



Q K 2 1 4 4 2 6 4

建筑科学

BUILDING SCIENCE

◆ 中华人民共和国住房和城乡建设部主管

◆ 中国建筑科学研究院有限公司主办

10
2021

第37卷 第10期
VOL.37 NO.10

可持续建筑 *Sustainable Building*



中国科技论文统计核心期刊
国际 CODEN 中心收录期刊
《中国科学引文数据库》来源期刊
国际连续出版物数据系统收录期刊
ICONDA 国际建筑文献数据库收录期刊
中国科技期刊文摘(CSTA)英文版
数据库收录期刊
《中国学术期刊(光盘版)
检索与评价数据规范》执行优秀期刊



第 37 卷 第 10 期(总第 291 期)
2021 年 10 月出版
(1985 年创刊)

主 办:中国建筑科学研究院有限公司
编 辑:《建筑科学》编辑部
地 址:北京北三环东路 30 号
邮 编:100013
电 话:010-64693291
电子邮箱(投稿邮箱):bjb365@126.com
主 编:黄世敏
副 主 编:徐 伟
“可持续建筑”编辑组

执行主编:俞英鹤
责任编辑:俞英鹤
美 编:陈 辛

印 刷:北京时捷印刷有限公司
国内发行:全国各地邮局订阅
国外发行:中国国际图书贸易总公司
(北京 399 信箱)

邮发代号:2-381
国外代号:BM4129
国内统一刊号:CN11-1962/TU
国外标准刊号:ISSN1002-8528
零 售:《建筑科学》编辑部发行室
广告经营许可证:京朝工商广字第 0209
号(101)

目 次

理论 & 实验研究

- 我国建筑碳达峰与碳中和目标分解与路径辨析 徐伟, 倪江波, 孙德宇, 黄帅, 董建锴(1)
间接蒸发冷却空调在近零能耗公共建筑中的应用与实测 褚俊杰, 徐伟, 霍慧敏(9)
基于 DeST 的城市建筑能耗模拟平台开发 刘兆濡, 燕达, 吴如宏, 孙红三, 桂晨曦, 普远, 康旭源, 安晶晶(16)
支持有氧运动、舒适和节能的夏季健身房室温现场试验与建议值 黄崇耘, 张宇峰, 阎嘉欣(24)
寒冷地区老旧住宅分散式采暖能耗影响因素及其作用机理研究
——以西安市为例 李玲燕, 梁启刘, 胡伟, 孙勇凯(33)
海水源热泵系统冬季工况运行特性实验研究 成岭, 郭炳庆, 李克成(42)
基于动态熵分析的辐射地板间歇供暖性能探究 段梦凡, 孙弘历, 刘晓华, 吴一凡, 林波荣(49)
基于最佳除霜控制点的空气源热泵新型电流除霜控制方法开发与验证 罗庆, 孙育英, 王伟, 赵继晗, 李耀全(59)
泡沫玻璃用于建筑外表被动蒸发降温的模拟实验研究 徐杭, 冉茂宇(66)
辽宁及周边地区汉传与藏传佛教寺院声环境比较研究 张东旭, 张嘉琳, 孔春晓, 陈雷(75)
自然通风型光伏双层皮幕墙光热传递特性研究 马明一, 慕远磊, 倪语涵, 史晓鹏, 徐春雯(81)
环形布水器对蓄热水箱释热性能影响的研究 方桂花, 张振华, 连小刚, 谭心(89)
自除霾墙体空气净化系统对 PM_{2.5} 的净化特性 乔春珍, 张震, 纪开, 李志永(97)

计算分析

- 新型 BIPVT 超低能耗建筑节能特性研究 任海波, 全贞花, 王林成, 王兆萌, 赵耀华(103)
电致变色玻璃窗在北京某办公楼节能改造中的设计方案优化研究 徐文静, 孙育英, 郝莹莹, 戚皓然, 王伟(110)
双层通风斜屋面动态热特性模拟分析 柳晟, 严天, 徐新华(117)
实验室挥发性有机物意外泄露的应急通风方式研究 姜颖, 贺习之, 闫文昀, 陈毅兴(122)
基于微热管阵列的地板辐射供暖模拟研究 李海泽, 全贞花, 董瑞雪, 刘昀晗, 赵耀华(132)
音质导向的可变空间多功能厅空间形体与界面装修关联性分析 王亚平, 江朝梅, 崔艳秋(138)
关于室内冰上运动场馆热湿环境控制的模拟研究 张昕, 钱伟昕, 刘京(145)

