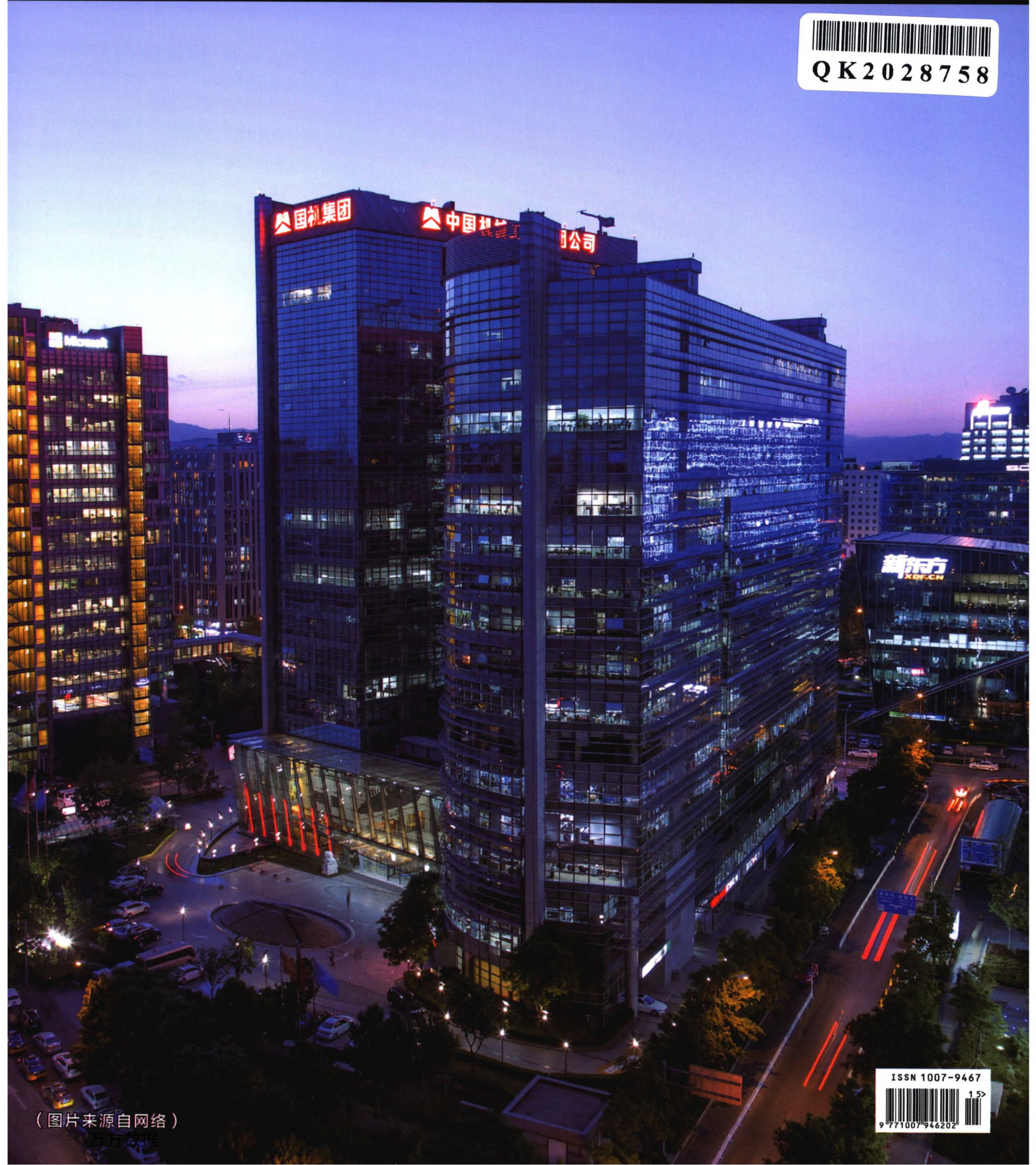




# 工程设计与设计

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 中国中元国际工程有限公司 CN 11-3914/TU 2020 年第08月上 总第437期



