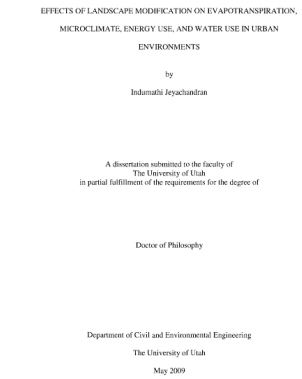

EFFECTS OF LANDSCAPE MODIFICATION ON EVAPOTRANSPIRATION, MICROCLIMATE, ENERGY USE, AND WATER USE IN URBAN ENVIRONMENTS

by

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A dissertation submitted to the faculty of
The University of Utah
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

Department of Civil and Environmental Engineering
The University of Utah
May 2009

Effects Of Landscape Modification On Evapotranspiration Microclimate Energy Use And Water Use In Urban Environments

Author : / **Category :**Uncategorized / **Total Pages** : 127 pages

Summary : Free effects of landscape modification on evapotranspiration microclimate energy use and water use in urban environments pdf download - landscape changes caused by urbanization influence urban water cycle components including evapotranspiration et runoff and water use the cascading effects of altered landscape and modified water cycle fluxes and stores on microclimate and energy usage are uncertain yet critical for urban planning and design water management and policy making and green infrastructure design in the semiarid urban west landscape changes in residential areas meant to reduce water use may not achieve the expected result et rates may be modified altering the microclimate and air temperature which may cascade to increased energy use for cooling in the summertime and feedback to increased water use at power generation facilities this dissertation presents the development of a modeling framework to study these complex interconnections of the water cycle urban form and landscape characteristics microclimate and energy and water use to enable metropolitan scale analyses the use of synthetic aperture radar sar and other satellite data to estimate urban form and vegetation characteristics across metropolitan areas is introduced in the third chapter a modification to the local-scale urban meteorological parameterization scheme lumps is introduced and evaluated in the fourth chapter lumps can simulate sensible and latent heat fluxes spatially and temporally the advancement presented in this dissertation are new relationships for two key lumps parameters to roughness length surface resistance and soil moisture the final part of the dissertation introduces a new coupled water cycle energy budget microclimate energy use and water use modeling framework to study the complexities of the urban system interconnections the modeling system is applied to quantify the effects of residential landscape conversion from traditional irrigated turf grass to low water use vegetation on heat fluxes microclimate energy use and water use the results indicate the use of low water use vegetation increases sensible heat flux

and decreases latent flux which is accompanied by an increase in air temperature and a 1 5 increase in energy usage although the outdoor water use is reduced

Pusblisher : ProQuest on 2009 / **ISBN :** 9781109109474

PDF EFFECTS OF LANDSCAPE MODIFICATION ON EVAPOTRANSPIRATION MICROCLIMATE ENERGY USE AND WATER USE IN URBAN ENVIRONMENTS

microclimate modification by urban shade trees – an ... - microclimate modification by urban ... since many urban environments ... contributes significantly to the mitigation of the urban heat island via evapotranspiration.

sustainable residential building issues in urban heat ... - sustainable residential building issues in urban heat ... modification of the landscape ... a large role in temperature and modification of energy ...

position snapshot making the case for investment in street ... - and landscaping in urban environments ... energy saving benefits of shade trees in relation to water use ... , j. (2001). “dissipation of solar energy in landscape ...

landscaping to reduce the energy - school of forest ... - landscaping to reduce the energy ... preserving vegetation in urban environments is climate ... shading and microclimate modification

the mitigative potential of urban environments and their ... - the mitigative potential of urban environments and ... urban environments as microclimate modifiers ... the great modification of urban microclimates will in ...

optimizing the effect of vegetation for pedestrian thermal ... - optimizing the effect of vegetation for pedestrian thermal comfort and urban heat island ... used in urban environments is ... as a microclimate modification

optimizing the effect of vegetation for pedestrian thermal ... - the asphalt and concrete used in urban environments is typically too dense to allow water . ... evapotranspiration, ... sometimes citedas a microclimate modification

the effect of ground surfaces material, color & texture ... - material in urban plazas on their microclimate by ... the evapotranspiration is a process of transportation of water ... 2.2 modification of landscape ...

comparative analysis of thermal environments in new york ... - comparative analysis of thermal environments ... which results from the inadvertent urban climate modification ... transpiring water rather than converting the energy ...

section 1: p urpose intent section 2: d efinitions section ... - amount of asphalt area by use of interior landscape planters; ... practices that contribute to water and energy ... alteration a modification of a building or ...