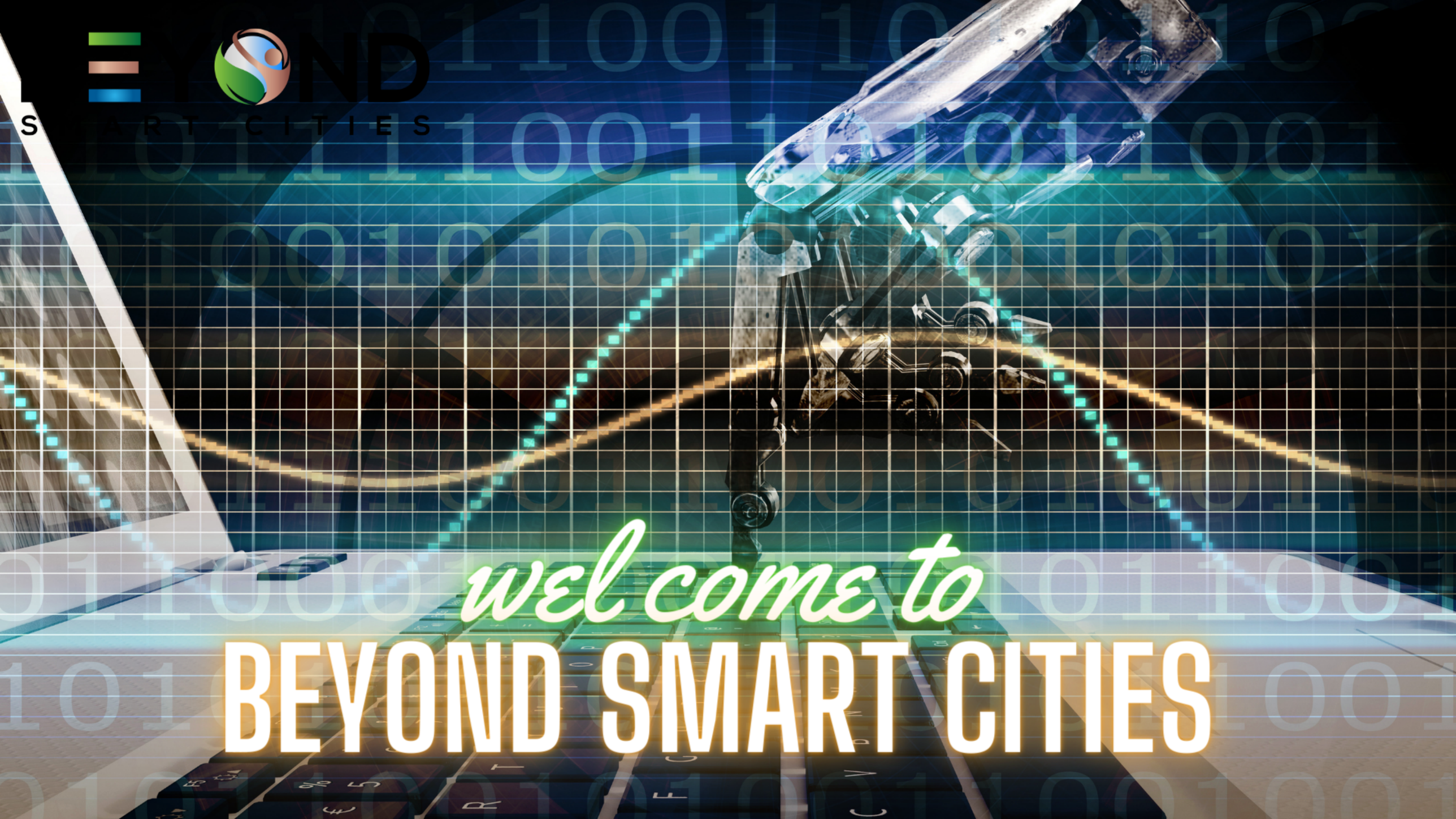

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MODULE

07 - B

Predesign Phase CXA Process

KRISHNAJI PAWAR - CEO & FOUNDER

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CERTIFIED COMMISSIONING MANAGER - CCM TRAINING OVERVIEW

Qualified CxAs focus on functionality and commissionability questions rather than comments, allowing them to analyze operating conditions and provide sensible answers. They reference the owner's project requirements, promoting discipline in the commissioning process. The commissioning authority ensures quality, while designers control it.