(图片来自网络)

ISSN 1007-9467  
9 771007 946202 15>



**动态资讯**

- 01 “住建部通报27家建设工程企业资质申报弄虚作假行为”等信息8则

**论坛**

- 03 全氟己酮灭火剂在计算机机房中的应用前景

**建筑与结构设计**

- 05 某体育场看台结构设计 (刘翀, 王继涛, 孟永杰)  
08 谈工业建筑改建设计要点 (高阳)  
13 节能设计理念在住宅建筑设计中的渗透 (刘劲)  
16 现代城市商业综合体建筑设计分析 (周敏玉)  
19 建筑工程新型墙体节能材料的检测分析 (梁正荣)  
21 分析地下车库无梁楼盖中集水坑设计 (王志明)

**基础工程设计**

- 23 岩溶发育区地铁车站基坑突水涌泥应急处理技术研究 (黄嘉恒, 张鹏飞, 涂文博)  
28 高水位情况下深基坑支护方案探讨 (张达)  
31 综合勘察技术在岩土工程勘察中的应用研究 (项京)  
33 市政道路淤泥固化土中软土地基的处理技术 (于习化)

**公用工程设计**

- 36 高层民用建筑暖通空调设计注意事项探讨 (刘洋, 李继领, 刘尚斌)  
38 智能照明在垃圾焚烧发电厂的应用 (江婷)  
41 公路特长隧道施工临时用电方案探讨 (王玉林)

- 43 基于某校区燃煤锅炉替代项目分时分区供热能耗的研究 (杨猛, 王英杰)  
47 商业建筑冰蓄冷空调系统设计研究 (杨丽萍)  
50 消防水泵电气控制设计可靠性研究 (余延妃)  
52 集成式高效空调制冷系统在地铁车站的应用研究 (姬安)  
55 北京某住宅项目单体住宅供配电方案问题分析及优化 (冯立祥)  
57 液氨罐区设备及管道布置设计思路 (薛一萌)

**市政·交通·水利工程设计**

- 60 基于Logit模型的高速公路交通流分配模型研究 (马坤, 高金虎, 孙倩)  
62 市政道路枢纽互通立交的设计研究 (王永斌, 陈军)  
65 无障碍设计理念在市政道路设计中的应用 (税欢, 严红)  
68 城市道路路段人性化交通设计方法研究 (陈秋盛)  
71 我国城镇给水系统工程存在的问题与对策 (陈明进, 曾尉)  
74 智慧城市与智慧街区的公共载体——智能路灯系统 (唐琦)  
77 道路桥梁设计中的隐患及解决措施分析 (徐锋铭, 吕保中)  
79 城市轨道交通节能管理探讨与措施分析 (李军, 王亮, 朱国琦)  
82 水泥混凝土桥面铺装结构防水层设计在港珠澳大桥中的应用 (雷建国)  
85 基于全寿命周期成本的高速公路改扩建旧路护栏再利用评价技术 (李政)  
88 自然因素与工程作用对山区道路泥石流、滑坡形成的影响 (谭成, 李莉)  
90 城市建筑给排水中节能环保理念及设计思路构建 (屠丽)  
93 道路桥梁检测中无损检测技术的应用分析 (陈林海)  
95 现代城市道路雨水收集利用的设计方法探讨 (李维, 孟亚萍, 朱捷, 王春发, 马玉勇, 刘绍杰, 刘峰)  
99 市政工程中雨水泵站施工技术要点分析 (陈金龙)  
101 西北小城镇建设陆港型物流枢纽载体城市规划研究——以酒泉市肃州区为例 (张丽娟)  
105 市政给排水设计常见问题探讨 (侯剑)  
107 轨道交通模块化装配式站台门技术 (刘鑫美)  
110 平顶山商业步行街所蕴含的地域文化及空间形态思考 (闫改嫔, 朱颖帆, 焦雷)

