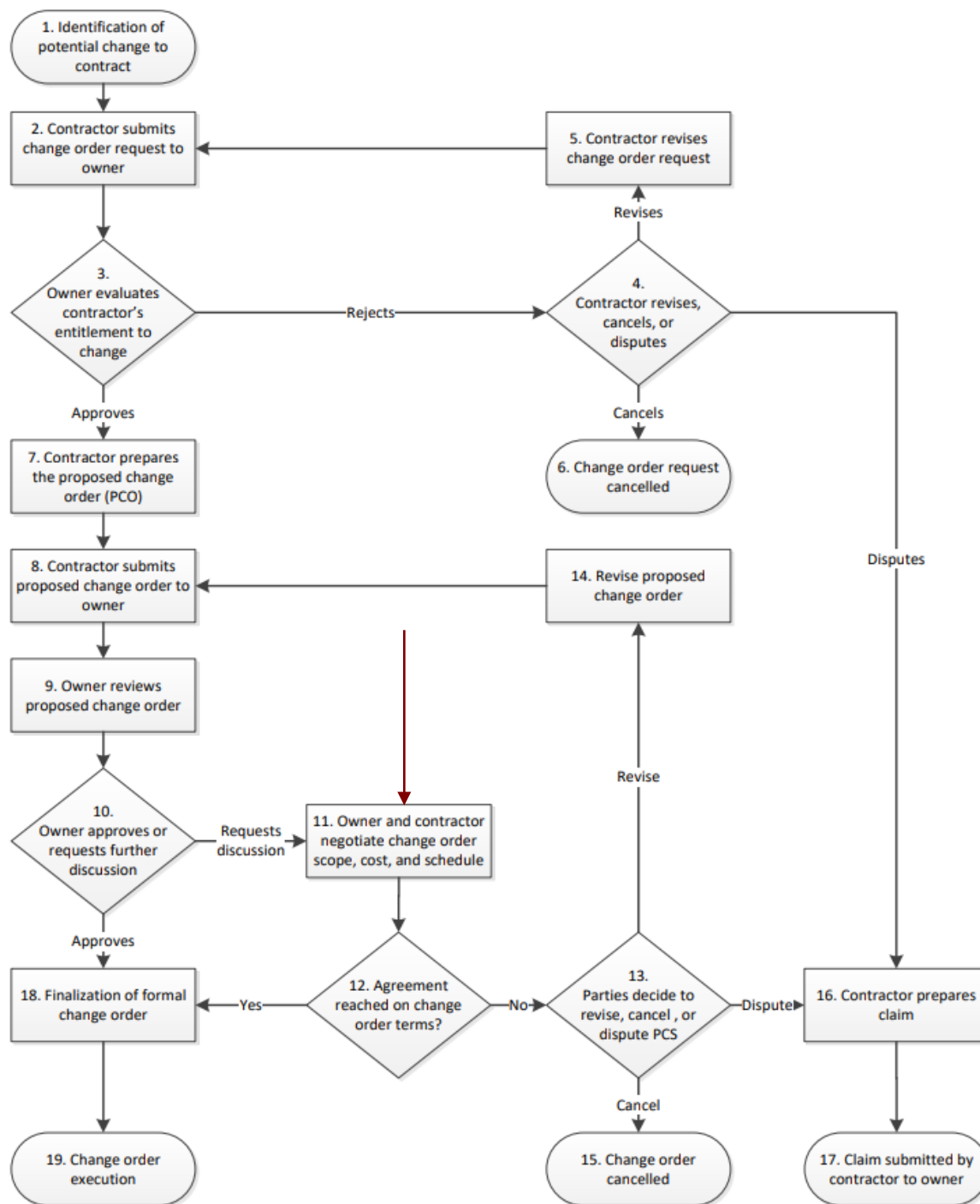
- ❖ The owner should consider **including a procedure** in the contract scheduling specification

that **defines the procedures** relative to

1. Preparation,
2. Format, and
3. Submittal

of the **contractor's schedule analysis** for **potential** Change Orders.

- ❖ The procedure should also address the approval process and the incorporation of the ratified revisions into the contract schedule.





8. Owner and Contractor Negotiate Change Order (Box 11)

- ☐ There will be times in which the **owner requires more explanation** concerning the PCO, and **exchanging emails** is no longer effective.
- ☐ The **owner's questions** may address
 1. Contractor's scope definition,
 2. Process by which it developed the pricing estimate, or
 3. How the time extension was determined.



8. Owner and Contractor Negotiate Change Order (Box 11)

- ❑ On many construction projects, there are **on-going scheduled change management meetings**

between the owner and contractor in which the agenda would **include PCO** that need face-to-face discussion.

- ❖ Typically, only the **more difficult PCOs are discussed**, and these meetings are meant to

1. **Resolve any unresolved** issues and/or
2. **Differences** in an expeditious manner.

8. Owner and Contractor Negotiate Change Order (Box 11)

Negotiations between owner and contractor may require
a series of revisions to the PCO (see Box 13) and
meetings to achieve an accord.



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

- ❖ The **method** by which the Change Order was priced usually **dictates** the level of negotiation that may be required to resolve the additional costs and time.



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ UNIT COST

- ✓ If the work for the proposed Change Order proceeded on a Unit Cost basis, it is characteristic that the unit rates that are used were established on the project and **agreed** to prior to the start of the work for the Change.

What to focus here?



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ UNIT COST

✓ The negotiations for this type of change are then focused on

1. **Quantities reported** to be used by the contractor and
2. Whether the change **warranted an extension of time** to the project schedule.



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ TIME AND MATERIALS

- ✓ Similarly, for Change Order work to be completed on a Time and Materials basis, it is expected

that the unit hourly rates for **labor and equipment** for the project

have been **ascertained in advance of the start** of work for the Change Order.

The owner's approval is based on?



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ TIME AND MATERIALS

- ✓ Therefore, the **owner's approval** of the costs for the Change Order is based on a review of
 1. The **time card records** and
 2. Copies of **material invoices** presented by the contractor, and potentially, the **subcontractor invoices**.

Evaluate time in time and material to negotiate?



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ TIME AND MATERIALS

- ✓ The **schedule** for the project is also **evaluated to determine** whether the work for the **proposed Change Order** may have affected the completion of critical milestone dates or the overall project completion date.

How about lump sum format?



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ LUMP SUM

- ✓ If the proposed Change Order was priced on a **Lump Sum basis**, the **contractor's estimate proposal** is inclusive of the risk that is relative to completing the scope of work for the change.
- ✓ The **contractor** may also **consider** that the **estimate details** for the cost of the proposed Change Order are **proprietary**.

