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COMMISSIONING AUTHORITY
CXA OVERVIEW
ONLINE TRAINING BY KRISHNAJI PAWAR
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MODULE 2

# Definition and History of Building Commissioning

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# COMMISSIONING AUTHORITY

## CXA OVERVIEW

Beyond Smart Cities has remained committed to independent, third-party commissioning for nearly two decades, despite industry growth, changes in the built environment, and information technology revolution.

# Learning Objectives

- Course Overview and Introduction
- Definition and History of Building Commissioning
- Why is building commissioning needed?
- Building Commissioning Process Overview
- Professional Certification in Commissioning
- Cost and benefits of building commissioning
- Summary and Resources
- CxA Sample Exam Question

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# INTRODUCTION

- Modern buildings consist of advanced, integrated, and interdependent building systems.
- These systems include visible exterior glazing, concealed interior pipes, wires, ducts, and cables.
- Building systems may consist of sensors, controls, equipment, materials, and subsystems.

# MODERN BUILDING SYSTEMS OVERVIEW

- The complexity of building systems has increased due to new building products, smart building designs, stringent safety and sustainability requirements, and increased demand for efficiency and profitability.
- Building systems commissioning is a systematic process facilitated by a commissioning provider (CxP) and a team including the owner, design and construction teams, suppliers, testing agency professionals, and O&M staff.



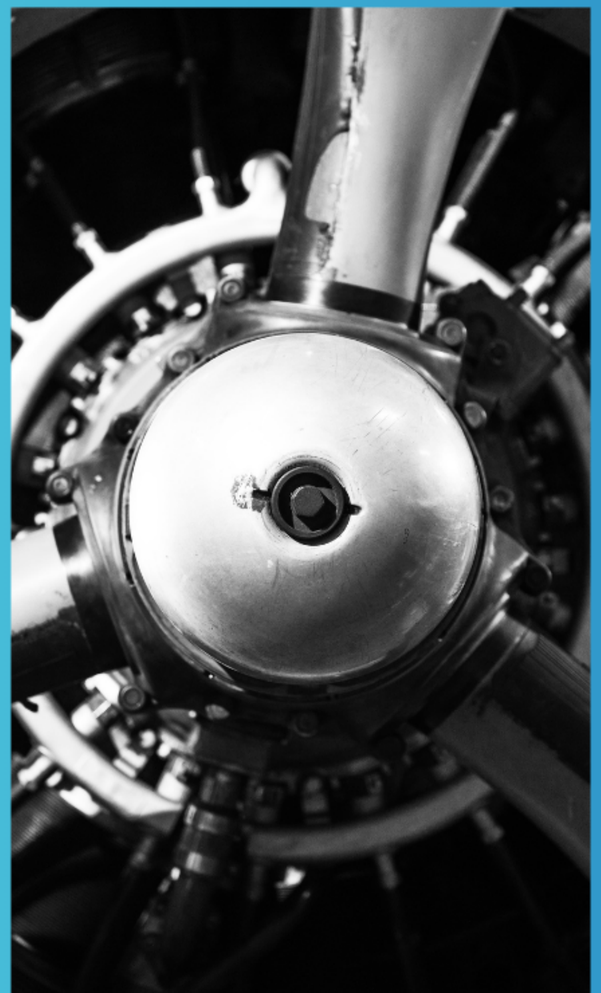
# THE DEFINITION OF COMMISSIONING

- “The Commissioning Process is a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria.” ASHRAE Guideline 0
- “…a systematic, documented, and collaborative process including inspection, testing, and training.”
- “…conducted to confirm that a building and its component system meet the requirements of the occupants and conform to the design intent.”
- “…a quality assurance procedure applied to building construction throughout the entire project…”





# HISTORY AND IMPORTANCE OF BUILDING COMMISSIONING



- The building design and construction industry underwent significant refinement in the latter half of the 20th century.
- Phases of project development include predesign, schematie design, design development, construction documents, bidding, construction, warranty, and operation and maintenance.
- The introduction of building commissioning is a recent improvement, despite being in its infancy within the construction industry.
- The complexity of building systems has increased due to stricter energy conservation regulations, safer work environments, advanced phonic, image, video, and data communications technologies, and transforming research and teaching methodologies.