论 坛

- 基于知识图谱的健康建筑研究现状与趋势 崔艳秋, 孙宁晗, 孟冲, 魏瑞涵(152)
城市规划管理技术规定的自动化核查方法初探 孙澄宇, 李梦婷, 姜涵宸(161)
近零能耗公共建筑技术经济性分析 高彩凤, 陈梦源, 彭莉, 潘玉亮(170)
LEED 体系下基于近零能耗关键技术的建筑节能潜力应用研究 康一亭, 徐伟, 何凌昊, 戎贤, 刘瑞捷, 于震, 李晗(179)

“第 14 届建筑物理学术大会论文精选”专栏

- 性能可调围护结构国际发展综述及应用思考 吴一凡, 孙弘历, 段梦凡, 林波荣(186)
新型软木颗粒混凝土的热湿性能及其应用研究 曹珍琦, 王莹莹, 刘加平, 刘艳峰(193)
基于 LBM-LES 的室外湍流非稳态快速模拟方法的开发 韩梦涛(200)
老年人对纯音的紧急程度的感知 文孟君, 马蕙(208)

* * * * *
[期刊基本参数] CN11-1962/TU * 1985 * b * 16 * 214 * zh * P * ¥ 15.00 * 8000 * 28 * 2021-10

BUILDING SCIENCE

(Monthly Journal)

No. 10 Vol. 37, October 2021

(Initial Issue in 1985)

Director: China Academy of Building
Research
Edited & Published: Editorial Committee of
BUILDING SCIENCE

Address: 30 Bei San Huan Dong Lu,
Beijing 100013, China

Tel: 86-10-64693291

E-mail: bjb365@126.com

Chief Editor: HUANG Shimin

Vice Chief Editor: XU Wei

“Sustainable Building” Editorial Team

Executive Chief Editor: YU Yinghe

Responsible Editor: YU Yinghe

Art Editor: CHEN Xin

* * * * *

Distributed in China:

Post Office Code Name 2-381

Distributed Abroad:

China International Book Trading

Corporation

(GUO JI SHU DIAN)

P.O.Box 399, Beijing, China

CONTENTS

Theoretical & Experimental Study

- Research on the Target Decomposition and Path of Building Carbon Peak and Carbon Neutrality in China XU Wei, NI Jiangbo, SUN Deyu, HUANG Shuai, DONG Jiankai(1)
Application and Measurement of Indirect Evaporative Cooling Unit in Public Buildings with Near Zero Energy Consumption CHU Junjie, XU Wei, HUO Huimin(9)
Development of a Platform of Urban Building Energy Modeling Based on DeST LIU Zhaorou, YAN Da, WU Ruhong, SUN Hongsan, GUI Chenxi, JIN Yuan, KANG Xuyuan, AN Jingjing(16)
Field Study and Recommended Temperature for Gyms that Support Aerobic Exercise, Comfort and Energy Conservation in Summer HUANG Chongyun, ZHANG Yufeng, QUE Jiaxin(24)
Influencing Factors and Mechanism of Decentralized Heating Energy Consumption of Old Residences in Cold Area of China: Taking Xi'an as an Example LI Lingyan, LIANG Qiliu, HU Wei, SUN Yongkai(33)
Experimental Study of Operating Characteristics of Seawater-source Heat Pump System in Winter CHENG Ling, GUO Bingqing, LI Kecheng(42)
Research on the Intermittent Heating Performance of Radiant Floor Based on Dynamic Entransy Analysis Method DUAN Mengfan, SUN Hongli, LIU Xiaohua, WU Yifan, LIN Borong(49)
Development and Validation of a New Electric Current Defrosting Control Method of Air-source Heat Pump Based on the Optimal Defrosting Control Point LUO Qing, SUN Yuying, WANG Wei, ZHAO Jihan, LI Yaoquan(59)
Imitative Experiment Study on Passive Evaporative Cooling of Foam Glass Used on Building Exterior XU Hang, RAN Maoyu(66)
A Comparative Study of the Acoustic Environment of Han-Chinese and Tibetan Buddhist Temples in Liaoning Province and Surrounding Areas ZHANG Dongxu, ZHANG Jialin, KONG Chunxiao, CHEN Lei(75)
Study on the Photovoltaic Transfer Characteristics of Naturally Ventilated Photovoltaic Double-skin Façade MA Mingyi, QI Yuanlei, NI Yuhan, SHI Xiaopeng, XU Chunwen(81)
Research on the Influence of Annular Water Distributor on Heat Release Performance of Thermal Tank FANG Guihua, ZHANG Zhenhua, LIAN Xiaogang, TAN Xin(89)
The PM_{2.5} Purification Characteristics of Air Purification System of Haze-Absorbing Wall QIAO Chunzhen, ZHANG Zhen, JI Kai, LI Zhiyong(97)