For this Change Order method of cost calculation, the elements for negotiations and resolution include the following considerations:



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ LUMP SUM

- ✓ The preparation of an **independent cost estimate** and a **schedule analysis** of the work scope defined by a potential Change Order by the owner are **advantageous**.



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ LUMP SUM

- ✓ If the **timing allows**, the **cost and time impact** of a potential Change Order should be established and settled upon **prior to proceeding** with the **start** of the work for a Change Order.
- ✓ Due to the **speed** at which projects progress and the urgency of completing the Change Order work, the **prospect of evaluating** the estimated cost and time impact in advance is **not always possible**.

What to do in this case?



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ LUMP SUM

- ✓ When the contractor's proposal is **prepared** during or following the **completion** of the work for a Change Order,

the **estimate** is generally based on the contractor's accounting of

1. Actual man hours expended,
2. Actual quantities of materials used, and
3. Actual operating hours for the construction equipment items utilized.

Is it more difficult compared to the case
when negotiating in advance?



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ LUMP SUM

- ❖ Because the **estimate** is relying on the contractor's records, the **owner's validation** can be **more difficult** than completing an evaluation of the contractor's proposal that was **prepared in advance** of proceeding with the work.

What is the reason?



8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ LUMP SUM

- ✓ The **reason** for this difficulty is that the **contractor's records** may **not be made available** to the owner
 - if such **costs are mixed** with the base scope of work which is **paid** for on a lump sum or fixed price basis.
- ✓ If, however, they are **made available**, the records are **often not as complete** or comprehensive as they should be.
- ✓ Frequently, the process suffers because of **differing personalities** and from **heightened emotions**.

How to resolve this issue?

