Design of Resilient Buildings for a Changing Climate

Paul Totten, PE, LEED AP

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Presentation Outline

• Basic purpose of buildings
• Building types and considerations
• Overview of design considerations
  • Climate change
  • Durability and redundancy
• Teaching, training and apprenticeship
Purpose of Buildings

- Provide shelter
- Separate and protect us from outside environment
- Life safety
- Building science considerations
- User experience
Building Examples and Types

[Images of various building examples]
Climate Zones

- Marine (C)
- Dry (B)
- Moist (A)

* DOE Climate Map
Impact of Climate Change

- Change in type of precipitation events
  - Increased volume/shorter duration
  - More severe storms/higher winds
  - Flooding

- Solar considerations
  - Increased radiation
  - Examine SHGC and window films

- Need for improved durability and redundancy
Importance of Climate Variation

- Review of macro and micro climate
  - Understand the climate zone
  - Rainfall volume considerations
- Micro climate specific to your site
  - Review of site topography
  - Development density
  - Neighboring existing buildings and planned future development
- Existing building versus new construction
- Orientation of building and considerations by elevation
Climate Responsive Building Design

- Responsiveness of systems
- Controls
- How it reacts to the environment

Image Courtesy of Hickok Cole Architects - Designer
People Importance

- Materials made by people
- Designed by people
- Constructed by people
People Importance

- Educate K-12 (STEAM)
- Higher education – growth of building science degree programs
- Educate designers – WBDG, Knowledge Resources
- Apprenticeship programs
Thank you!