

## FUNDAMENTALS OF BUILDING GREEN COURSE OUTLINE

### Chapter 1: Connection Between Buildings and Climate Change

- The definition of sustainability and the connection between buildings and climate change.

### Chapter 2: What are High-Performance Buildings?

- The definition of high-performance buildings and the whole building approach.
- What systems thinking is and how it applies to green building.

### Chapter 3: Causes and Effects of Climate Change

- The science behind climate change.
- The effects of climate change and the consequences of not taking immediate action.

### Chapter 4: Working Towards Solutions

- Environmental solutions that the US and partner countries have implemented.
- The difference between mitigation and adaptation as responses to climate change.
- The definition and importance of environmental justice.

### Chapter 5: Value of High-Performance Buildings

- How building performance affects operational costs.
- The value proposition for green buildings and the potential for green jobs.

### Chapter 6: Small Changes, Huge Impact

- How buildings use energy.
- The key strategies that lead to better performing buildings.

### Chapter 7: Tight Building Envelope

- The role of the building envelope in building energy consumption.
- How heat flows in a building and the importance of a continuous thermal barrier and air barrier.

### Chapter 8: Right-Sized HVAC

- The relationship between the quality of the building envelope and the size of the heating and cooling loads.
- The energy cost of ventilation.
- How an energy recovery ventilator (ERV) works and saves energy.

### Chapter 9: Water Conservation

- The relationship between water waste and energy waste.
- How much water can be conserved by using ENERGY STAR and WaterRx appliances and fixtures.
- How water reuse & alternative wastewater systems conserve potable water.



## Chapter 10: Efficient Lighting and Electrical Systems

- What drives the amount of energy that lighting systems use and several ways to reduce lighting energy.
- What a net zero energy building is and how to achieve one.
- Several sources of renewable energy.

## Chapter 11: Healthy Indoor Environments

- Why healthy indoor air is an important component of green building.
- How green construction and operations processes contribute to the health of the people working on or in the building.
- What a CIAQ plan is and what it includes.

## Chapter 12: Environmentally-Friendly Materials

- An introduction to embodied energy and life cycle assessments, and how they relate to buildings.
- The 3Rs and why their order is important.
- What CWM is and how it applies to construction work.

## Chapter 13: Codes and Commissioning

- What commissioning is and its importance for high-performing buildings.
- The difference between codes and standards.

## Chapter 14: Optimizing Existing Buildings

- The role of building operators in ensuring building performance.
- The process of Existing Building Commissioning.
- The strategies and benefits of green cleaning.

90%

of gpro students rate the instructors as above average or excellent