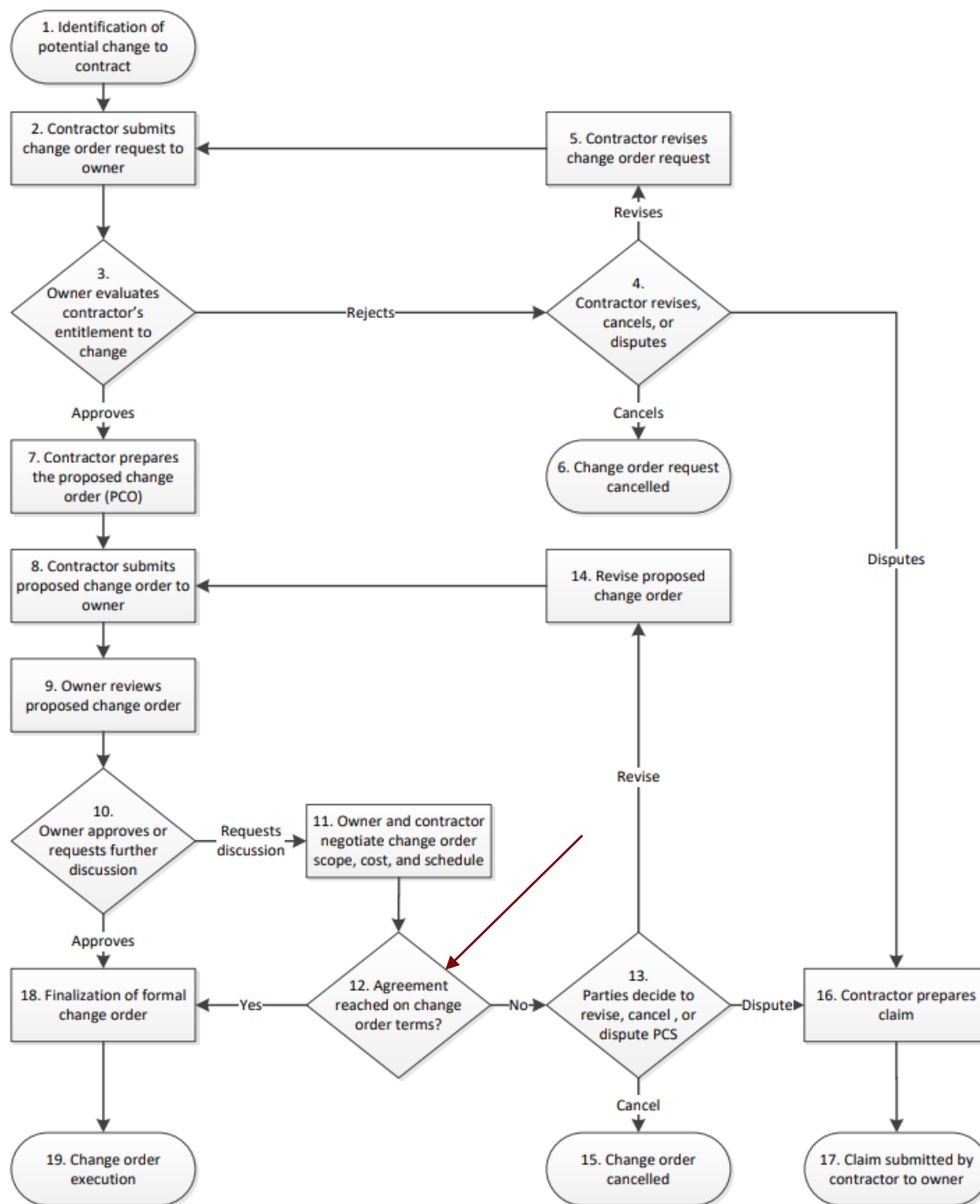


8. Owner and Contractor Negotiate Change Order (Box 11)

☐ Change order negotiations and resolution

❖ LUMP SUM

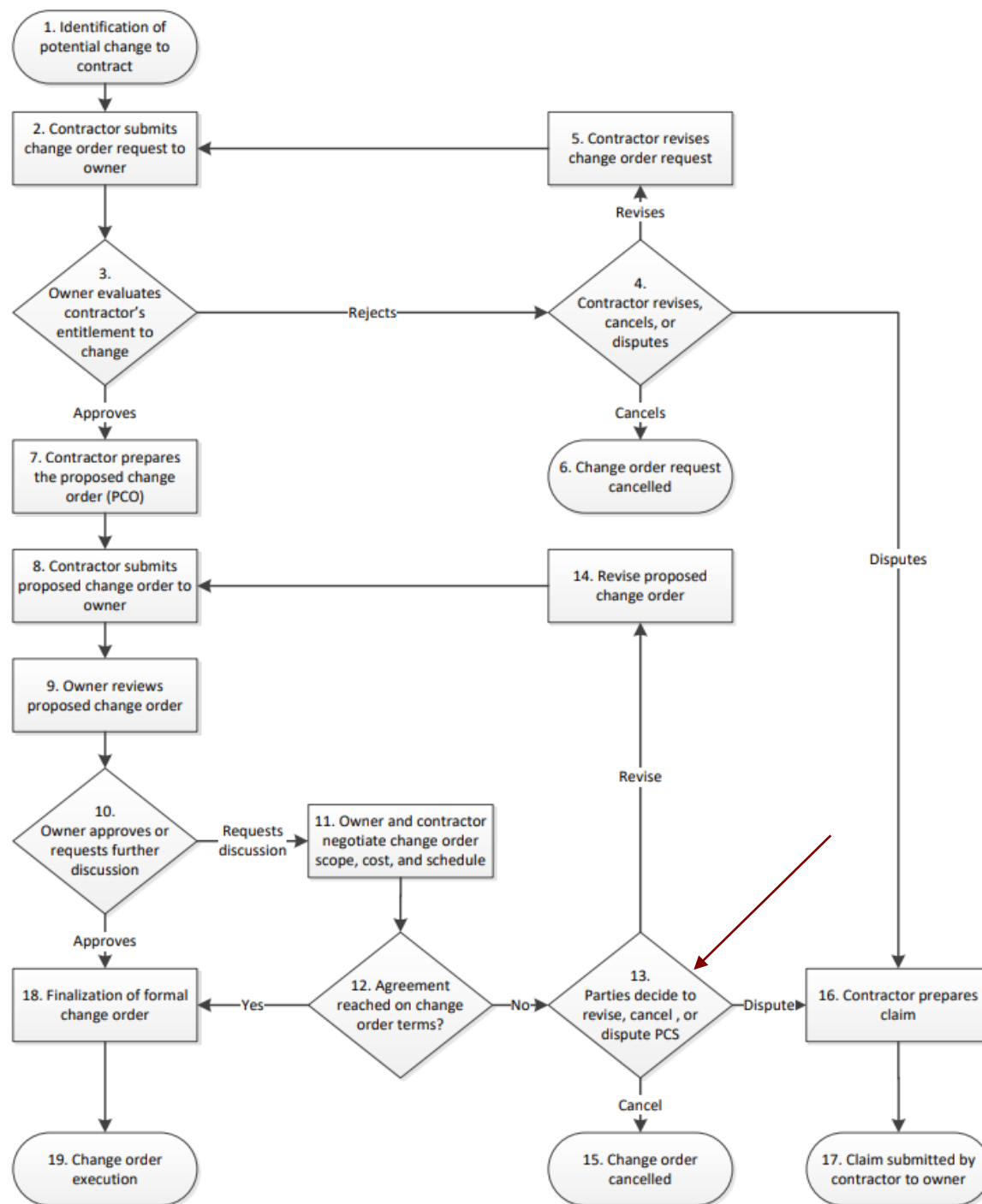
- ✓ To be **productive**, the focus of the negotiations should remain on the **factual circumstances** that are related to the Change Order.
- ✓ During negotiations, **disagreements** are often **experienced**, which can impede the progress for finalizing the Change Order.
- ✓ It is important to **actively resolve** any disputes as they develop so that an accord between parties can be **reached in a timely manner**.
- ✓ This attention by the parties will help to **minimize** the **filing of claims** on a project.





9. Agreement Reached on Change Order (Box 12)

- ❑ Ultimately, there comes a point in which the owner and contractor either **reach an accord, or not**.
 - ❖ If an **accord is reached** between the owner and contractor, **finalization of the change order proceeds** (See Box 16).
 - ❖ **If not**, the parties must determine the **next steps** to take with the PCO (See Box 13).





10. Parties' Decision to Revise, Cancel or Dispute PCO (Box 13)

- ❑ The **change management terms** found in construction contracts often state that the **contractor cannot commence** work until a change order has been **executed**;

however, this process is often by-passed.

- ❑ In the **interest of avoiding** further impacts to the project schedule and maintaining a good relationship with the owner,

the **contractor may agree** to

Commence the changed work and finalize the change order

1. **concurrently** or

2. **After** the work has been **completed**.

*With this bypass of the change management process, **cancelling the PCO** is a less viable option.*

