

# 建筑科学

BUILDING SCIENCE

®

QK1716175

6

2017

第33卷 第6期  
VOL.33 NO.6

◆ 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主办

## 可持续建筑 *Sustainable Building*



ISSN 1002-8528



06>

9 771002 852003  
万方数据

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



主编:中国建筑科学研究院  
编 辑:《建筑科学》编辑部  
“可持续建筑”编辑组  
地 址:北京北三环东路 30 号  
邮 编:100013  
电 话:010-64517427,64693291  
电子邮箱(投稿邮箱):bjb365@126.com  
主 编:赵基达  
副 主 编:徐 伟

责任编辑:俞英鹤  
编 辑:唐冬芬  
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

### 被动式超低能耗建筑专栏

- 世界被动房大奖赛获奖项目研究 ..... 吕燕捷, 张时聪, 徐伟 (1)  
吉林城建学院超低能耗建筑示范项目研究 ..... 陶进, 王杨洋, 任楠楠 (8)  
近零能耗建筑技术体系在严寒地区的实践研究 .....  
..... 冯国会, 徐小龙, 吴珊, 路祥玉, 江明志, 孙艺馨, 付瑶, 窦宝月 (15)  
严寒地区被动式超低能耗住宅新风机组换热效率测试与分析 .....  
..... 王昭俊, 薛庆雯, 余志义, 吉玉辰 (21)  
北京某既有办公建筑新风系统改造效果分析 .....  
..... 潘雨, 冯铁栓, 肖龙, 尹悦, 张瑞雪 (26)

### 理论 & 实验研究

- 基于参数化三维模型的城市天空遮挡简化算法 ..... 吴杰, 张宇峰, 林宇 (32)  
内蒙古西部农牧区住宅过渡季室内热舒适现场研究 .....  
..... 金国辉, 张东杰, 沈强, 史俊鑫 (41)  
新型热管平板太阳能热水器性能研究 .....  
..... 刘鸿德, 全贞花, 赵耀华, 迟远英, 靳赫然, 姚孟良 (48)  
高校建筑电器待机能耗调查及行为分析 .....  
..... 胡宾, 俞准, 李郡, 张国强 (55)  
小型相变蓄冷空调性能的实验研究 .....  
..... 吴东波, 张泉, 陈晓明, 廖曙光, 沙正勇 (62)  
辅助散热地源热泵复合系统地埋管换热特性实验研究 .....  
..... 巩学梅, 陈曦, 王碧玲, 陈光明 (68)  
住宅空调室外机安装平台的研究 .....  
..... 张春枝, 喻良德, 李玉云, 胡佳伟, 苏顺玉 (73)

- 北京某医院节能改造效果后评价 .....  
..... 崔俊奎, 秦颖颖, 王瑞祥, 李维, 张微, 李雪薇 (79)  
村镇建筑太阳能空气集热屋面构件热性能测试与分析 .....  
..... 董岱南, 李忠, 冯爱荣, 贾春霞, 陈亮, 李爱松, 刘宗江, 李常铃, 聂晶晶 (85)

### 计算分析

- 全寿命周期寒冷地区近零能耗居住建筑能效指标研究 .....  
..... 孙德宇, 徐伟, 余镇雨 (90)  
单体建筑及建筑群表面风压计算的湍流模型研究 .....  
..... 梅凌云, 吴杰, 张宇峰 (96)  
街区尺度建筑布局对通风性能的影响及评价方法研究 .....  
..... 胡一东, 刘兆辉, 谭洪卫 (108)  
中国各地区人体热舒适与室内热环境参数的关系 .....  
..... 端木琳, 孙星维, 李祥立, 王子涵 (115)  
办公建筑照明能耗模拟方法研究(下) ..... 罗涛, 燕达, 江亿, 赵建平 (123)  
基于往复式通风的住宅通风效果对比分析 ..... 王奕超, 王智超, 薛艳青 (130)

### 论 坛

- 夏热冬暖地区窗台种植槽绿化对教室的降温效果研究 .....  
..... 任晶, 冉茂宇, 张婷婷, 罗薇 (135)

\* \* \* \* \*

[期刊基本参数] CN11-1962/TU \* 1985 \* b \* 16 \* 142 \* zh \* P \* ¥12.00 \* 8000 \* 21 \* 2017-06

## BUILDING SCIENCE

(Monthly Journal)

No. 6 Vol. 33, Jun. 2017

(Initial Issue in 1985)

Director: China Academy of Building Research  
Edited & Published: Editorial Committee of BUILDING SCIENCE  
“Sustainable Building” Editorial Team  
Address: 30 Bei San Huan Dong Lu, Beijing 100013, China  
Tel: 86-10-64517427; 64693291  
E-mail: bjb365@126.com  
Chief Editor: ZHAO Jida  
Vice Chief Editor: XU Wei

