



***Urban Albedo: Digital tools for urban resilience
and growth***

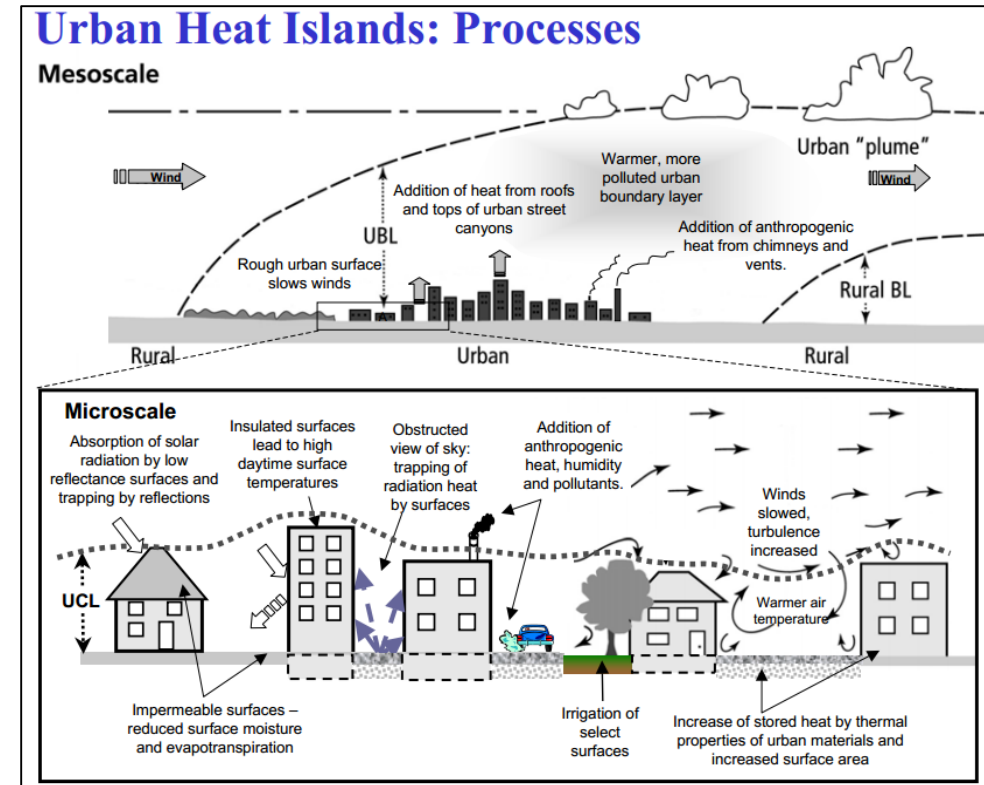
London City Hall
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Why is urban design important to our members