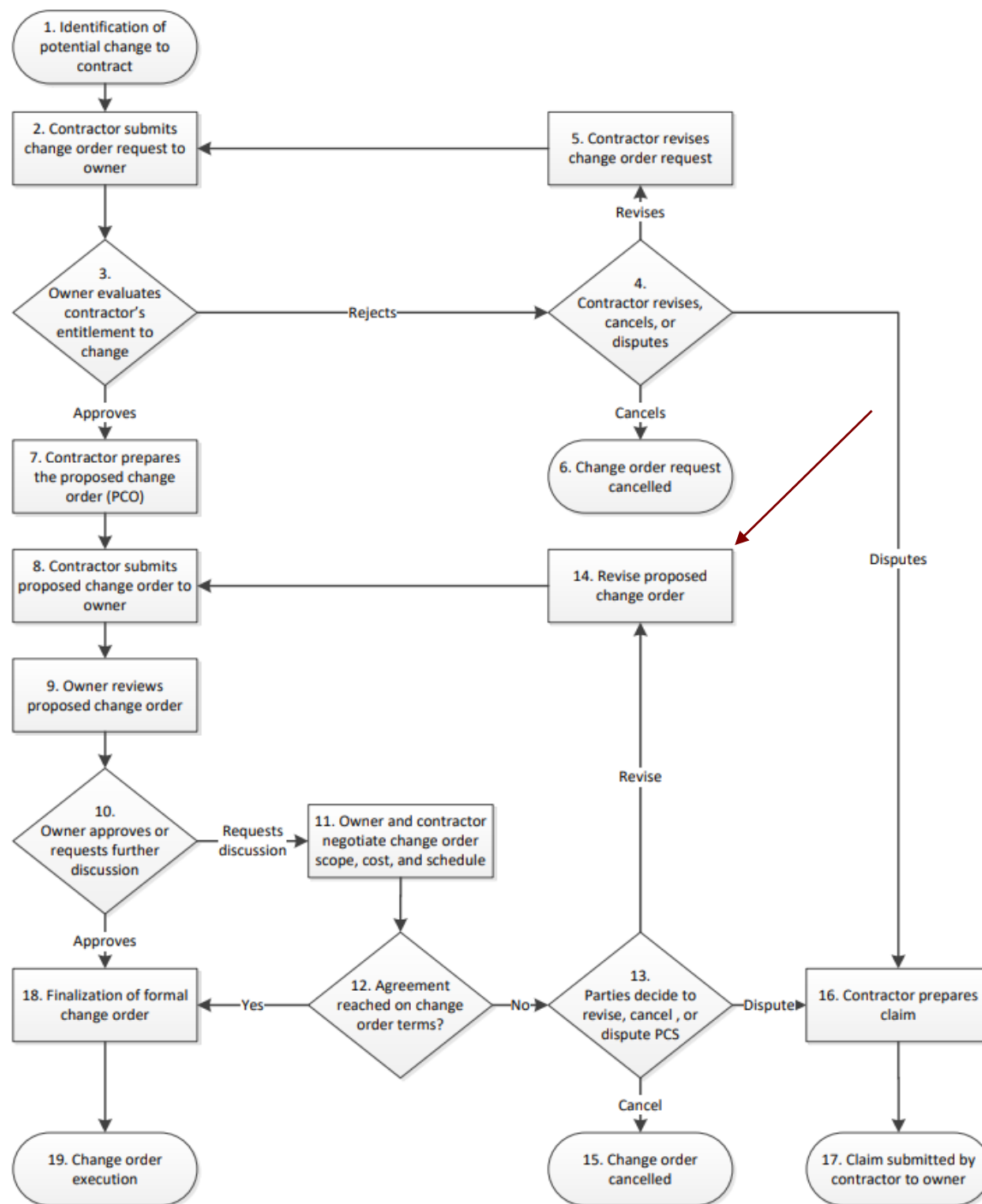


10. Parties' Decision to Revise, Cancel or Dispute PCO (Box 13)

☐ If there **remain unresolvable differences** between the owner and the contractor concerning a PCO,

the parties may conclude that **agreement cannot be reached**.

❖ In these instances, the parties must decide on **one of three options** concerning the future of the unresolved PCO:

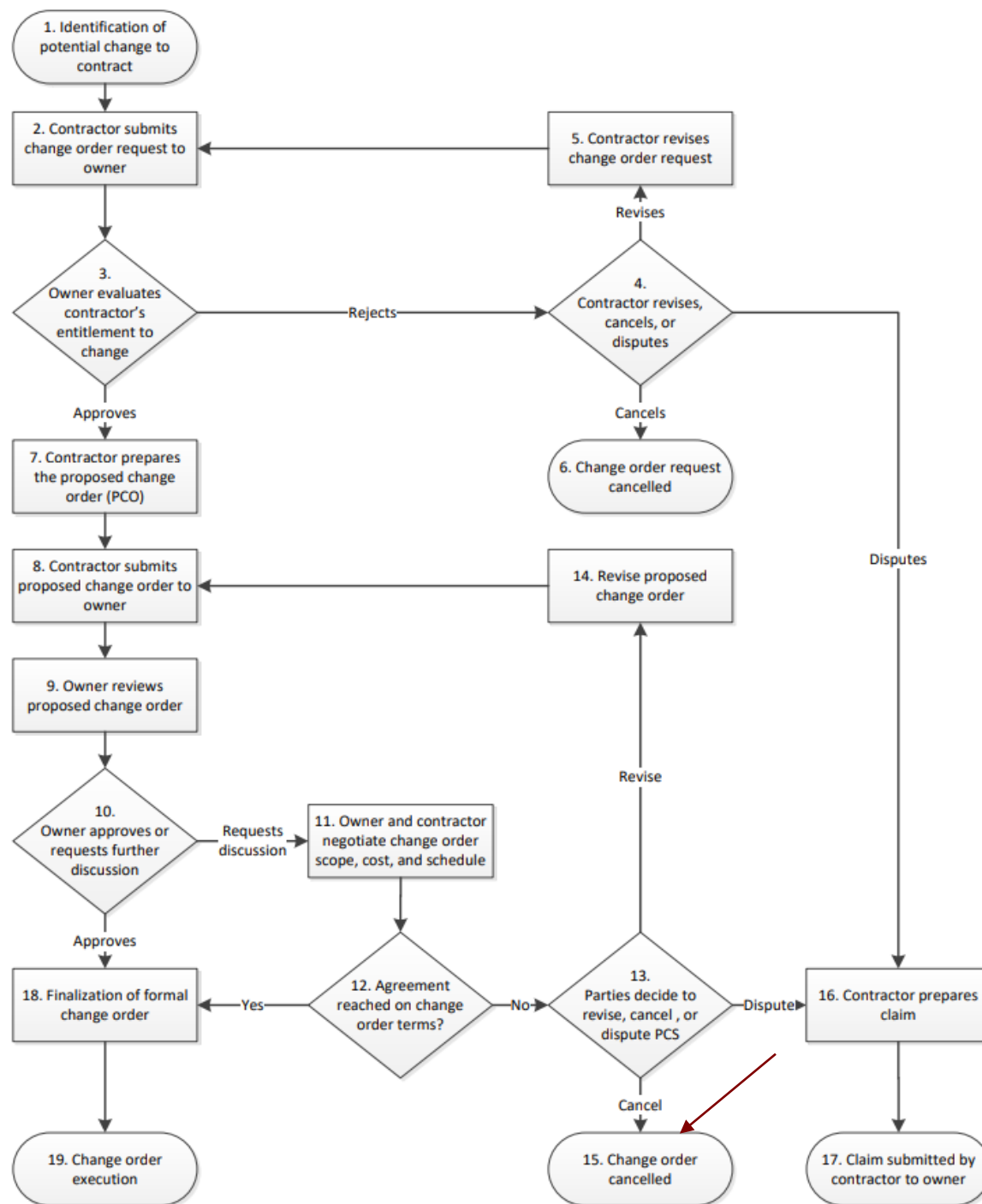




10. Parties' Decision to Revise, Cancel or Dispute PCO (Box 13)

❑ Option 1 (Box 14):

- ❖ The parties choose to continue to **try to find a common ground**, which may include more revisions and discussions.
- ❖ **Attempts are often made** to resolve differences at higher levels of management in **both organizations**.
- ❖ This may **prolong the process** of executing a change order in a timely manner, which increases the **possibility** that a **dispute** will **arise**
if the **contractor agreed** to perform the work even before
agreement was reached on the scope, cost and/or schedule impact.



