

*welcome to*  
**BEYOND SMART CITIES**

The background of the advertisement shows a modern green energy setup. On the left, there is a large array of blue solar panels mounted on a metal frame. To the right, there are several white energy storage containers. One container in the foreground has a yellow lightning bolt warning symbol and the text 'ENERGY STORAGE SYSTEM' on its side. In the background, a city skyline with tall buildings is visible under a blue sky with light clouds. The overall scene is set on a lush green lawn.

**BEYOND**  
SMART CITIES

**COMMISSIONING CERTIFIED TECHNICIAN**

**CXCT REFRESHER**

**ONLINE TRAINING BY KRISHNAJI PAWAR**

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

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MODULE  
**14**

# Summary and Resources

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# Learning Objectives

- **Course Overview and Introduction**
- **CCxT's Technical, Communication, and Commissioning Skills**
- **Heating, Ventilation, and Air-Conditioning (HVAC) Systems**
- **Basics of field TAB verification, HVAC systems and controls**
- **CxT Responsibilities by Phase**
- **Pre-function tests include sheet checking and installation tests.**
- **Point-to-point calibrate MEP and sensor systems.**
- **Verify TAB pre-functional tests and CxT responsibilities**



## SUMMARY

- The program is designed for professionals involved in the commissioning process of building systems, particularly HVAC systems.
- It enhances the technician's knowledge and skills to verify, test, and evaluate the performance of building systems.
- Commissioning is a systematic process that ensures the design, installation, testing, operation, and maintenance of a facility's systems and components align with specified performance criteria.

### Core Components of the CxCT Refresher Program

#### 1. Introduction to HVAC Systems:

- Learn about heating systems, ventilation, and air conditioning.
- Understand the principles of heat generation and distribution, air exchange, filtration, and the impact on indoor air quality.
- Understand refrigeration cycles, condensers, evaporators, and the role of thermostats.

#### 2. CCxT Responsibilities by Phase:

- Carry out preliminary tests to ensure correct system installation and readiness for functional testing.
- Perform detailed functional tests to confirm that systems operate according to the design specifications.

# Learning Objectives

- Document Observations & Interpret Basic Terminal Unit Trends.
- Test Airside ,water,control system / Troubleshooting
- Required O&M paperwork and training Preventive maintenancetems
- Evaluate HVAC, control, lighting control, and equipment types
- Green building rating systems & commissioning
- Summary and Resources
- CxCT Practice Exam: Test Your Knowledge!



## SUMMARY +

### 4. Required O&M paperwork and training:

- Prepare detailed reports of tests, measurements, and observations.
- Provide training sessions for facility staff on system operations and maintenance protocols.

### 5. Preventive Maintenance and Retro-Commissioning:

Develop maintenance plans and assess existing systems.

### 6. Commissioning Professional Certification:

Understand industry standards and engage in ongoing education.

### 7. Green Building Rating Systems:

Understand LEED and BREEAM systems.

### 8. Summary and Resources:

Provide a summary of key concepts, best practices, and available resources for further learning.

### 9. CxCT Practice Exam:

Participants receive a practice exam to assess their understanding and readiness for the official CxCT certification exam.

# RESOURCES

- <https://www.ashrae.org/professional-development/ashrae-certification/certification-types/bcxp-building-commissioning-professional-certification>
- <https://beyon-smartcities.in/category/energy-efficiency-commissioning>
- <https://www.bcxa.org/resources/>
- <https://learn.beyon-smartcities.in/courses/commissioning-certified-technician-cxct>
- <https://www.nebb.org/individuals/individual-certification/>
- <https://www.usgbc.org>





# WELCOME TO BEYOND SMART CITIES

Our purpose is to create a sustainable future by offering high-performance, value-added solutions to environmental, mobility, and digital concerns, with the goal of benefiting both current and future generations by restoring community value.

“Any fool can make things bigger, more complex, and more violent. It takes a touch of genius – and a lot of courage – to move in the opposite direction.”  
- Albert Einstein



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# THANK YOU





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