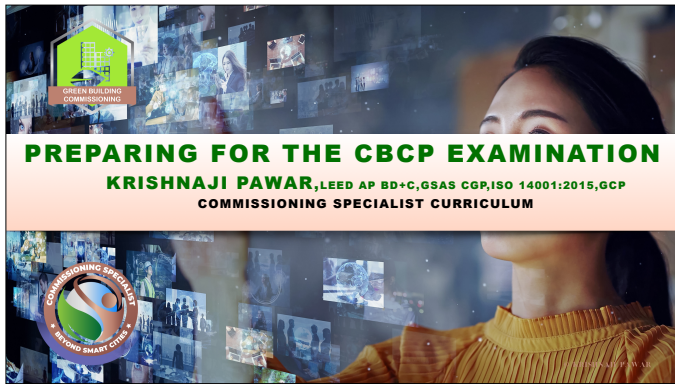
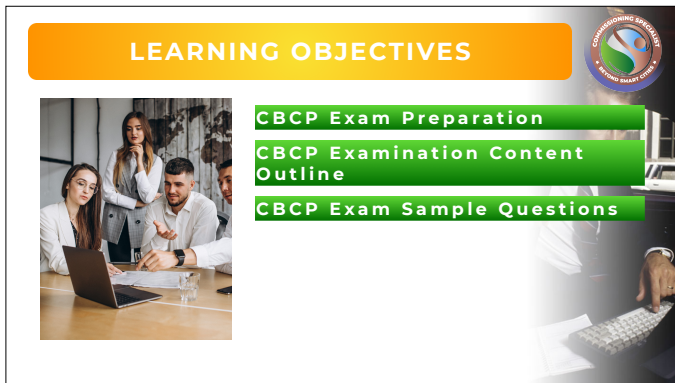








PREPARING FOR THE CBCP EXAMINATION

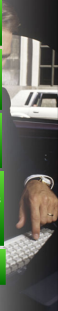
The CBCP examination is comprised of 130 four-option multiple-choice questions, administered in a computer-based examination format.

Applicants are allotted 4 hours in which to complete the exam. Each multiple-choice question has four answer choices; only one answer choice is correct.

Applicants have access to an on-screen calculator at all times during the examination, and will be provided with scratch paper that will be collected after the test administration.

The examination may include commissioning scenario-based questions. For each scenario, a set of two or more questions may be asked. The examination is written from the perspective that the applicant is a third-party, independent CxA authority.

Credit is given only for questions that have responses. Questions left blank will be scored as incorrect. There is no penalty for guessing.



EXAMINATION CONTENT OUTLINE

Intro to Commissioning (Cx)

- Cx Positive Impacts & Energy Savings
- Lifecycle Cost Comparison
- Keys to Successful Cx
- ASHRAE & TAB Related Guidelines
- Helpful Resources

Pre-design Phase

- ASHRAE Guideline 0
- Phases of Commissioning
- Standard Scope of Cx Services
- Owners Project Requirements

Design Phase

- Goals & Deliverables for Cx Activities
- Basis of Design Documentation
- Peer Reviews (Comment Tracking Forms)
- Cx Specifications
- General Commissioning Requirements

Construction Phase

- Submittal Reviews
- Pre-functional & Functional Tests
- Issues Logs
- Statistical Sampling (Verification)
- Project Coordination

Operation Phase

- Assisting with Training
- Issue Resolution & Minimization
- Deferred / Seasonal Testing / Seasonal Trend Reviews
- Energy Consumption Review
- Issuing Final Cx Report

Existing Building Commissioning (EBCx)

- CBCx vs. EBCx
- Benchmarking
- EBCx Process (Costs & Benefits, Tracking Results)
- Monitoring Based Cx
- EBCx vs. Energy Auditing
- Phases of EBCx
- Building Automation Systems (BAS)
- Trend Logs

Common EBCx Opportunities

- Scheduling
- Simultaneous Heating / Cooling
- Sensor, Actuator, & Setpoint Improvements
- TAB Opportunities



EXAMINATION CONTENT OUTLINE

Energy Engineering for EBCx

- Utility Bill Analysis
- Energy Engineering Calculation Methods
- EBCx Economics
- Sample EBCx Project Results
- Energy Star Technical Reference Materials

LEED Commissioning

- Building Design & Construction (BD+C)
- Building Operations & Maintenance (O+M)
- Energy & Atmosphere Prerequisites & Credits

TAB Fundamentals

- Engineering Fundamentals
- Terminology & Calculations
- TAB Procedures (Checklist)
- NEBB Helpful Resources

Reviewing TAB Reports

- Early Steps & General Suggestions
- Specification Review
- Technical Review
- System Analysis
- Field Verification
- Sample Reports & Resources

Electrical Systems Commissioning

- Requirements & Methods
- Levels of Cx
- Design Review
- Developing Cx Plan
- Cx Tools & Execution
- Variable Frequency Drives (VFDs)
- Delivered Product

Building Envelope

- Design & Construction Document Review
- Lab & Onsite Performance Testing
- Construction Visual Inspecting
- ASHRAE Guideline 0-2005
- Test Methods & Standards

Measuring Equipment

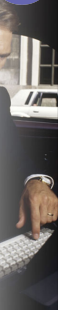
- Testing Preparations & Precautions
- Common Measuring Tools

TAB Myths & Troubleshooting

- Levels of Cx
- Problem Solving (Troubleshooting)

HVAC Project Troubleshooting

- Important Considerations
- Helpful Solutions



CBCP EXAM SAMPLE QUESTIONS



While performing a routine submittal review, the Commissioning Provider(CxP) discovers that all variable air volume boxes scheduled to ship have omitted the control transformer. The CxP should?

- A. Send a written report to the design team and owner/owner's representative.
- B. Notify the mechanical and electrical contractors and inform them they must furnish a field-mounted transformer.
- C. Notify the supplier that there is an electrical problem.
- D. Notify the electrical engineer of the oversight.

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