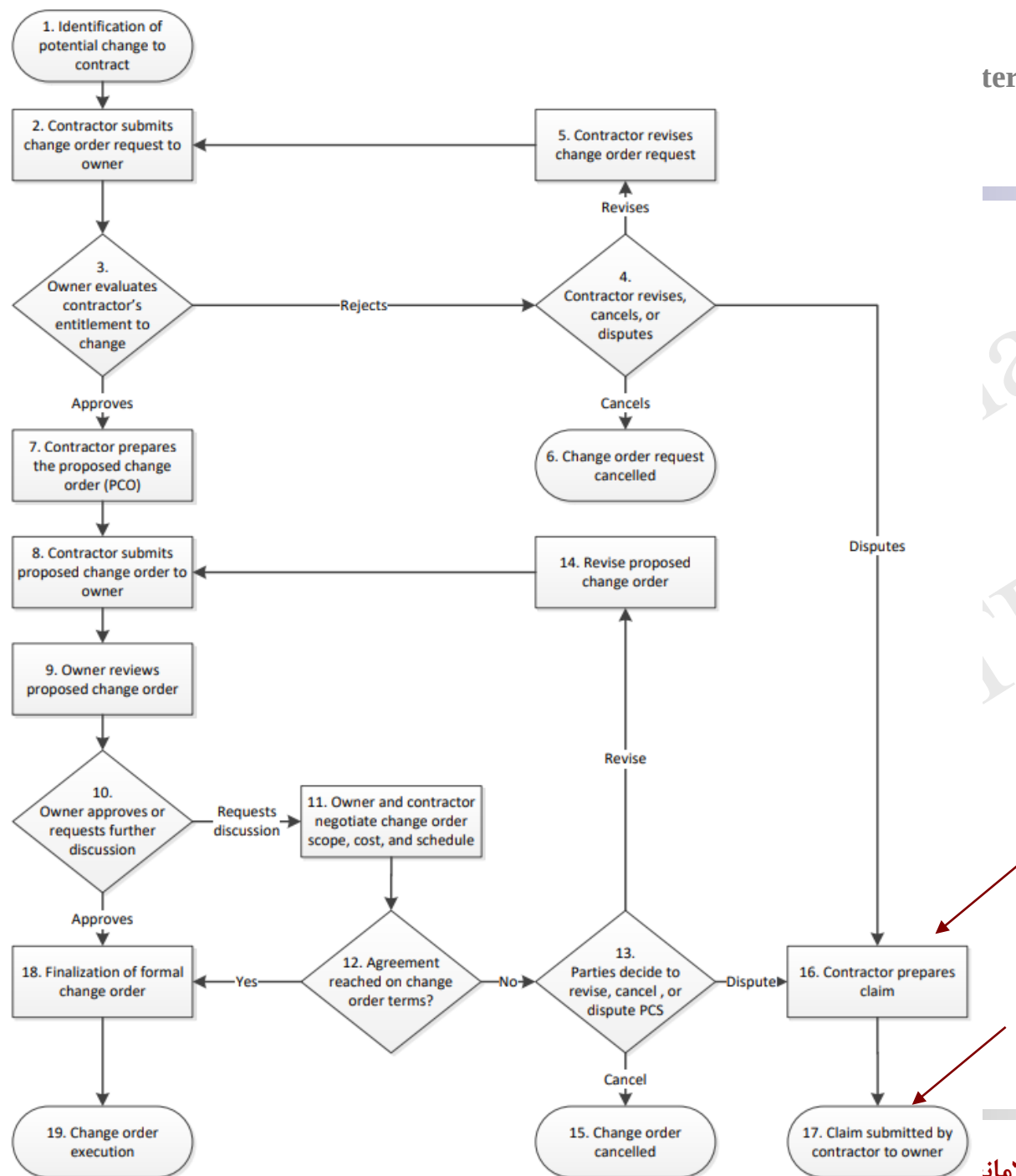


10. Parties' Decision to Revise, Cancel or Dispute PCO (Box 13)

☐ Option 2 (Box 15):

- ❖ The **parties agree** to cancel the changed work, and therefore, the PCO.

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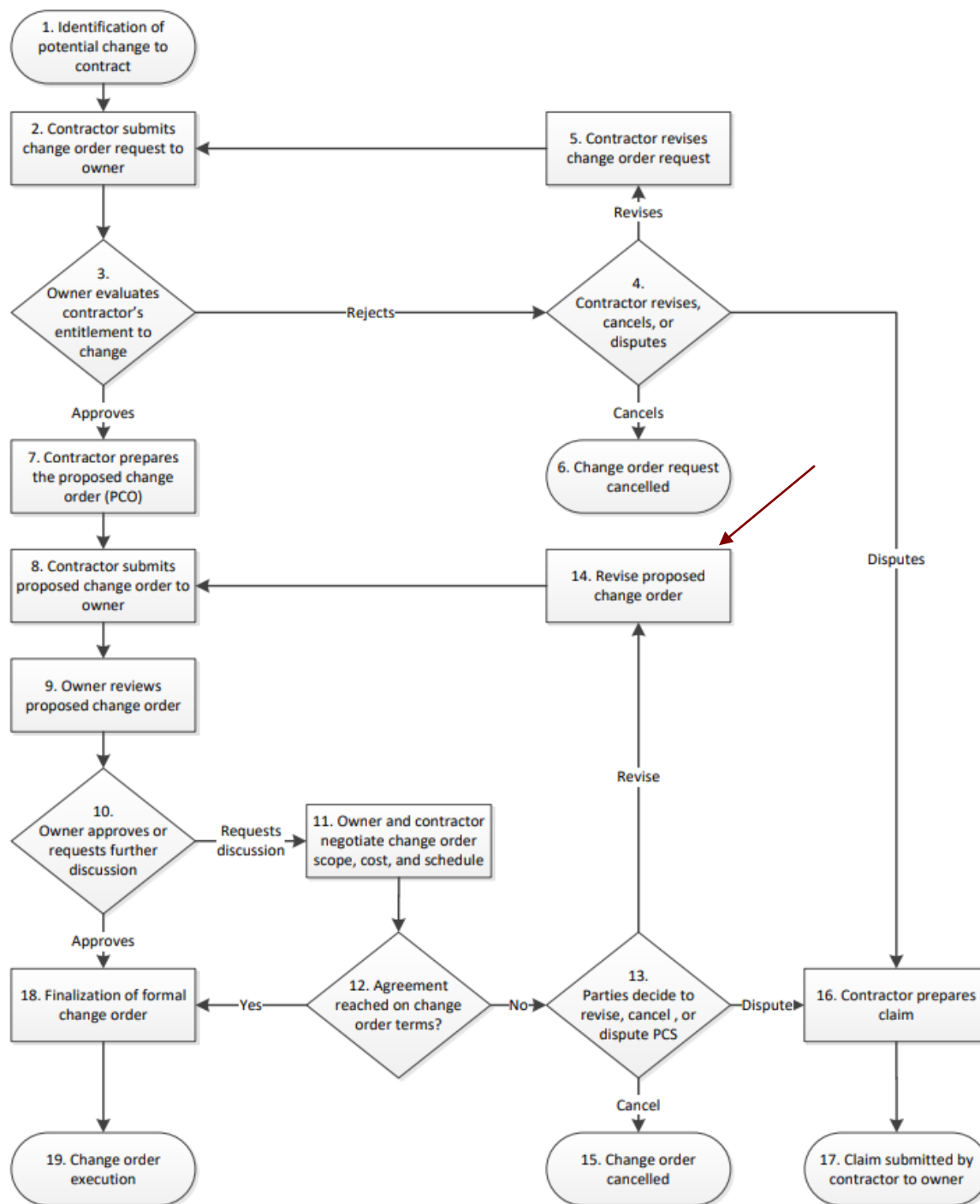


