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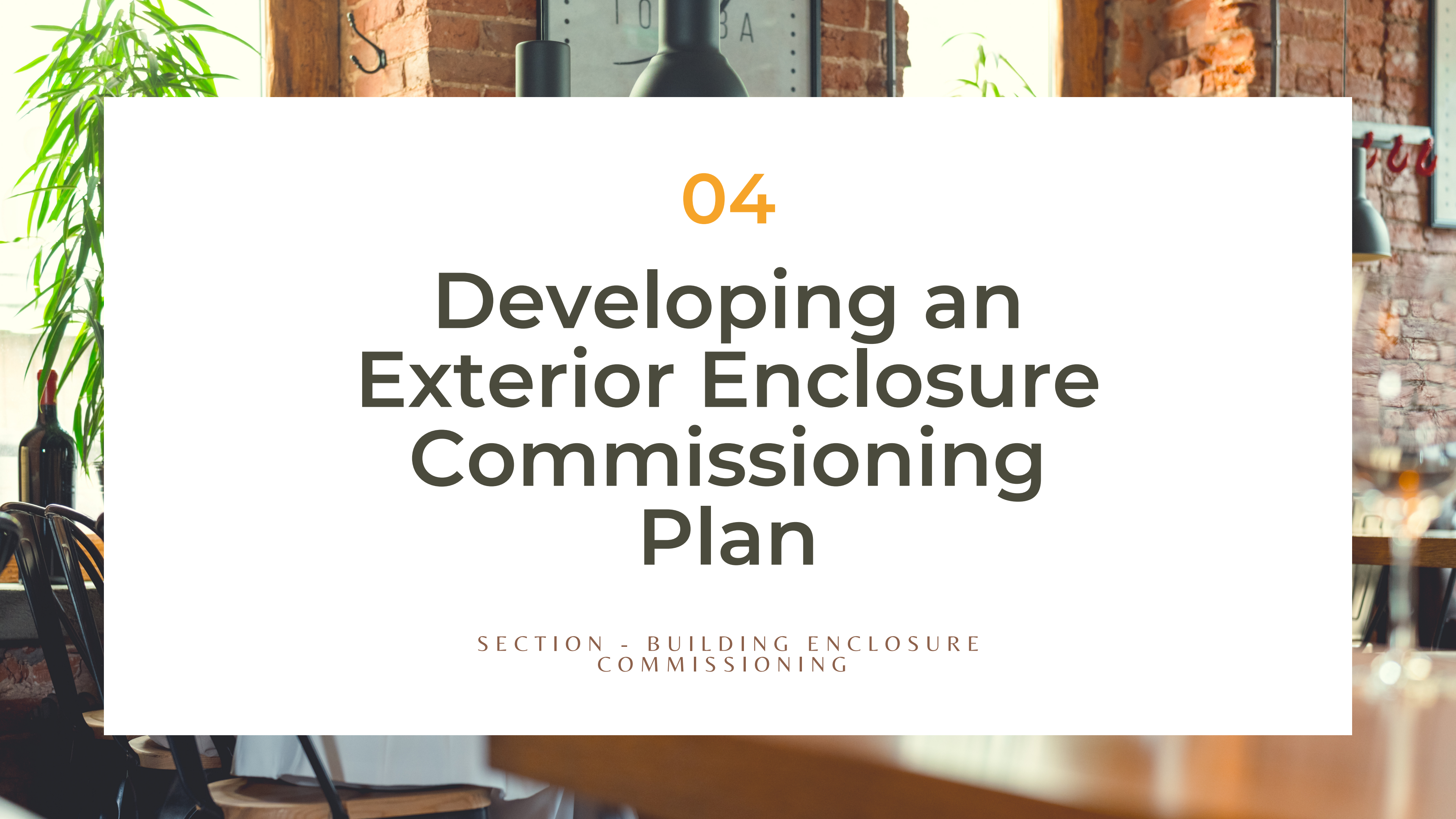


WELCOME TO BUILDING ENCLOSURE COMMISSIONING

ONLINE TRAINING

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The background of the slide is a photograph of a modern cafe or restaurant interior. It features exposed brick walls, a hanging plant on the left, and a lamp in the center. The scene is softly lit, creating a warm and inviting atmosphere.

04

Developing an Exterior Enclosure Commissioning Plan

SECTION - BUILDING ENCLOSURE
COMMISSIONING

Developing an Exterior Enclosure Commissioning Plan



03

WHAT YOU WILL LEARN

- Design of the Exterior Enclosure
- Exterior Enclosure Commissioning Phases
- The Exterior Enclosure Commissioning Plan

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How Does Building Envelope Commissioning Work?