Computational Analysis

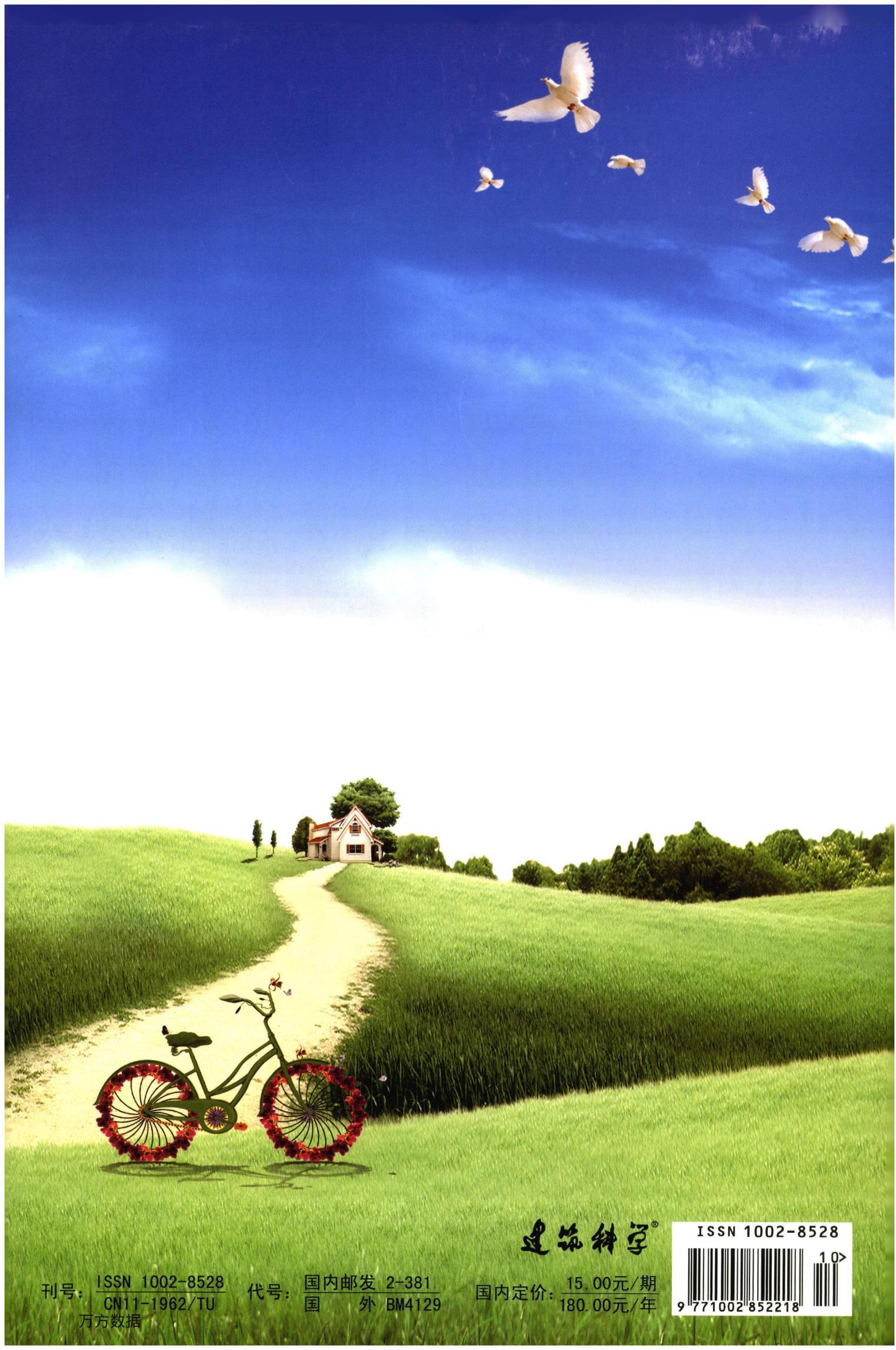
- Study on Energy-saving Characteristics of Novel BIPVT Ultra-low Energy Building REN Haibo, QUAN Zhenhua, WANG Lincheng, WANG Zhaomeng, ZHAO Yaohua(103)
Design Optimization of Electrochromic Windows in Energy-saving Renovation of an Office Building in Beijing XU Wenjing, SUN Yuying, HAO Yingying, QI Haoran, WANG Wei(110)
Simulation Analysis of the Dynamic Thermal Characteristics of a Double-skin Ventilated Roof LIU Sheng, YAN Tian, XU Xinhua(117)
Research on Emergency Ventilation Strategies for Accidentally Released VOC in Laboratory JIANG Ying, HE Xizhi, YAN Wenyun, CHEN Yixing(122)
Research on Radiant Floor Heating Simulation Based on Micro Heat Pipe Array LI Haize, QUAN Zhenhua, DONG Ruixue, LIU Yunhan, ZHAO Yaohua(132)
Correlation Analysis of the Shape and Interface Decoration of Variable Space Multifunctional Hall Based on Sound Quality WANG Yaping, JIANG Chaomei, Cui Yanqiu(138)
Simulation Study on the Control of Heat and Humidity Environment of Indoor Ice Sports Stadium ZHANG Xin, QIAN Weixin, LIU Jing(145)