10. Parties' Decision to Revise, Cancel or Dispute PCO (Box 13)

❑ Option 3 (Boxes 16 and 17):

❖ The **parties may decide** that they cannot come to an agreement on the PCO's scope, cost, and/or schedule impacts.

1. If the **owner demands** that the changed work be performed, it may issue a directed change order.
2. If the **contractor deems** the directed change order is substantial enough in terms of cost and schedule impacts,
the **contractor may proceed** under protest and will often prepare and eventually submit a formal claim to the owner.





11. Revise Proposed Change Order (Box 14)

- ❑ As a result of owner comments, negotiations between the parties, or the introduction of new information,

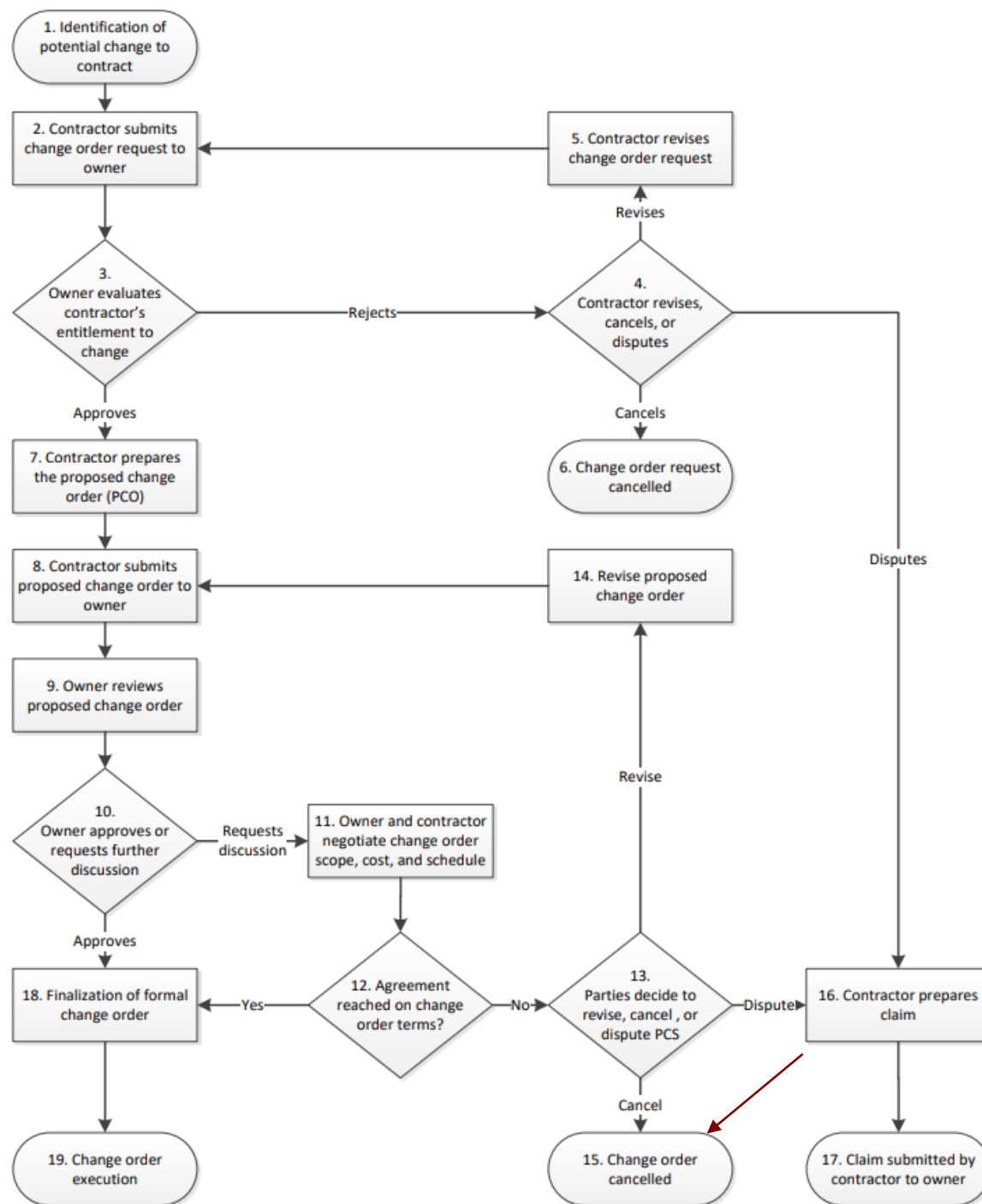
the **contractor** may choose to **revise the PCO**.

- ❑ **Revisions** to the PCO may become an iterative process as a result of **multiple negotiation meetings** between the parties.

- ❑ **Revisions** to a PCO should be a collaborative process between the owner and contractor.

- ❑ Once the **revision is complete**,
it is **submitted** to the owner for review.

The owner should be **cognizant of any forecasted impacts** to **contingency and/or management reserve** budgets affected by the change **(See Box 8)**.

