

wel come to
BEYOND SMART CITIES



The whiteboard contains the following sections and notes:

- FINANCIAL PLAN**
 - Important Assumptions
 - Key Financial Indicators
 - Net Income
 - Gross Profit
 - Projected Cash Flow
 - Inflows - 2000 000
 - Outflows - 100 000
- MARKET ANALYSIS**
 - Target Market Strategy
 - Market Needs
 - Market Trends
 - Market Growth
 - Competitive Analysis
 - Strengths
 - Weaknesses
 - Industry Analysis
 - Main Competitors
 - Industry Participants
- BUSINESS PLAN**
 - Know your target customers
 - Write Overview
 - Go to market
 - Do Forecast
- MANAGEMENT**
 - Organizational Structure
 - Team
- WEB PLAN**
 - Website Marketing Strategy (specific being used)
 - Requirements
- PRODUCT + SERVICES**
 - Product
- COMPANY OVERVIEW**
 - Technology
 - Software
 - Web Apps
 - Financial Forecasting

B E Y O N D
S M A R T C I T I E S

CERTIFIED COMMISSIONING TECHNICIAN

CXT REFRESHER

ONLINE TRAINING BY KRISHNAJI PAWAR

LEED AP(BD+C), GSAS CGP, GCP, ISO 14001

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MODULE
12L1

Retro- Commissioning

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Retro-commissioning is a systematic process aimed at improving the performance of existing building systems, focusing on identifying and resolving issues in HVAC, lighting, control systems, and other mechanical and electrical systems. This process can lead to enhanced energy efficiency, occupant comfort, and overall system reliability without requiring large capital investments typically associated with new construction or major renovations.

Learning Objectives

- Document Observations & Interpret Basic Terminal Unit Trends.
- Test Airside ,water,control system / Troubleshooting
- Required O&M paperwork and training Preventive maintenancetems
- Retro-commissioning
- Commissioning professional certification & its importance.
- Point-to-point calibrate MEP & sensor systems.
- Green building rating systems & commissioning
- Summary and Resources
- CxT Practice Exam: Test Your Knowledge!



INTRODUCTION

- Retro-commissioning is a systematic process to improve the performance of existing building systems.
- It focuses on identifying and resolving issues in HVAC, lighting, control systems, and other mechanical and electrical systems.
- The process aims to enhance energy efficiency, occupant comfort, and overall system reliability without large capital investments.

DEFINITION AND PURPOSE

- Retro-commissioning is the application of commissioning principles to existing buildings.
- The process aims to identify and rectify system deficiencies, improve energy efficiency, enhance Indoor Environmental Quality (IEQ), and extend equipment lifespan.



THE RETRO-COMMISSIONING PROCESS

- Pre-assessment involves collecting existing documentation such as previous commissioning reports, maintenance records, energy bills, and system designs and specifications.
- A comprehensive plan is developed to outline the scope of work and identify key stakeholders.
- Data is collected through site surveys and monitoring using sensors and data loggers.
- Opportunities for improvement are identified and implemented, such as recalibrating control systems and implementing preventive maintenance strategies.
- Changes are prioritized and implemented, often requiring collaboration with maintenance teams or external contractors.
- Post-implementation, a verification process is essential to confirm the desired impact of the changes.
- Continuous monitoring and feedback are crucial for ongoing optimization of the building's systems.





OPERATE A DDC CONTROL SYSTEM TO STROKE
VALVES AND DAMPERS, OVERRIDE SET
POINTS, AND PERFORM QUICK FIXES.

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UNDERSTANDING DIRECT DIGITAL CONTROL (DDC)

- DDC systems are crucial for managing HVAC systems in commercial and industrial buildings.
- They facilitate automated control of heating, ventilation, and air conditioning equipment.



COMPONENTS OF DDC SYSTEMS

- Valves: Regulate the flow of fluids within HVAC systems.
- Dampers: Control airflow and pressure within duct systems.
- Sensors: Measure parameters such as temperature, humidity, and pressure.
- Actuators: Receive signals from the DDC controller to physically adjust valves and dampers.



STROKING VALVES AND DAMPERS

- Stroking refers to moving a valve or damper from its fully closed position to its fully open position.
- This operation is crucial for assessing the functionality of these components and ensuring they respond correctly to control signals.



OVERRIDING SET POINTS

- Set points are predefined values for temperature, humidity, and other parameters that the control system maintains.
- Overriding set points temporarily changes these values to accommodate specific operational needs.

Calibration of Sensors

- Regular calibration is essential for maintaining the reliability of the HVAC control system.
- A temperature sensor should be calibrated if it consistently reads two degrees higher than the actual temperature.





FAMILIARITY WITH COMMON HVAC CONTROLS

- Understanding of terminal units, air handling units (AHUs), pumps, and exhaust fans is essential for effective retro-commissioning.



Accessing and Manipulating Control Systems

- Technicians can adjust control parameters, monitor system performance in real-time, and perform diagnostic checks.

PERFORMING QUICK FIXES AND IMPORTANCE

- Quick fixes are immediate, low-cost solutions to address specific operational problems in HVAC systems during the retro-commissioning process.
- Examples of quick fixes include changing the temperature set point on a thermostat, cleaning filters, tightening loose belts on fan motors, and re-calibrating sensors.

Importance of Quick Fixes

- Quick fixes can enhance system performance and occupant comfort with minimal effort and cost.
- They can reveal underlying problems that may require more extensive commissioning efforts.
- By resolving simple issues early in the retro-commissioning process, technicians can streamline their efforts.





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THANK YOU

