



# 工程建设与设计

主办: 国家机械工业局工程建设中心 中国机械工业勘察设计协会 中国中元国际工程公司 CN 11-3914/TU 2012年第10期 总第294期



机械工业第一设计研究院  
FIRST DESIGN & RESEARCH INSTITUTE · MI CHINA

1952年~2012年  
**60周年**



机械工业第一设计研究院  
FIRST DESIGN & RESEARCH INSTITUTE, MI CHINA



机械工业第一设计研究院  
FIRST DESIGN & RESEARCH INSTITUTE, MI CHINA

安徽省合肥市繁华大道 12550 号 邮编: 230601 电话: 0551-5890012

ISSN 1007-9467



10 >

**5 卷首****BIM: 信息化时代翘楚, 勘察设计行业骄儿****6 动态资讯****8 特别关注****今天, 你BIM了吗?**

——建筑设计手段的第二次变革

**23 建筑霓虹****节奏的呼唤、韵律的灵动**

——贵州省人民大会堂配套五星级酒店设计

**28 论坛****BIM研究者的应用体验****工程勘察设计行业统计报表数据的应用及工作建议****38 ECUC观点****中国低碳城市的发展方向****40 信息化****创新设计 持续发展**

——2012年BIM设计大赛完美落幕



封面供图: 四川省建筑设计院

**建筑与结构设计**

- 41 谈以人为本的室内设计(刘欣)
- 45 圆钢管混凝土结构研究现状(李艳双,王白光)
- 47 徐州工程学院图书馆设计探讨(梁东锋)
- 50 转炉煤(干法除尘器应用实践及现状分析(王进轩)
- 53 钢框架-支撑结构在高强度地震烈度下的反应分析(王健宇,刘永方)
- 56 苏州规划展示馆结构设计(耿光华)
- 59 土建结构工程安全性的探讨(左焱)
- 61 某门式刚架厂房的局部改造设计实例(赵玉英,李德良)
- 63 一般多层办公楼建筑防火设计(彭天礼)
- 66 电厂总平面布置中的厂前区景观设计  
——以柬埔寨西哈努克港3×135MW燃煤电厂为例(塔拉,放日格勒,张磊)
- 70 在某工厂设计实践中对绿色设计的探讨(张雯丽)
- 73 中、美、欧混凝土梁的受弯性能对比研究(肖良丽,潘明杨)
- 77 现代自动化建筑设计的思考(朱健)

**基础工程设计**

- 80 轻型钢结构基础设计探讨(金世品)
- 83 某高层住宅的基础设计(张云海,李春智,张新鑫)
- 87 谈CFG桩复合地基设计与工程应用(狄玉辉,刘辉)
- 90 强分法在丘陵地区填土地基处理中的应用(张清,杨海滨,邹宏)
- 92 严寒地区路基工程防冻胀技术研究(余鑫,王小平,余滨,韩京宏)
- 94 红层软岩环境下某站场高填方工程设计(李力)
- 97 微型钢管桩复合土钉墙设计及施工工艺(付强,王伟德)

**公用工程设计**

- 100 土壤热泵系统的地理管热平衡分析(杨红辉)
- 105 冷却液集中循环处理系统工程设计要点(李浩,徐雯露,刘淑红)
- 108 地源热泵系统土壤热物性现场测试法分析(杨清,张滨山,付向锋)
- 111 医疗IT系统电源应用指南(孙文章)
- 114 大空间展厅的温湿度独立控制系统设计探讨(殷悦,郭玉鑫)
- 118 水电安装节能在房屋建筑中的应用分析(段红朝)
- 120 电气设计防火审核研究(杨先刚)
- 123 某大型超市暖通空调设计(郁有礼)
- 126 三维协同设计在裕隆换流站设计中的应用(王磊)
- 129 三维数字化设计技术在换流站直流场设计中的应用(赵晓辉,杨濛濛)
- 132 综合监控系统网络通讯设计与实现(李晓硕)
- 135 浅析医院的电气节能设计(陈艳平,孙文章)
- 138 神经网络在民用建筑设计工程中的应用(孙国明,杨佳欣)

**市政·交通·水利工程设计**

- 141 重力式码头换填基槽开挖底宽优化设计探讨(卢少彦)
- 145 自动化变形监测技术发展与在广州地铁中的应用(魏本现)
- 148 中国传统园林的现代困境(李新天,梁振辉)
- 150 章江水闸除险加固工程设计(彭德慧)
- 154 武汉城际铁路高架站桥梁设计关键技术研究(张晓江)

