

Design Guidelines For District Cooling Plant

National Design Handbook Prototype on Passive Solar Heating and Natural Cooling of Buildings Sustainable Building Design for Tropical Climates District Cooling Advanced District Heating and Cooling (DHC) Systems Designing Cooler Cities Planning guide for maintaining school facilities Rules of Thumb Guidelines for Community Energy Planning Building Industry Technology Optimum Cooling of Data Centers Advances in Thermal Energy Storage Systems High Performance Building Guidelines Total Hydronic Balancing Sustainable Energy System Engineering District Cooling Best Practice Guide District/Central Solar Hot Water Systems Design Guide Rules of Thumb for Mechanical Engineers The Architects' Handbook High Temperature Equipment Thermal Energy Storage for Sustainable Energy Consumption A Handbook on Low-Energy Buildings and District-Energy Systems District Energy in Cities Energy Abstracts for Policy Analysis Optimal Design and Retrofit of Energy Efficient Buildings, Communities, and Urban Centers District Cooling Guide Site Planning and Design Handbook, Second Edition Owner's Guide for Buildings Served by District Cooling Integrated Community Energy Systems Engineering Analysis and Design Bibliography Mechanical and Electrical Equipment for Buildings ASHRAE Design Guide for Dedicated Outdoor Air Systems Optimization of Energy Systems Thermal Energy Storage for Sustainable Energy Consumption Heating, Cooling, Lighting District Cooling

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in the People's Republic of China
Guidelines for Laboratory Design
Net Zero Energy Building
Geothermal Direct Use Engineering and Design Guidebook
Planning and Urban Design Standards
Pipeline Design for Water Engineers
Passive and Low Energy Ecotechniques

National Design Handbook Prototype on Passive Solar Heating and Natural Cooling of Buildings

The Geothermal Direct Use Engineering and Design Guidebook is designed to be a comprehensive, thoroughly practical reference guide for engineers and designers of direct heat projects. These projects could include the conversion of geothermal energy into space heating cooling of buildings, district heating, greenhouse heating, aquaculture and industrial processing. The Guidebook is directed at understanding the nature of geothermal resources and the exploration of these resources, fluid sampling techniques, drilling, and completion of geothermal wells through well testing, and reservoir evaluation. It presents information useful to engineers on the specification of equipment including well pumps, piping, heat exchangers, space heating equipment, heat pumps and absorption refrigeration. A compilation of current information about greenhouse, aquaculture and industrial applications is included together with a discussion of engineering cost analysis, regulation requirements, and environmental considerations. The purpose of the Guidebook is to

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provide an integrated view for the development of direct use projects for which there is a very potential in the United States.

Sustainable Building Design for Tropical Climates

What do we mean by net zero energy? Zero operating energy? Zero energy costs? Zero emissions? There is no one answer: approaches to net zero building vary widely across the globe and are influenced by different environmental and cultural contexts. *Net Zero Energy Building: Predicted and Unintended Consequences* presents a comprehensive overview of variations in 'net zero' building practices. Drawing on examples from countries such as the United States, United Kingdom, Germany, Japan, Hong Kong, and China, Ming Hu examines diverse approaches to net zero and reveals their intended and unintended consequences. Existing approaches often focus on operating energy: how to make buildings more efficient by reducing the energy consumed by climate control, lighting, and appliances. Hu goes beyond this by analyzing overall energy consumption and environmental impact across the entire life cycle of a building—ranging from the manufacture of building materials to transportation, renovation, and demolition. Is net zero building still achievable once we look at these factors? With clear implications for future practice, this is key reading for professionals in building design, architecture, and construction, as well as students on sustainable and green architecture courses.

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District Cooling

Fluids -- Heat transfer -- Thermodynamics -- Mechanical seals -- Pumps and compressors -- Drivers -- Gears -- Bearings -- Piping and pressure vessels -- Tribology -- Vibration -- Materials -- Stress and strain -- Fatigue -- Instrumentation -- Engineering economics.