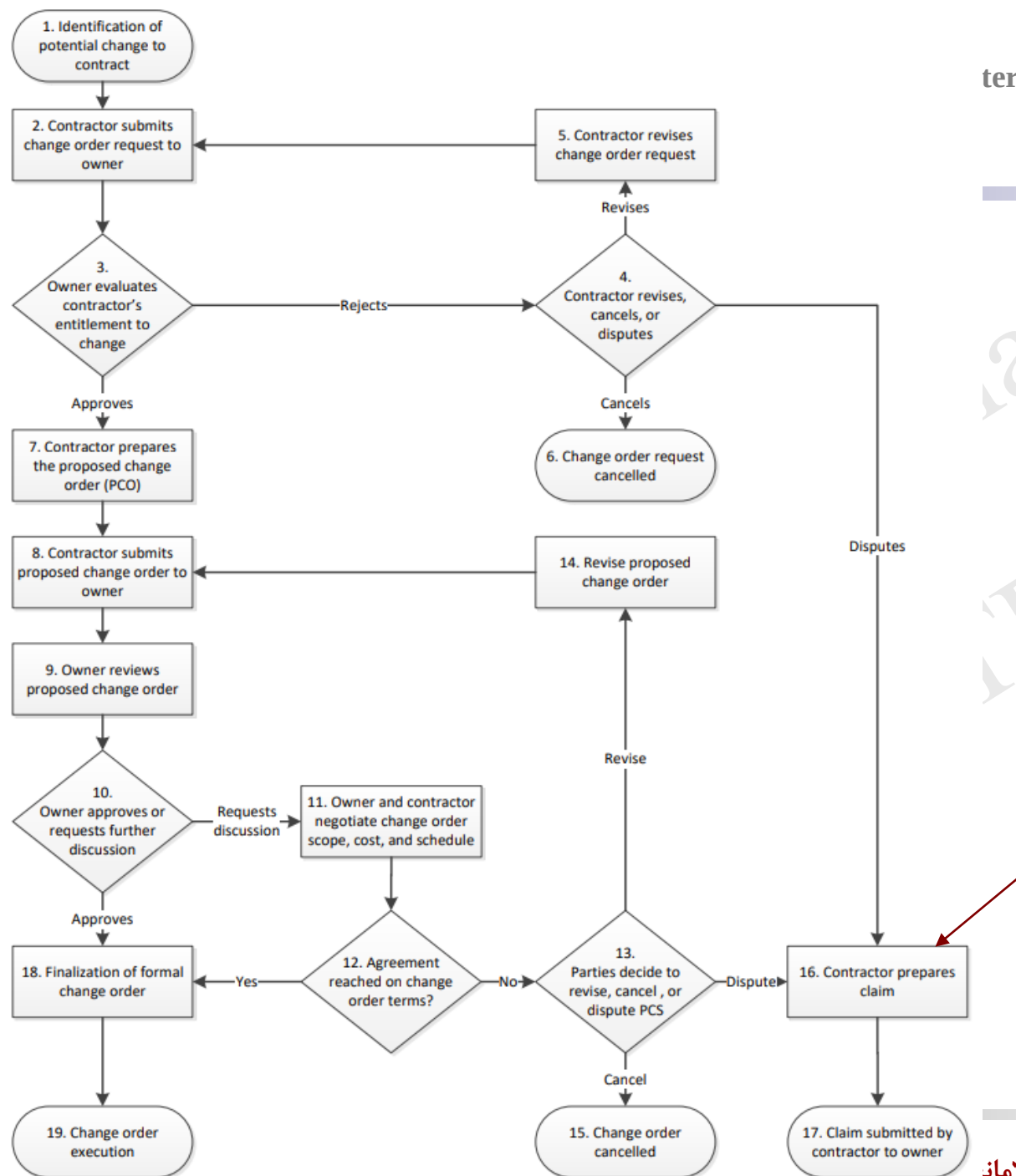




12. Change Order Cancelled (Box 15)

☐ If the **owner determines** that

1. Price of the work or the schedule impact is **more than** it expected or can **tolerate**, and
2. Parties cannot come to an amicable agreement on the PCO,
the **change request** can be cancelled,
assuming that the **contractor had not already** started or performed
the work.





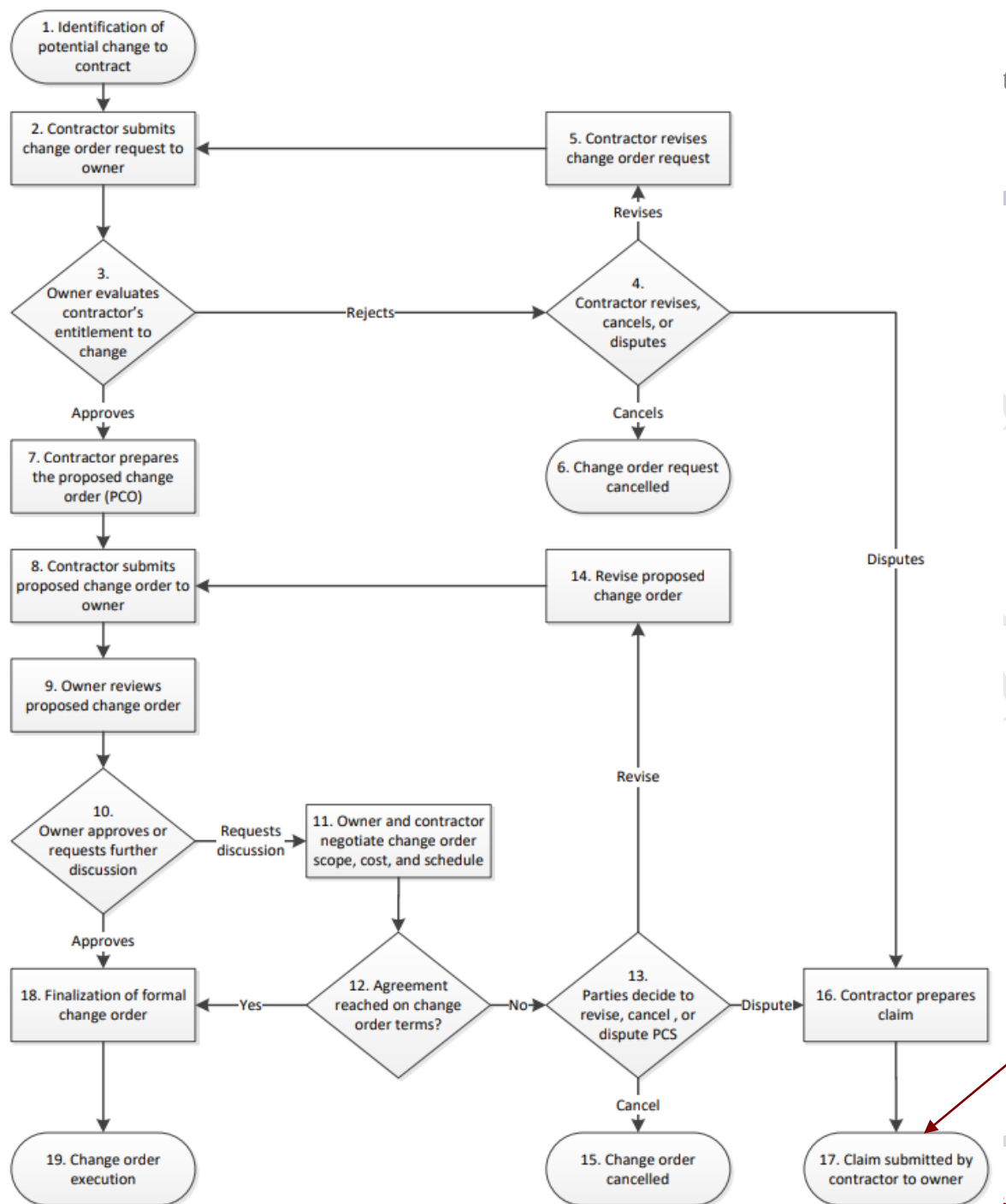
13. Contractor Prepares Claim (Box 16)