**制造工程设计**

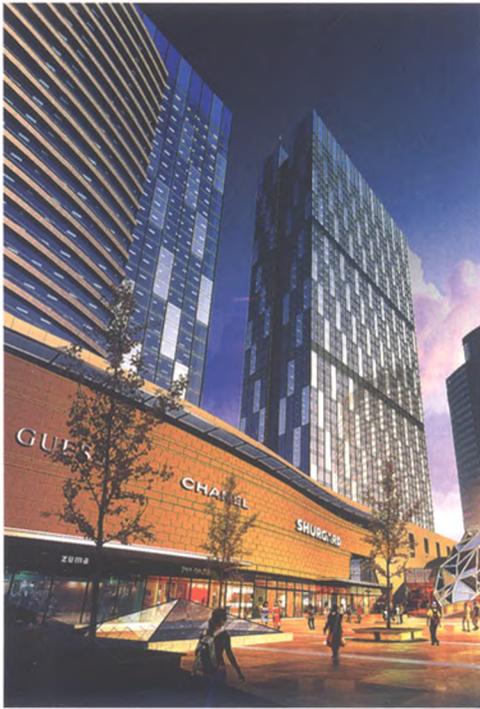
- 157 温度控制器国产化改造设计(张益民)

**工程施工技术**

- 160 混凝土裂缝成因分析及防治对策(张武民)
- 163 游泳池防漏水设计与施工(阴玉宝)
- 166 管棚花管注浆固结法在隧道塌方处理中的应用(雷斌)
- 169 浅议外墙乳胶漆开裂处理及其防控措施(张志兵)

**工程项目管理**

- 173 房地产直接投资风险及市场反应分析(蔡科,臧姮)
- 177 改扩建项目财务评价的特殊性研究(周雅飞,房健)
- 181 工程项目成本动态控制及其应用(吴玲)
- 184 激光测距仪和激光条码定位技术在自动存储系统工程中的应用(姜亚洲)
- 187 论北京通州·华业东方玫瑰项目暖通工程设计与施工质量的过程管理(虞京伟)
- 128 投稿须知



## 05 FOREWORD

BIM: Information Age Leaders, Investigation and Design Industry Proud

## 06 INFORMATION

## 08 SPECIAL FOCUS

Today, Do You Have to Use The BIM Technology?

## 23 BUILDING NEON

Calling is "Rhythm", Scansion with Soul

## 28 FORUM

Study the Application of BIM's Experience

Engineering Survey and Design the Application of Statistical Reporting Data and Work Proposals

## 38 ECUC VIEW

The Development of The Opposite Direction of Low-carbon Cities in China

## 40 INFORMATIONIZATION

Innovative Design and Sustainable Development

## Architectural and Structural Design

- 41 Discussion on People-oriented Interior Design (LIU Xin)
- 45 Research Status on Concrete Filled Circular Steel Tubes (LI Yan-shuang, WANG Zi-guang)
- 47 Discussion on Library Design of Xuzhou Institute of Technology (LIANG Dong-feng)
- 50 Converter Gas Dry Electrostatic Precipitator Application and Current Status Analysis (WANG Jin-xua)
- 53 Analysis of Steel Braced Frame Structure Response index Higher Seismic Intensity (WANG Jian-yu, LIU Yong-fang)
- 56 Structural Engineering Design for Suzhou City Planning Exhibition Hall
- 59 Discussion on Safety of Civil Engineering Structure (ZUO Xi)
- 61 A Portal Frame Workshop Local Modification Design Examples (ZHAO Yu-ying, LI De-liang)
- 63 The General Multi-storey Office Building Fire Protection Design (PENG Tian-li)
- 66 Landscape Design of Front Area of the Plant in the General Layout of Power Plant  
——Take 3×135MW Coal-fired Power Plant in Sihanoukville, Cambodia for Example (TALA, AORIGELE, ZHANG Lei)
- 70 Exploring and Practicing by Green Design in Plant Design ZHANG Wen-li
- 73 Comparative Study on the Flexural Behavior of Concrete Beams in the United States, European and China. (XIAO Liang-li, PAN Ming-yang)
- 77 Thinking about Design of Automatic Modern Architecture (ZHU Jian)