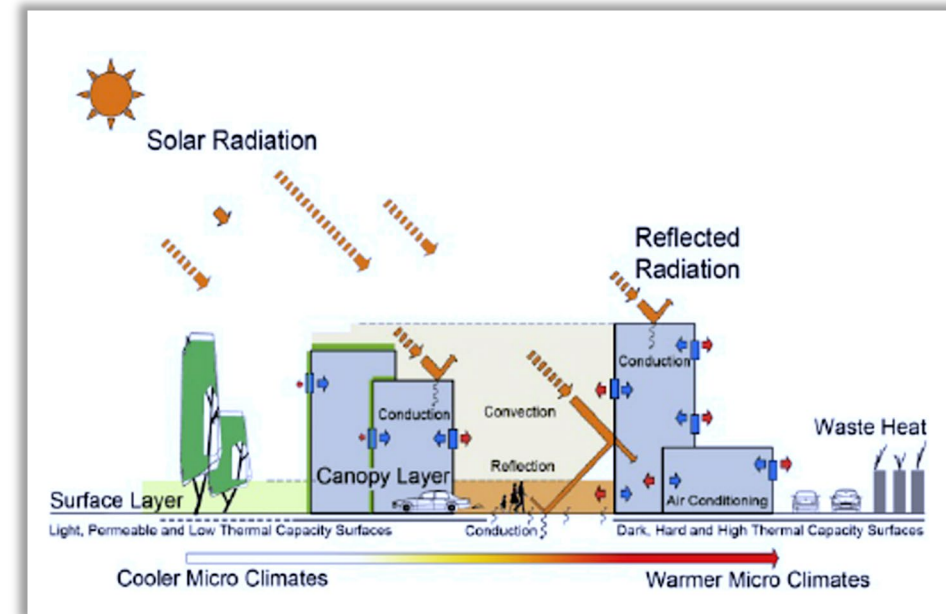
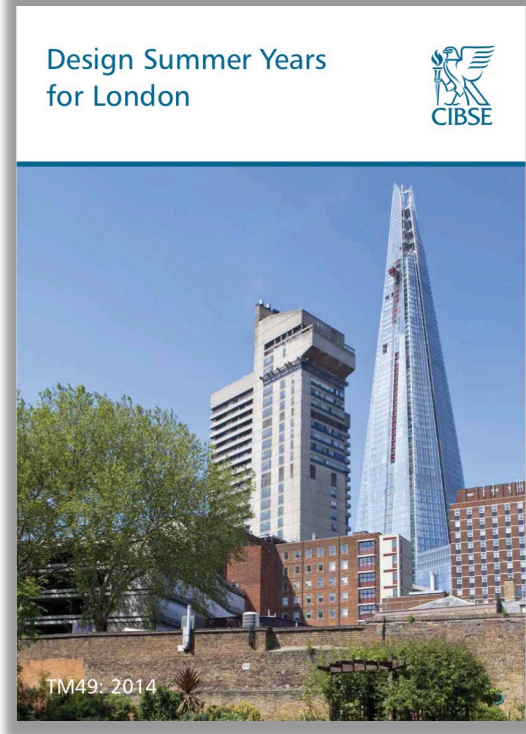
- Urban form and urban climate directly affect the performance of buildings
- Building form and resource use directly affect the urban environment
- Yet, during design and planning, the two are usually considered separately
- Increased urbanisation will further impact the relationship
- Urban Heat Island (UHI) effect and outdoor air quality will most probably get worse



Physical aspects of the processes that influence the UHI (from US EPA, 2011)

What tools do we currently have

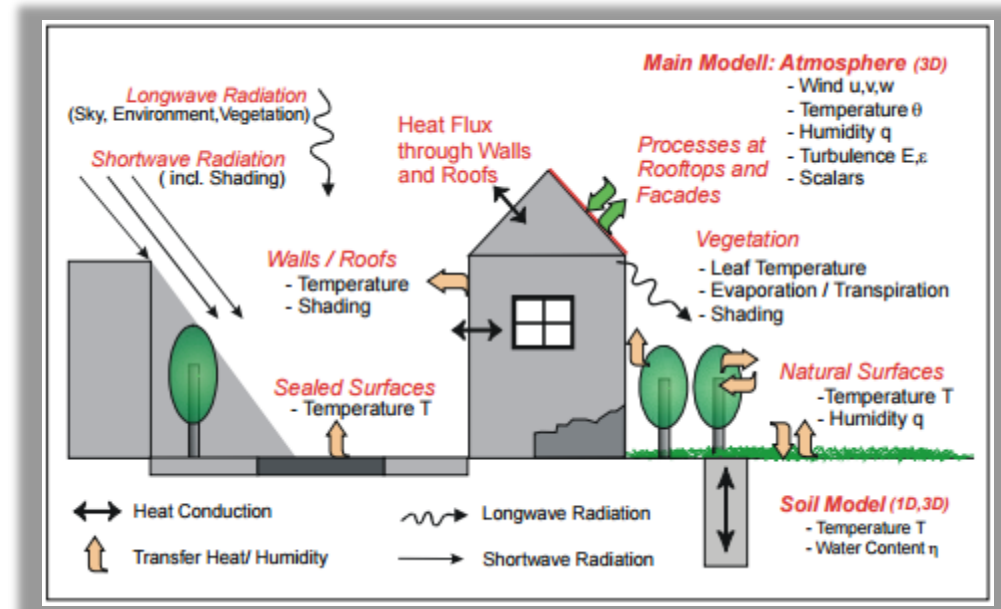
- Design Summer Years - Weather profiles with observed UHI for the design of buildings
- Are not providing information on the microclimate aspects that mostly affect building performance



Source: (Ehsan Sharifi et al., 2015)

What knowledge do we need

- Rules of thumb for understanding the effect of certain decisions at urban level that will influence building performance, e.g. urban albedo – how it affects the cooling and heating demand of a building
- Weather profiles that represent various types of microclimate that could be used in building design
- Tools that allow us to model the interactions inside urban environments



Overview of the different modules in ENVI-met
Source: (Vankerkom et al., 2012)

Thanks for listening
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