Responsible Editor: YU Yinghe

Editor: TANG Dongfen

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

### Column of Passive Ultra-Low-energy Building

- Winning Projects Passive House Architecture Award ..... LYU Yanjie, ZHANG Shicong, XU Wei( 1 )  
A Demonstration Project of Ultra-low-energy Building in the City College of Jilin Jianzhu University ..... TAO Jin, WANG Yangyang, REN Nannan( 8 )  
Application of Near-Zero Energy Building Technology System in Severe Cold Region ..... FENG Guohui, XU Xiaolong, WU Shan,  
..... LU Xiangyu, JIANG Mingzhi, SUN Yixin, FU Yao, DOU Baoyue(15)  
Testing of Heat Exchange Efficiency of Fresh Air Unit of Passive Ultra-low-energy Building in Severe Cold Region ..... WANG Zhaojun, XUE Qingwen, YU Zhiyi, JI Yuchen(21)  
Effect Analysis of Fresh Air System Improvement in Existing Office Building ..... QIAN Yu, FENG Tieshuan, XIAO Long, YIN Yue, ZHANG Ruixue(26)

### Theoretical & Experimental Study

- Simplified Calculation Method of Urban Sky Obstruction Based on Parametric 3D Model ..... WU Jie, ZHANG Yufeng, LIN Yu(32)  
Residential Thermal Comfort in Western Agricultural and Pastoral Areas of Inner Mongolia in Shoulder Season ..... JIN Guohui, ZHANG Dongjue, SHEN Qiang, SHI Junxin(41)  
Performance of Novel Heat-pipe Flat-plate Solar Water Heater ..... LIU Hongde, QUAN Zhenhua,  
..... ZHAO Yaohua, CHI Yuanying, JING Heran, YAO Mengliang(48)  
Investigation and Analysis of Standby Energy Consumption and Usage Behavior of Electrical Appliances in University Buildings ..... HU Bin, YU Zhun, LI Jun, ZHANG Guoqiang(55)  
Experimental Study on the Performance of Small-sized Cool Storage Air Conditioning with Phase Change Materials ..... WU Dongbo, ZHANG Quan, CHEN Xiaoming, LIAO Shuguang, SHA Zhengyong(62)  
Experimental Study on Soil Heat Transfer of Hybrid Ground Source Heat Pump System with Auxiliary Cooling ..... GONG Xuemei, CHEN Xi, WANG Biling, CHEN Guangming(68)  
Mounting Shelf for Outdoor Unit of Household Air Conditioner ..... ZHANG Chunzhi, YU Liangde, LI Yuyun, HU Jiawei, SU Shunyu(73)  
Post Evaluation on Building Energy-saving Reconstruction for a Hospital in Beijing ..... CUI Junkui, QIN Yingying, WANG Ruixiang, LI Wei, ZHANG Wei, LI Xuwei(79)  
Test and Analysis of Thermal Performance of Solar Air Collector Integrated on Roof of Rural Building ..... DONG Dainan, LI Zhong, FENG Airong,  
JIA Chunxia, CHEN Liang, LI Aisong, LIU Zongjiang, LI Changling, NIE Jingjing(85)

### Computational Analysis

- Optimization of Energy Efficiency of a typical Nearly Zero Energy Residential Building Based on Life Cycle Cost Method ..... SUN Deyu, XU Wei, YU Zhenyu(90)  
Turbulence Model for Calculating Wind Pressure of Single Building and Building Complexes ..... MEI Lingyun, WU Jie, ZHANG Yufeng(96)  
Multi-parameter Impact on Wind Environment of Residential District ..... HU Yidong, LIU Zhaozhi, TAN Hongwei(108)  
Relationship between Human Thermal Comfort and Indoor Thermal Environment Parameters in Various Regions of China ..... DUANMU Lin, SUN Xingwei, LI Xiangli, WANG Zihan(115)  
Lighting Energy Simulation Method for Office Buildings (Part II) ..... LUO Tao, YAN Da, JIANG Yi, ZHAO Jianping(123)  
A Comparative Analysis of Residential Ventilation Effectiveness Based on Reciprocating Ventilation ..... WANG Yichao, WANG Zhichao, XUE Yanqing(130)

### Forum

- Study on the Cooling Effect of Windowsill Greening on Classroom in Hot Summer and Warm Winter Area ... REN Jing, RAN Maoyu, ZHANG Tingting, LUO Wei(135)



建筑科学® 刊号: ISSN 1002-8528 代号: 国内邮发 2-381  
CN11-1962/TU 国外 BM4129 国内定价: 12.00元/期  
144.00元/年