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Energy and Climate Interactions in the Urban Environment

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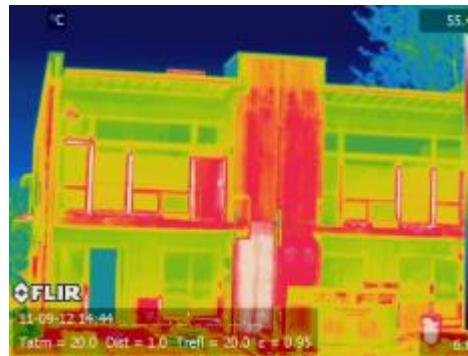
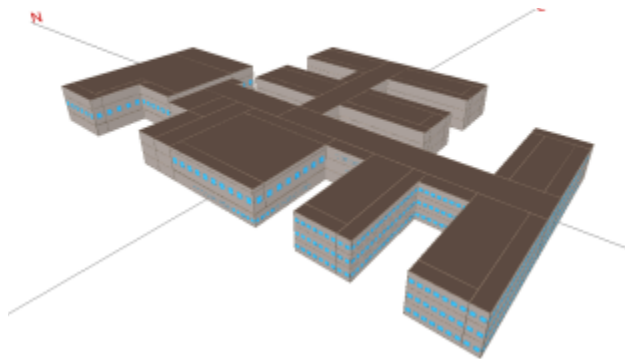
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Energy and Climate Interactions in the Urban Environment

David Sailor, MME and GBRL – sailor@pdx.edu

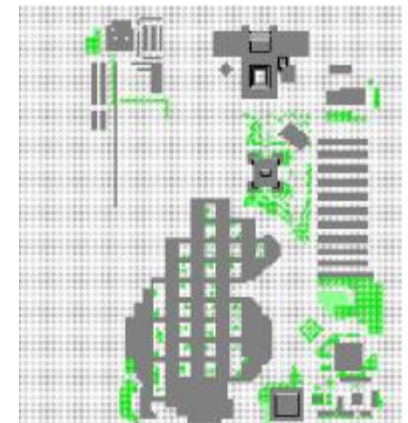
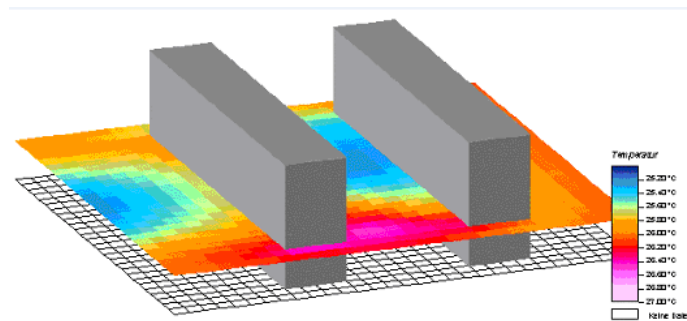
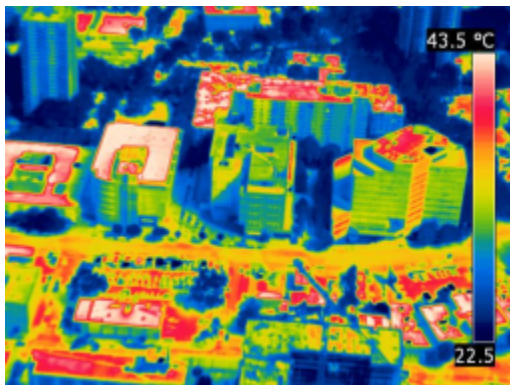
- How do sustainable design choices at the **building scale** affect...
 - Building energy use
 - Indoor thermal comfort
 - Urban environment (heat island, etc.)
- Design characteristics of interest:
 - Roofs: reflectivity, vegetation, PV
 - High performance equipment & materials
 - Heating, cooling, and ventilation



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- How do sustainable design choices at the **neighborhood scale** affect...
 - Building interactions related to energy
 - Canyon flow/ventilation related to pedestrians and outside air for buildings
 - Urban heat island
- Design characteristics of interest:
 - Building materials
 - Building and urban canyon morphology



Energy and Climate Interactions in the Urban Environment

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- How do sustainable design choices at the **city scale** affect...
 - Urban heat island
 - Heat-related morbidity/mortality
 - Urban air quality
 - Urban scale energy consumption
- Design characteristics of interest:
 - Urban-scale reflectivity, moisture availability, and vegetation
 - Urban energy use and emissions