- ☐ A claim is defined as,
 - ❖ “A demand or assertion of rights by one party against another for damages **sustained** under the terms of a legally binding contract.
 - ❖ Damages might include money, time, or other compensation to make the claimant whole.”
- ☐ Most often, the **contractor** is the party that prepares and submits a **claim**.
- ☐ After **exhausting all other possibilities**,
preparing and submitting a claim should be the **last option** that a contractor uses to **resolve a change impacting** its project cost and/or schedule.



13. Contractor Prepares Claim (Box 16)

- ☐ To **prepare a claim** the contractor should follow a **similar process** that was used to prepare the proposed change order.
- ☐ In addition, the claim should include **relevant communications** between the parties during the negotiation process.





14. Claim Submitted by Contractor to Owner (Box 17)

☐ The **purpose** for preparing and submitting a claim to another party is to put that **party on notice** that

1. There is a **claim** concerning a specific portion of the work on the project, and

2. From the **perspective of the claimant**,

1. Necessary narrative,
2. Supporting information,
3. Data, and
4. Analyses

are sufficiently provided to demonstrate its **entitlement** to disputed damages.

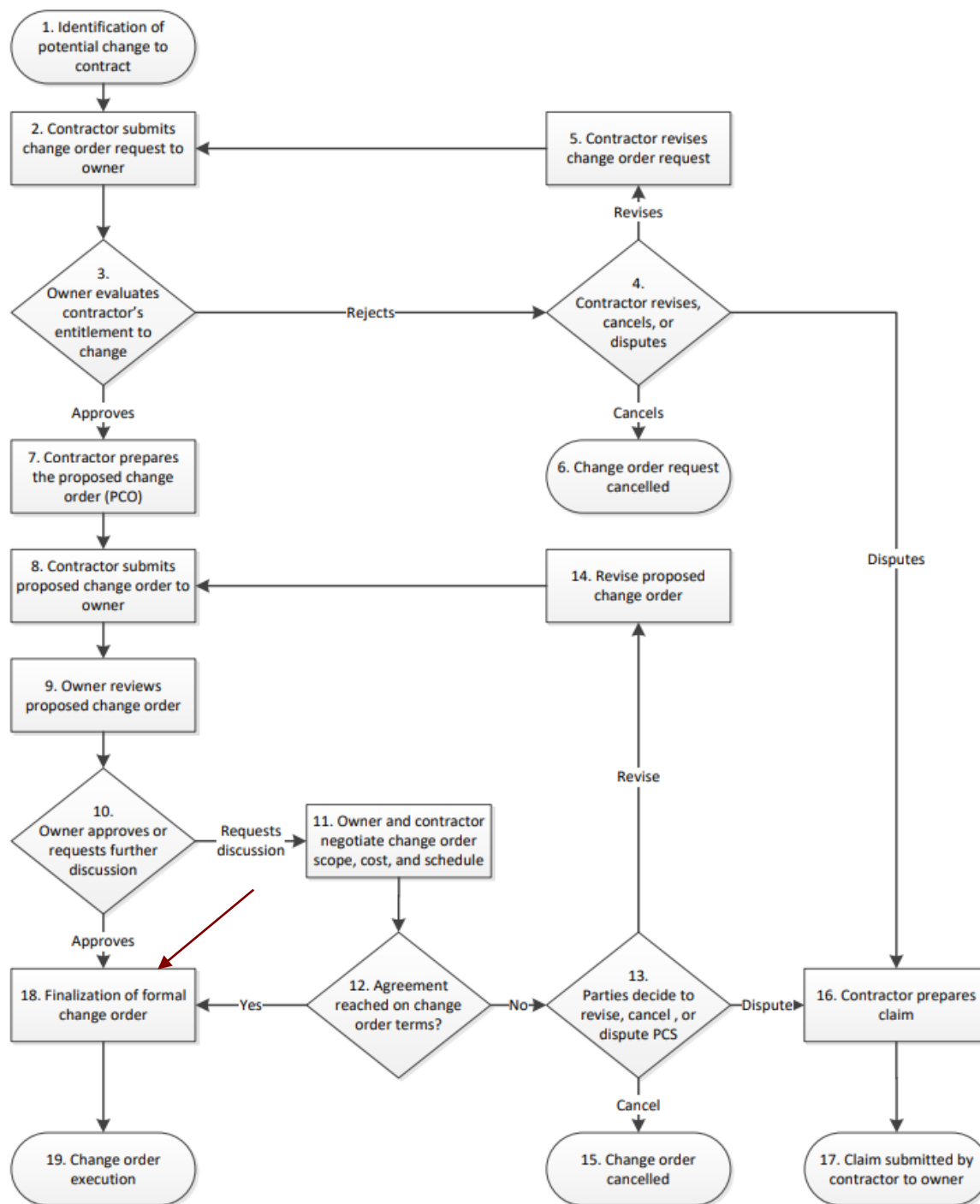


14. Claim Submitted by Contractor to Owner (Box 17)

❑ Although **claims** can be negotiated internally between the parties' organizations,

- ❖ Most often they are adjudicated by third parties, such as
- ❖ Dispute resolution boards,
- ❖ Arbitration tribunals,
- ❖ The court system, or
- ❖ Other alternative dispute resolution entities or processes.

Most construction contracts specify the forum for the dispute resolution process.



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