- 113 基于生态城市理念的城市规划要点分析 (陆靖亚)  
116 生态水利工程规划设计中的难点及策略研究 (蔡宇)

## 工业工程设计

- 118 基于工业机械臂的三维立体钢筋网笼生产的研究与应用  
(潘浩, 苏世龙, 雷俊, 樊则森)  
121 绿色制造的新型机械制造工艺技术研究 (林游明)

## 环境工程设计

- 123 西北地区城市生态公园规划设计研究 (金洲)

## 能源工程设计

- 126 煤矿瓦斯治理“先抽后采”的实践与作用 (谈国文)  
128 节能居住建筑应用太阳能采暖实践研讨 (王超)

## 智能与信息化

- 131 构建高速公路应急指挥平台智能化的思路与方案  
(赵永杰)  
134 MATLAB在公路岩土工程勘察中的应用研究 (陈钊)  
136 无人机测绘与地理信息系统在工程中的应用 (陈杨)  
139 建筑结构设计BIM技术的应用实践分析 (李广龙)  
142 化工设备信息管理系统的研究与实现 (牟晓君)

## 工程施工技术

- 144 风化板岩水敏性特征及其基坑施工技术  
(钟文京, 权永华, 毛亚军, 黄思宇, 朱考飞, 张可能)  
147 航电枢纽弧形门安装技术研究  
(黄涛, 金红宁, 谭浩, 周闯)  
151 紧邻高边坡深基坑开挖监测联合支护体系的建立  
(陈骏, 张云毅, 王永招, 彭伟, 龚璐杰, 阳波, 张鼎, 张可能)  
154 上跨高速铁路桥梁工程转体施工技术 (张宏志)  
157 影响钢板桩施工效率的主要因素分析 (罗德志)  
160 盾构区间“栽头”位置注浆管片抬升 (侯鹰鹏, 王敏)  
163 预应力施工技术在路桥施工中的应用 (孙加宾)  
165 盾构隧道下穿对高铁桥梁的影响研究 (彭江)  
168 跨越既有高速公路箱梁支架法现浇施工技术分析  
(宋攀)  
171 管道穿越用小型钻进顶管机制作及应用 (徐敏)  
173 市政工程道桥施工质量问题的成因及措施思路构架实践  
(张德存)  
176 土木工程建筑中混凝土结构的施工技术分析 (李瑞)  
178 市政沥青路面接缝施工处理技术分析 (严卓辉)

- 181 长距离勘探平洞洞内施工技术的供电方案  
(吴世友, 韩树海, 李连鹏)  
183 厂房内大型机电设备利用钢架倒运及吊装实践  
(陈义民)  
186 套筒灌浆连接技术特征及在预制装配式建筑中的应用  
(陈元春, 赖伟明)  
189 废食用油/纳米蒙脱土复合改性沥青流变性能研究  
(李蓓, 王冰轩)  
191 高模量沥青混凝土配合比设计与应用 (陈杜强)  
194 水平井施工常见问题及其解决方案研究 (张全盛)  
196 大型菱形挂篮在高墩大悬臂条件下的安拆技术 (庄晓)  
199 煤层气参数井钻井施工难点及对策分析 (和喜军)  
201 市政道路桥梁工程的常见病害与施工处理技术探讨  
(徐豪)  
204 高速公路桥梁施工中高墩施工技术应用探讨 (毕志军)  
206 预制装配式建筑施工技术研究 (周弟刚)  
208 轻型木结构构件安装及节点连接技术研究  
(杨子明, 徐大为, 潘峰)

