

# MC3 Green Construction

Hours by Unit – 4

*This section is designed to be flexible and can be tailored to your class schedule. Please select either the four-hour or eight -hour options that best accommodates your time constraints.*

## **Learning Objectives:**

- Describe the basics elements of green construction and green buildings and the part they will play as a construction worker on green job sites.
- Understand basic green building terms.
- Describe the role of green building certification and how it works.
- Recognize green awareness on construction projects, including sustainable site development, efficient use of water resources, energy conservation, the use of sustainable building materials, reducing and recycling construction waste and protecting indoor and outdoor environmental quality.

## **Opening Discussion (5 minutes)**

Instructor shares: Buildings constructed today are very different from those built 100 years ago. At first glance, these buildings might not appear very different, but they feature specialized “green” designs and materials to limit their environmental impact. “Green construction” includes ideas of sustainability, energy conservation and efficiency, and environmental health and safety. All members of the planning, construction and operating teams must be onboard and working towards sustainable goals.

This lesson will explain why we need to build sustainably, as well as what makes building green or high performance buildings, and the role of contractors and trades to achieve sustainability.

## **Recommended Instruction (4 hours)**

Unit 8 is broken into two parts, Part A: Sustainability and Part B: Green Building. See below for topics covered in each section.

### Part A: Sustainability

- 1.Connection between Buildings and Climate Change?
- 2.What are High-Performance Buildings?
- 3.Causes and Effects of Climate Change
- 4.Working Towards Solutions
- 5.Value of High-Performance Buildings

### Part B: Green Building Practices

- 5.Small Changes, Huge Impact
- 6.Tight Building Envelope
7. Right Sized HVAC
- 8.Water Conservation
- 9.Efficient Lighting and Electrical Systems

## **PART A (90 minutes)**

- Part A GPRO Fundamentals Apprenticeship Readiness (90 minutes)
  - Use the accommodating instructor’s notes provided
  - Pause at “Discussion” slides to allow adequate time for class discussion, and for students to demonstrate their understanding.
    - Discussion questions can also be used as mini assessments throughout the lessons, provide students with note cards to provide their answers and check for understanding.

## **BREAK**

### *PART B (2 hours)*

- Part B GPRO Fundamentals Apprenticeship Readiness (120 minutes)
  - Use the accommodating instructor's notes provided
  - Pause at "Discussion" slides to allow adequate time for class discussion, and for students to demonstrate their understanding.
    - Discussion questions can also be used as mini assessments throughout the lessons, provide students with note cards to provide their answers and check for understanding.
    - Pop Quizzes are located in PPT GPRO FUND Part B Ch 6-10 slides 4, 16, 17,18, 31, 41, 54
      - Use as an elective assessment opportunity to check for understanding.

### **Closing Discussion (5 minutes)**

Instructor shares: The construction industry has gone "green" and the Building Trades unions and their affiliated contractors are leading the way by:

- Working together to develop high quality green building materials and systems
- Educating new and existing members on green materials, processes and systems
- Making important connections between the Building Trades unions, green construction, green construction training and green building certification
- Developing standards for keeping buildings green after the construction is completed.

"We are all in this together. To make integrated design work, we need all members of the design, construction, and operations teams on board, sharing ideas and working towards common sustainable goals. Many environmental changes require action by politicians or big businesses, but individual changes made a difference also. Recycling, for example, only works because millions of people sort their trash, and collectively they make a big difference. It's the same on the job site where you will have an opportunity to make many decisions, some big and some small that will affect your health and the environment." - GPRO

### **Building Skills Project Assessment (30 minutes)**

Green Construction Audit: Students will conduct a green construction/energy audit of the building in which their training occurs. Drawing upon the information they learned in the *Fundamentals of Building Green Part B* PowerPoint presentation, students will spend 30 minutes "auditing" the building they are in, and then they will provide (in written form) three examples of alternative construction processes, technologies or materials that would reduce energy consumption or deliver measurable building performance in the building and make it more sustainable.

These alternative processes, technologies or materials should be drawn from the following list:

- The Building Envelope – thermal barrier and insulation;
- Efficient mechanical systems - heating, cooling and ventilation;
- Efficient water systems;
- Efficient lighting and electrical systems
- Building Commissioning
- Environmentally friendly materials; or
- Improvements to the local building environment