Forum

- Research Status and Trend of Healthy Building Based on Knowledge Map CUI Yanqiu, SUN Ninghan, MENG Chong, WEI Ruihan(152)
An Automated Code Checking System for Technical Regulations in Urban Planning Management SUN Chengyu, LI Mengting, JIANG Hanchen(161)
Techno-economic Analysis of Nearly Zero Energy Public Buildings GAO Caifeng, CHEN Mengyuan, PENG Li, PAN Yuliang(170)
Energy Saving Potential of the LEED Evaluation System Based on Key Technologies of Chinese Nearly Zero Energy Building KANG Yiting, XU Wei, HE Linghao, RONG Xian, LIU Ruijie, YU Zhen, LI Han(179)

Column of Outstanding Articles from the 14th Building Physics Conference of China

- A Review of Switchable Building Envelope and Application WU Yifan, SUN Hongli, DUAN Mengfan, LIN Borong(186)
Hygrothermal Characteristics and Application of Novel Cork Granular Concrete CAO Zhenqi, WANG Yingying, LIU Jiaping, LIU Yanfeng(193)
Fast Unsteady Simulation of Outdoor Wind Turbulence Flow Based on LBM-LES HAN Mengtao(200)
The Elderly's Urgency Perception of Pure Tones WEN Mengjun, MA Hui(208)



建筑科学®

ISSN 1002-8528



10>

刊号: ISSN 1002-8528
CN11-1962/TU
万方数据

代号: 国内邮发 2-381
国 外 BM4129

国内定价: 15.00元/期
180.00元/年