Learning Objectives

- Introduction
- Design Phase Overview
- Predesign Conference
- Basis of Design
- Commissioning Plan
- Design Review and Process
- Commissioning Specifications
- Pre-Bid Conference
- Project Manual Review
- Commissioning Design Review
- Value Engineering
- Risk Management
- Design Commissioning Report

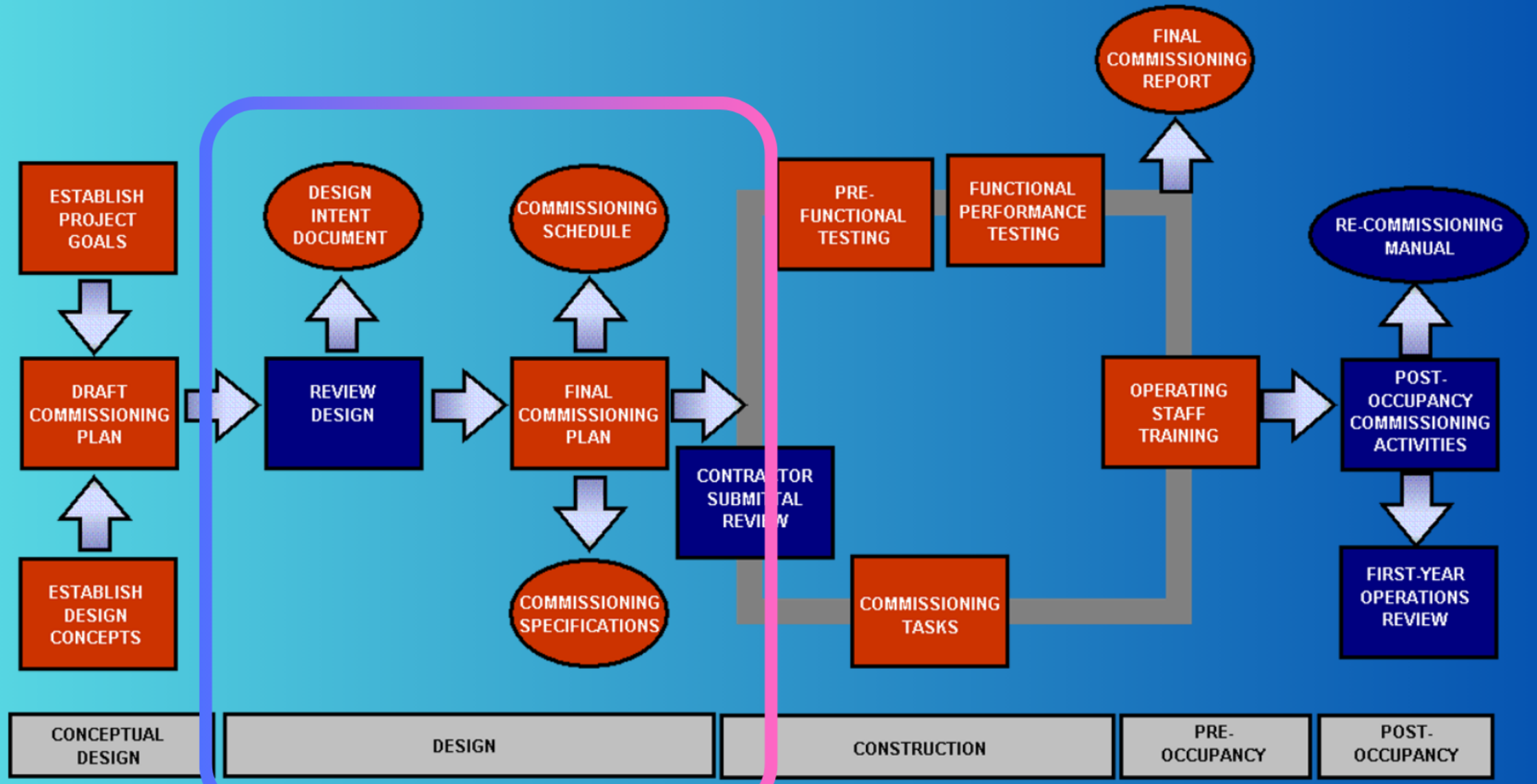
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INTRODUCTION

- The schematic design phase follows predesign.
- Assuming the owner's commissioning authority participated fully in predesign, the CxA is fully knowledgeable about the owner's project requirements and can help the design phase succeed.
- Understanding the commissioning authority-design professional relationship is essential before discussing design details.
- The CxA's role is to help the design professional achieve the project's best system design and ensure that the DP's preferred design concepts meet all performance objectives in the owner's project requirements.
- Keep in mind the owner's building commissioning quality assurance process's two main principles during design: The commissioning authority ensures quality.