- The architect can investigate building shape early in the design process. The owner's vision and the architect's inspiration usually work together. In the commissioning phase, the Owner's Project Requirements can lay the groundwork for an owner's building vision (OPR). An OPR lists the owner's needs, including function, durability,
- beauty and sustainability. An OPR for the outside enclosure may address owner needs for daylighting, thermal comfort, indoor air quality, and exterior enclosure component materials or quality. The OPR provides broad objectives from which the architect can develop the building's program's look and performance standards as the Basis of Design (BOD). The Whole Buildings Design Guide distinguishes the two documents: "The design A-E prepares the Basis of Design (BOD) to demonstrate how the proposed design meets the Owner's Project Requirements (OPR). OPRs are for owners/users, while BODs are technical " (NIBS 2010).
- Usually owners and architects collaborate to design each building's exterior. Every building is a distinct internal (usually conditioned) space defined by an enclosure of components based on its function, design, and location. Hence, building construction document reviews should be mindful of risks and hazards that could cause early failure.
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Design of the Exterior Enclosure

- An appealing view can inspire large glazing. . Compromised performance due to excessive temperature draughts and discomfort, increased energy expenditures due to glass's insulating limitations, noise, water leakage, or structural failure might reduce view enjoyment. To meet owner needs, building design and external environment accommodation must be balanced.
- . Art, museum, and other unique, odd, or complicated buildings by legendary architects challenge both public perception and outside enclosure performance. To protect rare items or processes, these sophisticated structures need well-balanced, conditioned interiors. If excessive air infiltration or exfiltration threatens the HVAC system balance or causes condensation or water leakage, these buildings' functioning and contents are at risk. To minimise risk, prevent design- or construction-related failures, and meet owner requirements, outside enclosure materials and features must be considered.
- Hospitals, emergency shelters, and other "important" buildings that must stay operational during extreme weather occurrences may need additional external enclosure design criteria, according to ASCE 7 (2006). Many buildings that hold scientific research or important communications are "necessary" to these owners' goals and activities, even if code standards don't address this. During occupation, exterior enclosure failures that let water in, contaminate the air or surfaces, or change the air quality can harm these buildings.

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Design of the Exterior Enclosure

- Preserving, revitalising, rehabilitating, retrofitting, recladding, or reusing a structure can create intricate interactions between the old and the new. New and old outside enclosure building components can interact in infinite ways. Hence, many immediate or long-term issues arise. A new window placed within a masonry veneer wall may not protect from air or water leakage from the cavity; sheet metal blast protection placed to the interior of a mass masonry wall, altering the drying characteristics of the wall assembly; or an overclad of the existing exterior wall creating a double vapour barrier or dual façade, resulting in v. To meet owner requirements, each outer enclosure component must work together, including inside HVAC conditions.
- The outside enclosure must consider not just how the building appears and performs but also how each section works together to protect it from the outside world. . It must also be sturdy. The enclosure assembly must be constructible, inexpensive, and resistant to fire, pests, and loads.
- The outer enclosure encompasses the building's below-grade portions, façades, roof, and appendages like canopies and penthouses. Each of these domains contains complex systems with many parts that work together. Systems can interface on different planes, elevations, and angles. These interfaces must evaluate each system's specific performance qualities, such as a rain screen or barrier design approach, and be successfully integrated to create an outer enclosure that fulfils the owner's needs. The outside enclosure is a complex assembly that requires a commissioning plan and project-specific duties.

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PORTFOLIO GALLERY



The Exterior Enclosure Commissioning Plan

- A plan defines commissioning. Each system needs its own strategy for total construction commissioning. The owner's needs and the exterior enclosure design determine the duties and goals of an exterior enclosure construction plan, which follows the construction project's phases. All phases of a plan must be documented.
- . A building typology's design elements, details, and specific functions must be assessed to predict performance and risk management. To determine a building's commissioning level, each design, performance criterion, environment, purpose or use, operation, and owner demand must be considered. Luckily, the constructed world lacks standardisation, therefore EECx is a dynamic and adaptive programme to achieve, evaluate, and validate each exterior enclosure based on its advantages and problems.
- Commissioning the outer enclosure should be planned by experienced designers and builders. As one individual rarely has all the expertise and time to design and build the building's outer enclosure, it's better to have a team work on a commissioning plan. The owner initiates the commissioning process, hence the commissioning authority should be directly hired by the owner to objectively advise and help meet project requirements.

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Exterior Enclosure Commissioning Phases

- Pre design Phase

OPR document/EECx plan

- Design Phase

Document reviews and reports

Project team meetings following each review EECx Specification

- Pre construction Phase

Observation of a laboratory mock-up and performance testing

Shop drawing and submittal review

EECx meetings and trade pre construction meetings On-site quality awareness seminar

- Construction Phase

Construction milestone site visits Functional performance testing EECx meetings

EECx report

- Occupancy and Operation Phase

Exterior enclosure occupancy training Exterior enclosure warranty review Whole-building test

Ongoing commissioning

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EXTERIOR ENCLOSURE COMMISSIONING



- Commissioning the exterior enclosure requires knowledge, experience, and dedication beyond a generic plan.
- The EECx process institutes a plan with project-specific tasks that transition from the role of verification to validation.
- The process requires a team of dedicated professionals from the project's design and construction teams working in a collaborative environment to achieve the owner's project requirements.



THANK YOU

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