Advanced District Heating and Cooling (DHC) Systems

Designing Cooler Cities

Planning guide for maintaining school facilities

Advances in Thermal Energy Storage Systems, 2nd edition, presents a fully updated comprehensive analysis of thermal energy storage systems (TES) including all major advances and developments since the first edition published. This very successful publication provides readers with all the information related to TES in one resource, along with a variety of applications across the energy/power and construction sectors, as well as, new to this edition, the transport industry. After an introduction to TES systems, editor Dr. Prof. Luisa Cabeza and her team of expert authors consider the source, design and operation of the use of water, molten salts, concrete, aquifers, boreholes and a variety of phase-change materials for TES systems, before analyzing and

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simulating underground TES systems. This edition benefits from 5 new chapters covering the most advanced technologies including sorption systems, thermodynamic and dynamic modelling as well as applications to the transport industry and the environmental and economic aspects of TES. It will benefit researchers and academics of energy systems and thermal energy storage, construction engineering academics, engineers and practitioners in the energy and power industry, as well as architects of plants and storage systems and R&D managers. Includes 5 brand new chapters covering Sorption systems, Thermodynamic and dynamic models, applications to the transport sector, environmental aspects of TES and economic aspects of TES All existing chapters are updated and revised to reflect the most recent advances in the research and technologies of the field Reviews heat storage technologies, including the use of water, molten salts, concrete and boreholes in one comprehensive resource Describes latent heat storage systems and thermochemical heat storage Includes information on the monitoring and control of thermal energy storage systems, and considers their applications in residential buildings, power plants and industry

Rules of Thumb

Pipeline Design for Water Engineers

Guidelines for Community Energy Planning

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This report identifies modern district energy as the most effective approach for many cities to transition to sustainable heating and cooling, by improving energy efficiency and enabling higher shares of renewables. This publication is one of the first reports to provide concrete policy, finance and technology best-practice recommendations on addressing the heating and cooling sectors in cities through energy efficiency improvements and the integration of renewables, both of which are central to the energy transition. These recommendations have been developed in collaboration with 45 champion cities, all of which use district energy, with 11 of them using it to achieve 100 per cent renewables or carbon-neutral targets.

Building Industry Technology

Advanced District Heating and Cooling (DHC) Systems presents the latest information on the topic, providing valuable information on the distribution of centrally generated heat or cold energy to buildings, usually in the form of space heating, cooling, and hot water. As DHC systems are more efficient and less polluting than individual domestic or commercial heating and cooling systems, the book provides an introduction to DHC, including its potential contribution to reducing carbon dioxide emissions, then reviews thermal energy generation for DHC, including fossil fuel-based technologies, those based on renewables, and surplus heat valorization. Final sections address methods to improve the efficiency of DHC. Gives a comprehensive overview of DHC systems and the technologies and

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energy resources utilized within these systems
Analyzes the various methods used for harnessing energy to apply to DHC systems
Ideal resource for those interested in district cooling, teleheating, heat networks, distributed heating, thermal energy, cogeneration, combined heat and power, and CHP
Reviews the application of DHC systems in the field, including both the business model side and the planning needed to implement these systems

Optimum Cooling of Data Centers

The District/Central Solar Water Heating Systems Design Guide provides recommendations on optimal and reliable configurations of solar water heating systems in different climates, with design specifications, planning principles, and guidelines for these systems. The guidelines are complemented by numerous case studies of successfully implemented solar supported thermal networks along with results of exemplary simulations of different system options based on real world scenarios. This book also discusses the benefits and disadvantages of large-scale centralized versus decentralized solar thermal systems. The guide was developed by government, institutional, and private-sector parties funded by the U.S. Army Installations Management Command (IMCOM), U.S. Army Corps of Engineers (USACE), and the U.S. Department of Energy Federal Energy Management Program (DOE FEMP), and reviewed and approved by ASHRAE Technical Committee (TC) 6.7, Solar Energy Utilization.