## Engineering Design of the Ground

- 80 Exploration of Design of Base for Light Steel Structures (JIN Shi-ping)
- 83 Foundation Design of Tall Building (ZHANG Yunhai, LI Chun-zhi, ZHANG Xin-xin)
- 87 Discussion about the Design and Engineering Application of CFG pile Composite Foundation (DI Yu-hui, LIU Hui)
- 90 Dynamic Compaction Method For Filling Ground Treatment in Mountainous Area (ZHANG Qing, YANG Hai-bin, ZOU Hong)
- 92 Subgrade Engineering Freeze-proofing Technology Research in Cold Region (YU Xin, WANG Xiao-pin, YU Bin, HAN Jing-hong)
- 94 Design of High-fill Slope for a Natural Gas Station in Red Bed Area (LI Li)
- 97 Design and Construction Process of Miniature Steel Pipe Pile and Composite Soil Nailing Wall (FU Qiang, WANG Wei-de)

## Construction & Design For Project

- 100 Heat Balance Analysis in Ground-source Heat Pump (YANG Hong-hui)
- 105 Key Points in Cooling Liquid Centralized Filtration Systems Engineering Design (LIHao, XU Wen-lu, LIU Shu-hong)
- 108 Fieldwork Testing Method Analysis of Soil Thermal Properties in Ground Source Heat Pump System (YANG Qing, ZHANG Bin-shan, FU Xiang-feng)
- 111 Power Supply Application Guidance of IT Healthcare System (SUN Wen-zhang)
- 114 Temperature and Humidity Independent Control System Design of a Large Exhibition Hall (YIN Yue, GUO Yu-xin)
- 118 Analysis Application of the Water and Energy Saving Installation in Housing Construction (DUAN Hong-zhao)
- 120 Electrical Design of Fire Audit Study (YANG Xian-gang)
- 123 HVAC System Design for a Large Supermarket (YU You-li)
- 126 Application of 3D Collaborative Design in the Yulong Converter Station (WANG Lei)
- 129 Application of 3D Digital Design Technique in the Converter Station DC Yard (ZHAO Xiao-hui, YANG Meng-meng)
- 132 Design and Realization of a Comprehensive Monitoring System Network Communication (LI Xiao-shuo)
- 135 Analysis Economical of Electrical Saving Design Hospital (CHEN Yan-ping, SUN Wen-zhang)
- 138 Application of Neural Networks in Civil Design Engineering (SUN Guo-ming, YANG Jia-xin)

## Municipal · Traffic · Water Resources · Engineering Design

- 141 Discussion on Optimization Design of Replacement Foundation Trench's Excavation Width on Gravity Quay (LU Shao-yan)
- 145 Automated Deformation Monitoring Technology Development and Application in the Guangzhou Metro (WEI Ben-xian)
- 148 The Difficulties of Chinese Traditional Gardens (LI Xin-tian, LIANG Zhen-hui)
- 150 Gate Reinforcement Project Design of Zhangjiang River (PENG De-hui)
- 154 Research on Wuhan City Railway Elevated Bridge Design Key Technology (ZHANG Xiao-jiang)

## Manufacture Engineering Design

- 157 Localized Modification and Design of the Temperature Controller (ZHANG Yi-min)

## Construction Technology

- 160 Reasons Analysis of Concrete Crack and How to Dispose (ZHANG Wu-min)
- 163 Design and Construction of Swimming Pool Water Leak (YANG Yu-bao)
- 166 Application of Pipe-shedded Grouting Consolidation Through Perforated Pipe in Tunnel Collapse Tackling (LEI Bin)
- 169 External Wall latex Paint Cracking Process and Prevention Measures (ZHANG Zhi-bing)

## Project Management

- 173 Analysis on Real Estate's Direct Investment Risk and Market Response (CAI Ke, ZANG Heng)
- 177 Study on the Particularity of Financial Evaluation in Reconstruction and Expansion Project (ZHOU Ya-fei, FANG Jian)
- 181 Dynamic Cost Control for Construction Projects and the Application (WU Ling)
- 184 Laser Rangefinder and Laser Bar Code Positioning Technology and its Application in Automatic Storage Systems (JIANG Ya-zhou)
- 187 Tongzhou District of Beijing-HOMYEAR Oriental Rose Project Process Management of HVAC Engineering Design and Construction Quality (YU Jing-wu)