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COMMISSIONING AND THE BUILDING DEVELOPMENT PROCESS





COMMISSIONING PLAN



- During predesign, an embryonic commissioning plan was created to establish the format and discipline needed to maintain and update it.
- The CxA oversees the commissioning plan, but the DP updates it to match design concepts and details during design.
- The commissioning plan serves three purposes: it records process benchmarks and provides a road map and timetable for project participants to follow.
- Thus, the CxA must work closely with design professionals to assist and educate them in everything that needs to be conveyed to the contractor via drawings and specifications—all work and planning needed to make the quality assurance program a success that will benefit all project participants.

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DESIGN REVIEW



- Some of the most important work of the CxA occurs during or is the result of the various design review periods, which typically occur at the conclusion of the schematic design phase, the design development phase, and the construction document phase.
- Depending on the size and complexity of the project, it may be necessary to conduct additional design reviews at the sixty and/or ninety percent completion stages of the construction document phase.
- According to the nature of the project, the CxA should propose the optimal schedule for design reviews.
- To ensure that design reviews are properly scheduled and include sufficient review materials, the design professional agreement must contain specific requirements.

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DESIGN REVIEW +



- Design review is a crucial process in commissioning that ensures the project's quality is consistently verified at each stage.
- The CxA must establish a review process to assess the quality control duties of the DP's work.
- This includes regular reviews of plan, specification, calculation, and other aspects of the project.
- For plan review, a grid pattern across all drawings is effective.
- The CxA will review 20% of the drawings each time but 60% in total.
- Similar methods can be used for other document review requirements, highlighting the DP's quality control.
- After each design review, the DP's performance requirements are reinforced.
- The review process is the same for every design phase, but the details vary.

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DESIGN REVIEW PROCESS +





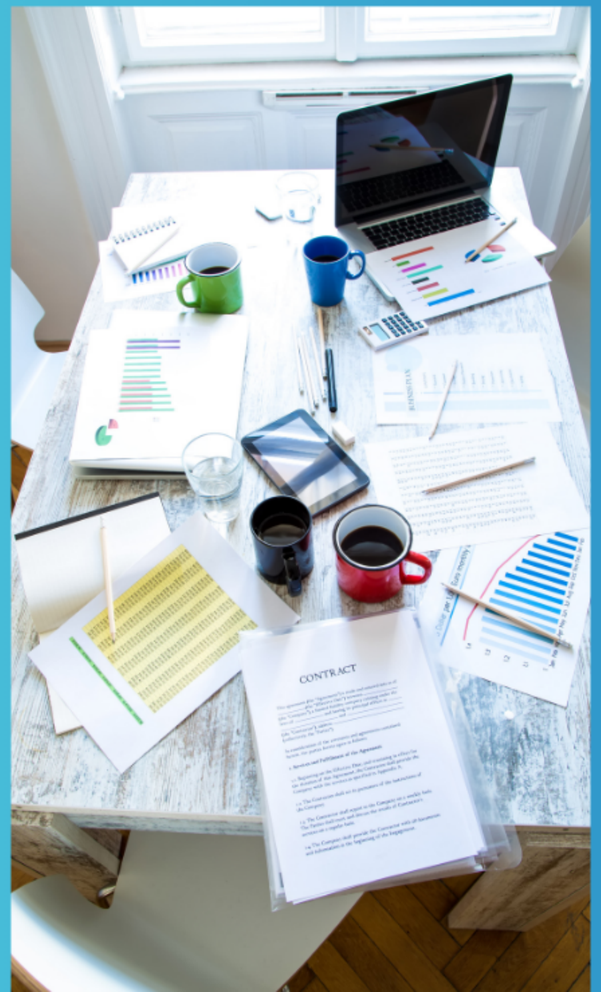
- Design development reviews are more specific and ensure all design concepts meet owner project requirements.
- Construction documents are carefully reviewed to avoid costly mistakes.
- Owners must ensure two crucial points are understood and enforced: all system concept decisions must be made during design development, and construction documents cannot delay critical decisions.
- Second, the owner must not allow the project to go out for bids with incomplete or otherwise unsatisfactory construction documents (with the promise that the necessary corrections will be made during construction).
- Incomplete construction documents will haunt the owner throughout the duration of construction and inevitably necessitate a large number of expensive change orders.
- Even if the schedule must be pushed back a month to accommodate the completion of the construction documents, the owner will likely benefit significantly.

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DESIGN REVIEW STEPS

- There are essentially six design review steps: general drawing review, basis of design review, discipline-specific drawing review, discipline coordination drawing review, specifications review, and calculations review.
- At the end of each review step, the reviewer must document concerns that the design professional must address and resolve in order for the project to succeed.



- **General Design Review**
- **Basis of the design review.**
- **Discipline-Specific Design Review**
- **Discipline Coordination Drawing Review**
- **Specification Review**
- **Calculations Review**

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