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Advances in Thermal Energy Storage Systems

Çukurova University, Turkey in collaboration with Ljubljana University, Slovenia and the International Energy Agency Implementing Agreement on Energy Conservation Through Energy Storage (IEA ECES IA) organized a NATO Advanced Study Institute on Thermal Energy Storage for Sustainable Energy Consumption - Fundamentals, Case Studies and Design (NATO ASI TESSEC), in Cesme, Izmir, Turkey in June, 2005. This book contains manuscripts based on the lectures included in the scientific programme of the NATO ASI TESSEC.

High Performance Building Guidelines

"This book represents the most complete guidance on the design, installation, and operation and management of DOAS in nonresidential applications. With this book, any HVAC designer will be able to optimally incorporate a DOAS into their design. Architectural designers, building developers and owners, maintenance professionals, students, teachers, and researchers may also find the contents useful"--

Total Hydronic Balancing

"A companion guide to District Cooling Guide, Second Edition, this guide provides essential information to both the building owner and the building designer on the advantages, installation, and operation of district

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cooling systems"--

Sustainable Energy System Engineering

District Cooling Best Practice Guide

The definitive guide to environmental control systems, updated with emerging technology and trends The Interactive Resource Center is an online learning environment where instructors and students can access the tools they need to make efficient use of their time, while reinforcing and assessing their understanding of key concepts for successful understanding of the course. An access card with redemption code for the online Interactive Resource Center is included with all new, print copies or can be purchased separately. (**If you rent or purchase a used book with an access code, the access code may have been redeemed previously and you may have to purchase a new access code ISBN: 978111899616-4). The online Interactive Resource Center contains resources tied to the book, such as: Interactive Animations Interactive Self-tests Interactive Flashcards Case Studies Respondus Testbank (instructors only) Instructor's Manual (over 200 pages) including additional resources (Instructors only) Roadmap to the 12th Edition (Instructors only) Student Guide to the Textbook Mechanical and Electrical Equipment for Buildings, Twelfth Edition is the industry standard reference that comprehensively covers all aspects of building systems. With over 2,200 drawings and photographs, the book discusses

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basic theory, preliminary building design guidelines, and detailed design procedure for buildings of all sizes. The updated twelfth edition includes over 300 new illustrations, plus information on the latest design trends, codes, and technologies, while the companion website offers new interactive features including animations, additional case studies, quizzes, and more. Environmental control systems are the components of a building that keep occupants comfortable and help make the building work. Mechanical and Electrical Equipment for Buildings covers both active controls, like air conditioners and heaters, as well as passive controls like daylighting and natural ventilation. Because these systems comprise the entire energy use and costs of a building's life, the book stresses the importance of sustainability considerations during the design process, by both architects and builders. Authored by two leading green design educators, MEEB provides the most current information on low-energy architecture, including topics like: Context, comfort, and environmental resources Indoor air quality and thermal control Illumination, acoustics, and electricity Fire protection, signal systems, and transportation Occupant comfort and building usability are the most critical factors in the success of a building design, and with environmental concerns mounting, it's becoming more and more important to approach projects from a sustainable perspective from the very beginning. As the definitive guide to environmental control systems for over 75 years, Mechanical and Electrical Equipment for Buildings is a complete resource for students and professionals alike.

District/Central Solar Hot Water Systems Design Guide

An essential resource for optimizing energy systems to enhance design capability, performance and sustainability Optimization of Energy Systems comprehensively describes the thermodynamic modelling, analysis and optimization of numerous types of energy systems in various applications. It provides a new understanding of the system and the process of defining proper objective functions for determination of the most suitable design parameters for achieving enhanced efficiency, cost effectiveness and sustainability. Beginning with a general summary of thermodynamics, optimization techniques and optimization methods for thermal components, the book goes on to describe how to determine the most appropriate design parameters for more complex energy systems using various optimization methods. The results of each chapter provide potential tools for design, analysis, performance improvement, and greenhouse gas emissions reduction. Key features: Comprehensive coverage of the modelling, analysis and optimization of many energy systems for a variety of applications. Examples, practical applications and case studies to put theory into practice. Study problems at the end of each chapter that foster critical thinking and skill development. Written in an easy-to-follow style, starting with simple systems and moving to advanced energy systems and their complexities. A unique resource for understanding cutting-edge research in the thermodynamic analysis and optimization of a wide

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range of energy systems, Optimization of Energy Systems is suitable for graduate and senior undergraduate students, researchers, engineers, practitioners, and scientists in the area of energy systems.