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# HISTORY AND IMPORTANCE OF BUILDING COMMISSIONING+




- Traditional methods for building start-ups and final acceptance proved inadequate in the 1980s and 1990s.
- Building commissioning was born to shorten or eliminate the stressful break-in period for occupants and operating staff.
- Commissioning has existed for hundreds, if not thousands, of years, possibly starting with the use of watercraft for transportation.
- Modern naval vessels undergo a rigorous commissioning process upon completion of construction to ensure their combat readiness.

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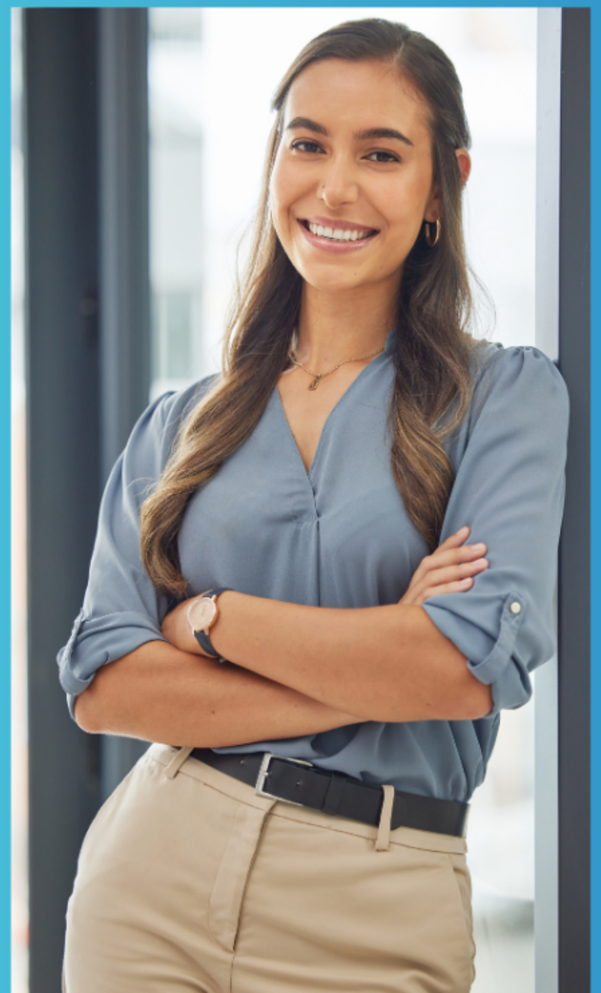
# HISTORY AND IMPORTANCE OF BUILDING COMMISSIONING++

- With the introduction of production lines, commissioning lines of equipment became essential to ensure flawless, sequential operation of the associated apparatus.
- The increasing use of commissioning in the bulldozing design and construction industries is a novel concept due to the failure of traditional building start-up methods and the health, safety, and energy consequences of failure.





# WHO IS A COMMISSIONING AUTHORITY?



- Knowledge of HVAC systems, including design, control strategies, installation, operations, and maintenance.
- Experience in HVAC controls, including current technology.
- Practical field construction background.
- Ability to organize specific activities into a coherent commissioning plan.
- Proficient in documentation and multi-disciplinary team work.
- Familiarity with testing and balancing.

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# COMMISSIONING TEAM

- The Commissioning Team (Cx Team) is defined by Beyond Smart Cities as the group of professionals who perform commissioning activities or contribute to commissioning deliverables as part of the building systems commissioning process.
- The precise size and composition of the Cx Team will vary from project to project, but typical members include the Commissioning Provider (CxP), the owner or owner's representative, and select members of the design and construction teams.
- Certain operations and maintenance (O&M) personnel are frequently integral members of the CX Team throughout the building systems commissioning process for existing facility projects.





# COMMISSIONING TEAM+



- In today's construction industry, the term "commissioning team" (or "CX team") is commonly understood to refer to the key parties who collaborate on a project to implement the commissioning process.
- However, this term is not universally accepted, so ANSI/ASHRAE/IES Standard 202-2018: Commissioning Process for Buildings and Systems does not employ it.

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