## 工程项目管理

- 213 水电站技术改造要点及施工管理 (罗永杨)  
215 对国际水电项目投标的几点思考 (杜萍)  
218 水运工程建设中的质量管理问题分析 (彭越, 熊凯)  
220 公路工程项目管理中现场管理的实践与探索 (杨磊)  
222 对高速公路施工中工程质量管理分析 (王筱骅)  
224 PPP项目中全过程造价控制实施探索 (张笃霖)  
227 EPC模式下固定总价合同研究 (潘翔)  
230 谈城市道路施工管理如何有效把控制质量问题 (罗明)  
232 城市轨道交通工程建设安全风险管理体系研究 (周洋)  
235 市政工程给排水管材的质量控制研究  
(刘永生, 王绍征)  
237 分析设计院在传统设计项目与设计牵头的EPC项目中的  
角色转换 (刘有田, 尹福绵, 宋伟, 李鑫)  
240 谈市政工程监理的工作方法和技巧 (马建鑫)  
242 水利工程施工机械设备管理水平提升策略研究 (郑伟)  
245 市政工程造价控制与管理中存在的问题及解决方法探讨  
(吕玲)  
248 城市轨道交通系统的设备管理 (王强坤)  
250 房屋建筑施工现场技术质量管理与控制探讨 (钟意)  
252 市政工程设计阶段的工程造价控制分析 (王润祖)  
254 超高层建筑现场成本管理措施探讨 (徐乐华)

**INFORMATION**

- 01 "The Ministry of Housing and Urban-Rural Development Has Notified 27 Construction Engineering Enterprises of Falsifying Their Qualifications" Etc. 8

**FORUM**

- 03 The Application Prospect of Perfluorohexanone Fire Extinguisher in Computer Room

**Architectural and Structural Design**

- 05 Stand Structural Design of A Stadium(LIU Chong, WANG Ji-tao, MENG Yong-jie)  
08 Discussion on the Design Essentials of Industrial Building Reconstruction(GAO Yang)  
13 The Penetration of Energy-Saving Design Concept in Residential Building Design(LIU Jin)  
16 Architectural Design Analysis of Modern Urban Commercial Complex(ZHOU Min-yu)  
19 Detection and Analysis of New Wall Energy Saving Materials in Construction Engineering(LIANG Zheng-rong)  
21 Analysis on the Sump Design in the Beamless Floor of Underground Garage(WANG Zhi-ming)

**Engineering Design of the Ground**

- 23 Emergency Treatment Technology for the Water and Mud Gushing from Foundation Pit of A Subway Station in Karst Development Area(HUANG Jia-heng, ZHANG Peng-fei, TU Wen-bo)  
28 Discussion on Supporting Scheme of Deep Foundation Pit Under High Water Level(ZHANG Da)  
31 Application of Comprehensive Investigation Technology in Geotechnical Engineering Investigation(XIANG Jing)  
33 Treatment Technology of Soft Soil Foundation in Municipal Road Silt Solidified Soil(YU Xi-hua)

**Public Utilities Design**

- 36 Discussion on HVAC Design of High-Rise Civil Buildings(LIU Yang, LI Ji-ling, LIU Shang-bin)  
38 Application of Intelligent Lighting in Waste Incineration Power Plant(JIANG Ting)  
41 Discussion on Temporary Electricity Usage Scheme for Construction of Highway Extra-Long Tunnel(WANG Yu-lin)  
43 Study on Energy Consumption of Time-Sharing District Heating Based on A Campus Coal-Fired Boiler Replacement Project(YANG Meng, WANG Ying-jie)  
47 Research on the Design of Ice Storage Air Conditioning System in Commercial Buildings(YANG Li-ping)

- 50 Study on Reliability of Electrical Control Design of Fire Pump (YU Yan-fei)  
52 Application Research on the Integrated High Efficiency Air Conditioning Refrigeration System in Subway Station(JI An)  
55 Analysis and Optimization of Power Supply and Distribution Scheme for A Single Housing Project in Beijing(FENG Li-xiang)  
57 Design Idea of Liquid Ammonia Tank Farm Equipment and Pipeline Layout(XUE Yi-meng)