Rules of Thumb for Mechanical Engineers

The Architects' Handbook

High Temperature Equipment

High performance buildings maximize operational energy savings; improve comfort, health, & safety of occupants & visitors; & limit detrimental effects on the environment. These Guidelines provide instruction in the new methodologies that form the underpinnings of high performance buildings. They further indicate how these practices may be accommodated within existing frameworks of capital project administration & facility management. Chapters: city process; design process; site design & planning; building energy use; indoor environment; material & product selection; water mgmt.; construction admin.; commissioning; & operations & maintenance.

Thermal Energy Storage for Sustainable Energy Consumption

A Handbook on Low-Energy Buildings and District-Energy Systems

DISTRICT COOLING: THEORY and PRACTICE provides a unique study of an energy cogeneration system, set up to bring chilled water to buildings (offices, apartment houses, and factories) needing cooling for air conditioning and refrigeration. In winter, the source for the cooling can often be sea water, so it is a cheaper resource than using electricity to run compressors for cooling. The related technology of District Heating has been an established engineering practice for many years, but District Cooling is a relatively new technology now being implemented in various parts of the world, including the USA, Arab Emirates and Kuwait, and Saudi Arabia. Existing books in the area are scarce, and do not address many of the crucial issues facing nations with high overall air temperatures, many of which are developing District Cooling plans using sea water. DISTRICT COOLING: THEORY & PRACTICE integrates the theory behind district cooling planning with the practical engineering approaches, so it can serve the policy makers, engineers, and planners whose efforts have to be coordinated and closely managed to make such systems effective and affordable. In times of rising worldwide temperatures, District Cooling is a way to provide needed cooling with energy conservation and sustainability. This book will be the most up-to-date and comprehensive study on the subject, with Case Studies describing real projects in detail.

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District Energy in Cities

The District Cooling Guide provides design guidance for all major aspects of district cooling systems, including central chiller plants, chilled-water distribution systems, and consumer interconnection. It draws on the expertise of an extremely diverse international team with current involvement in the industry and hundreds of years of combined experience.

Energy Abstracts for Policy Analysis

Optimal Design and Retrofit of Energy Efficient Buildings, Communities, and Urban Centers

Using a qualitative rather than a quantitative approach, presents detailed information based on concepts, rules, guidelines, intuition, and experience for architects in the areas of heating, cooling, and lighting at the schematic design stage. The data explored supports a three-tiered approach--load avoidance, using natural energy sources, and mechanical equipment. Among the topics covered are shading, thermal envelope, passive heating and cooling, electric lighting, and HVAC. Case studies illustrate how certain buildings use techniques at all three tiers for heating, cooling, and lighting. An appendix lists some of the more appropriate computer programs available to the architect for analysis at the schematic design stage.

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District Cooling Guide

This book describes the use of free air cooling to improve the efficiency of, and cooling of, equipment for use in telecom infrastructures. Discussed at length is the cooling of communication installation rooms such as data centers or base stations, and this is intended as a valuable tool for the people designing and manufacturing key parts of communication networks. This book provides an introduction to current cooling methods used for energy reduction, and also compares present cooling methods in use in the field. The qualification methods and standard reliability assessments are reviewed, and their inability to assess the risks of free air cooling is discussed. The method of identifying the risks associated with free air cooling on equipment performance and reliability is introduced. A novel method of assessment for free air cooling is also proposed that utilizes prognostics and health management (PHM). This book also: Describes how the implementation of free air cooling can save energy for cooling within the telecommunications infrastructure. Analyzes the potential risks and failures of mechanisms possible in the implementation of free air cooling, which benefits manufacturers and equipment designers. Presents prognostics-based assessments to identify and mitigate the risks of telecommunications equipment under free air cooling conditions, which can provide the early warning of equipment failures at operation stage without disturbing the data centers' service. Optimum Cooling for Data Centers is an ideal book for

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researchers and engineers interested in designing and manufacturing equipment for use in telecom infrastructures.

Site Planning and Design Handbook, Second Edition

Guidelines for Laboratory Design: Health and Safety Considerations, Third Edition provides reliable design information related to specific health and safety issues that need to be considered when building or renovating laboratories."

Owner's Guide for Buildings Served by District Cooling

This report defines the concept of district cooling and summarizes its benefits and challenges then presents technologies used in the process-including stand-alone as well as integrated or cogeneration (or even trigeneration) solutions. It also discusses business models followed in the district cooling sector and considers the financial feasibility of district cooling projects and goes over the various regulations regarding district cooling. The report then looks into how district cooling has developed worldwide and examines the district cooling market in the People's Republic of China, then recommends steps that should be taken for the further development of district cooling in the country.

Integrated Community Energy Systems Engineering Analysis and Design

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Bibliography

Optimal Design and Retrofit of Energy Efficient Buildings, Communities, and Urban Centers presents current techniques and technologies for energy efficiency in buildings. Cases introduce and demonstrate applications in both the design of new buildings and retrofit of existing structures. The book begins with an introduction that includes energy consumption statistics, building energy efficiency codes, and standards and labels from around the world. It then highlights the need for integrated and comprehensive energy analysis approaches. Subsequent sections present an overview of advanced energy efficiency technologies for buildings, including dynamic insulation materials, phase change materials, LED lighting and daylight controls, Life Cycle Analysis, and more. This book provides researchers and professionals with a coherent set of tools and techniques for enhancing energy efficiency in new and existing buildings. The case studies presented help practitioners implement the techniques and technologies in their own projects. Introduces a holistic analysis approach to energy efficiency for buildings using the concept of energy productivity Provides coverage of individual buildings, communities and urban centers Includes both the design of new buildings and retrofitting of existing structures to improve energy efficiency Describes state-of-the-art energy efficiency technologies Presents several cases studies and examples that illustrate the analysis techniques and impact of energy efficiency technologies and controls

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Mechanical and Electrical Equipment for Buildings

This edited book surveys the major sustainability challenges facing Asian cities, in particular those related to urban energy and city cooling. The book discusses the key concepts and issues involved, addressing the three levels of micro (individual buildings), meso (neighbourhoods/districts) and macro (whole or large parts of cities). It illustrates different paradigms of urban development and explores how to create cooler cities by applying integrated sustainable design and planning on all three levels, bridging the gap between specialist approaches by highlighting both built projects, processes, and research. It also raises questions about prevalent paradigms of urban development as well as topics relating to urban district cooling solutions, sustainable construction materials, and processes towards effective delivery of sustainable cities. Providing cutting edge insights into hot climate cities in Asia, this text is also pertinent for the study of cities in other world regions, notably in developing countries, and of broad relevance to sustainable urban planning in all contexts.

ASHRAE Design Guide for Dedicated Outdoor Air Systems

Optimization of Energy Systems

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Thermal Energy Storage for Sustainable Energy Consumption

The Architects' Handbook provides a comprehensive range of visual and technical information covering the great majority of building types likely to be encountered by architects, designers, building surveyors and others involved in the construction industry. It is organised by building type and concentrates very much on practical examples. Including over 300 case studies, the Handbook is organised by building type and concentrates very much on practical examples. It includes: · a brief introduction to the key design considerations for each building type · numerous plans, sections and elevations for the building examples · references to key technical standards and design guidance · a comprehensive bibliography for most building types The book also includes sections on designing for accessibility, drawing practice, and metric and imperial conversion tables. To browse sample pages please see