**Municipal Traffic Water Resources Engineering Design**

- 60 Study on Highway Traffic Flow Distribution Model Based on Logit Model(MA Kun, GAO Jin-hu, SUN Qian)  
62 Design and Research on Interchange of Municipal Road Hub(WANG Yong-bin, CHEN Jun)  
65 Application of Barrier-Free Design Concept in Municipal Road Design(SHUI Huan, YAN Hong)  
68 Research on Humanized Traffic Design Method of Urban Road Section(CHEN Qiu-sheng)  
71 Problems and Countermeasures of Urban Water Supply System Engineering in China(CHEN Ming-jin, ZENG Wei)  
74 The Public Carrier of the Smart City and the Smart Street—Intelligent Street Lamp System(TANG Qi)  
77 Analysis of Hidden Troubles and Solutions in Road and Bridge Design(XU Feng-ming, LV Bao-zhong)  
79 Discussion on Energy Saving Management of Urban Rail Transit and Analysis of Measures(LI Jun, WANG Liang, ZHU Guo-qi)  
82 Application of Waterproof Concrete Layer Design of Cement Concrete Bridge Deck Pavement in Hong Kong-Zhuhai-Macao Bridge(LEI Jian-guo)  
85 Reuse Evaluation Technology of Old Road Guardrail Reconstruction and Expansion Based on Full Life Cycle Cost(LI Zheng)  
88 Effects of Natural Factors and Engineering Effects on Debris Flow and Landslide Formation in Mountain Roads(TAN Cheng, LI Li)  
90 Construction of Energy Conservation and Environmental Protection Concept and Design Idea in Urban Building Water Supply and Drainage(TU Li)  
93 Application Analysis of Non-Destructive Testing Technology in Road and Bridge Inspection(CHEN Lin-hai)  
95 Discussion on Design Method of Rainwater Collection and Utilization on Modern Urban Road(LI Wei, MENG Ya-ping, ZHU Jie, WANG Chun-fa, MA Yu-yong, LIU Shao-jie, LIU Feng)  
99 Analysis of Construction Technology of Rainwater Pump Station in Municipal Engineering(CHEN YONG Jin-long)  
101 Study on Urban Planning of Constructing Land Port Logistics Hub Carrier in Northwest China Small Towns—Taking Suzhou District of Jiuquan City as An Example(ZHANG Li-juan)  
105 Discussion on Common Problems in Municipal Water Supply and Drainage Design(HOU Jian)  
107 Modular Fabricated Platform Door Technology for Rail Transit(LIU Xin-mei)  
110 Thoughts on Regional Culture and Spatial Forms in Pingdingshan Commercial Pedestrian Street(YAN Gai-pin, ZHU Ying-fan, JIAO Lei)  
113 Analysis of Urban Planning Points Based on the Concept of Ecological City(LU Jing-ya)  
116 Difficulties and Strategies in the Planning and Design of Ecological Water Conservancy Projects(CAI Yu)

**Industrial Engineering Design**

- 118 Research and Application of Three-Dimensional Reinforced Mesh Cage Production Based on Industrial Manipulator(PAN Hao, SU Shi-long, LEI Jun, FAN Ze-sen)

- 121 Research on New Mechanical Manufacturing Technology of Green Manufacturing(LIN You-ming)

### Environment Engineering Design

- 123 Research on Planning and Design of Urban Ecological Park in Northwest China(JIN Zhou)

### Energy Engineering Design

- 126 Practice and Function of "First Pumping and Then Mining" in Coal Mine Gas Control(TAN Guo-wen)  
128 Discussion on the Application of Solar Heating in Energy-Saving Residential Buildings(WANG Chao)

### Intelligentize and Informatization

- 131 The Idea and Scheme of Constructing Intelligent Expressway Emergency Command Platform(ZHAO Yong-jie)  
134 Study on the Application of MATLAB in the Investigation of Highway Geotechnical Engineering(CHEN Zhao)  
136 The Application of UAV Photogrammetry and GIS in Engineering(CHEN Yang)  
139 Application and Practical Analysis of BIM Technology in Architectural Structure Design(LI Guang-long)  
142 Research and Implementation of Chemical Equipment Information Management System(MOU Xiao-jun)