<http://www.blackwellpublishing.com/architectsdata>

Heating, Cooling, Lighting

Winner of Choice Magazine - Outstanding Academic Titles for 2007 Buildings account for over one third of global energy use and associated greenhouse gas emissions worldwide. Reducing energy use by buildings is therefore an essential part of any strategy to reduce greenhouse gas emissions, and thereby lessen the likelihood of potentially catastrophic

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climate change. Bringing together a wealth of hard-to-obtain information on energy use and energy efficiency in buildings at a level which can be easily digested and applied, Danny Harvey offers a comprehensive, objective and critical sourcebook on low-energy buildings. Topics covered include: thermal envelopes, heating, cooling, heat pumps, HVAC systems, hot water, lighting, solar energy, appliances and office equipment, embodied energy, buildings as systems and community-integrated energy systems (cogeneration, district heating, and district cooling). The book includes exemplary buildings and techniques from North America, Europe and Asia, and combines a broad, holistic perspective with technical detail in an accessible and insightful manner.

District Cooling in the People's Republic of China

Thanks to economic incentives such as tax credits, green building has become a booming trend in the construction industry. This title is intended for electrical engineers, construction managers, construction and building inspectors.

Guidelines for Laboratory Design

Net Zero Energy Building

From the publishers of Architectural Graphic Standards, this book, created under the auspices of The American Planning Association, is the most

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comprehensive reference book on urban planning, design, and development available today.

Contributions from more than two hundred renowned professionals provide rules of thumb and best practices for mitigating such environmental impacts as noise, traffic, aesthetics, preservation of green space and wildlife, water quality, and more. You get in-depth information on the tools and techniques used to achieve planning and design outcomes, including economic analysis, mapping, visualization, legal foundations, and real estate developments.

Thousands of illustrations, examples of custom work by today's leading planners, and insider information make this work the new standard in the field. Order your copy today.

Geothermal Direct Use Engineering and Design Guidebook

Çukurova University, Turkey in collaboration with Ljubljana University, Slovenia and the International Energy Agency Implementing Agreement on Energy Conservation Through Energy Storage (IEA ECES IA) organized a NATO Advanced Study Institute on Thermal Energy Storage for Sustainable Energy Consumption – Fundamentals, Case Studies and Design (NATO ASI TESSEC), in Cesme, Izmir, Turkey in June, 2005. This book contains manuscripts based on the lectures included in the scientific programme of the NATO ASI TESSEC.

Planning and Urban Design Standards

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Pipeline Design for Water Engineers

This book systematically introduces readers to the operator method, which can be used in different stages of urban planning. Energy planning should ideally be accompanied by urban planning, ranging from comprehensive planning and detailed planning, to the design of individual construction projects. This book discusses a range of methods and models for defining energy planning objectives; analyzing and predicting energy demand; assessing available energy resources; optimizing integrated energy systems; analyzing the cost-effectiveness of proposals; implementation management; and post-assessment. Part one focuses on energy planning in different urban planning stages, while part two provides detailed discussions of key issues related to energy planning.

Passive and Low Energy Ecotechniques

Essential site planning and design strategies, up-to-date with the latest sustainable development techniques Discover how to incorporate sound environmental considerations into traditional site design processes. Written by a licensed landscape architect with more than 20 years of professional experience, this authoritative guide combines established approaches to site planning with sustainable practices and increased environmental sensitivity. Fully revised and updated, Site Planning and Design Handbook, Second Edition discusses the latest standards and protocols-including LEED. The

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book features expanded coverage of green site design topics such as water conservation, energy efficiency, green building materials, site infrastructure, and brownfield restoration. This comprehensive resource addresses the challenges associated with site planning and design and lays the groundwork for success. Site Planning and Design Handbook, Second Edition explains how to: Integrate sustainability into site design Gather site data and perform site analysis Meet community standards and expectations Plan for pedestrians, traffic, parking, and open space Use grading techniques to minimize erosion and maximize site stability Implement low-impact stormwater management and sewage disposal methods Manage brownfield redevelopment Apply landscape ecology principles to site design Preserve historic landscapes and effectively utilize vegetation

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