### Construction Technology

- 144 Water Sensitive Characteristics and the Foundation Pit Construction Technology of Weathered Slate(ZHONG Wen-jing, QUAN Yong-hua, MAO Ya-jun, HUANG Si-yu, ZHU Kao-fei, ZHANG Ke-neng)  
147 Installation Technology of Radial Gate of Navigation-Power Junction(HUANG Tao, JIN Hong-ning, TAN Hao, ZHOU Min)  
151 Establishment of Combined Support System for Excavation Monitoring of Deep Foundation Pit Adjacent to High Slope(CHEN Jun, ZHANG Yun-yi, WANG Yong-zhao, PENG Wei, GONG Lu-jie, YANG Bo, ZHANG Ding, ZHANG Ke-neng)  
154 Swivel Construction Technology for Bridge Engineering of Upper-Span High-Speed Railway(ZHANG Hong-zhi)  
157 Analysis of the Major Factors Affecting the Construction Efficiency of Steel Sheet Pile(LUO De-zhi)  
160 The Uplift of Grouting Pipe at the "Planting Head" Position of Shield Section(HOU Ying-peng, WANG Min)  
163 Application of Prestress Construction Technology in Road and Bridge Construction(SUN Jia-bin)  
165 Research on Influence of Shield Tunneling Underpass on High-Speed Railway Bridges(PENG Jiang)  
168 Technical Analysis of Cast-in-Place Construction of Box Girder Support Method Across Existing Expressway(SONG Pan)  
171 Manufacture and Application of Small-Sized Drilling Pipe Jacking Machine for Pipeline Crossing(XU Min)  
173 Causes of Road and Bridge Construction Quality Problems in Municipal Engineering and Practice of Measures Ideas and Framework(ZHANG De-cun)  
176 Construction Technology Analysis of Concrete Structure in Civil Engineering Construction(LI Rui)  
178 Analysis of Construction Treatment Technology of Municipal Asphalt Pavement Joint(YAN Zhuo-hui)  
181 Power Supply Scheme of Construction Technology in Long Distance Exploration Adit(WU Shi-you, HAN Shu-hai, LI Lian-peng)  
183 Practice of Using Steel Frame to Transport and Hoist Large Mechanical and Electrical Equipment in the Workshop(CHEN Yi-min)  
186 Characteristics of Sleeve Grouting Joint Technology and Its Application in Prefabricated Buildings(CHEN Yuan-chun, LAI Wei-ming)

- 189 Study on Rheological Properties of Waste Edible Oil/Nano Montmorillonite Composite Modified Asphalt(LI Bei, WANG Bing-xuan)

- 191 Design and Application of High Modulus Asphalt Concrete Mix Proportion(CHEN Du-qiang)

- 194 Study on Common Problems and Solutions of Horizontal Well Construction(ZHANG Quan-sheng)

- 196 Installation and Disassembly Technology of Large Diamond Hanging Basket Under the Condition of High Pier and Large Cantilever(ZHUANG Xiao)

- 199 Analysis on the Difficulties and Countermeasures in Drilling Construction of Coalbed Methane Parameter Well(HE Xi-jun)

- 201 Discussion on the Common Diseases of Municipal Road and Bridge Engineering and Construction Treatment Technology(XU Hao)

- 204 Discussion on the Application of High Pier Construction Technology in Expressway Bridge Construction(BI Zhi-jun)

- 206 Research on Construction Technology of Prefabricated Building(ZHOU Di-gang)

- 208 Research on Light-Frame Wood Structure Component Installation and Node Connection Technology(YANG Zi-ming, XU Da-wei, PAN Feng)

### Project Management

- 213 Key Points of Technical Transformation and Construction Management of Hydropower Station(LUO Yong-yang)

- 215 Thoughts on Bidding for International Hydropower Projects(DU Ping)

- 218 Analysis of Quality Management Problems in Waterway Engineering Construction(PENG Yue, XIONG Kai)

- 220 Practice and Exploration of Site Management in Highway Engineering Project Management(YANG Lei)

- 222 Analysis of Engineering Quality Management in Expressway Construction(WANG Xiao-hua)

- 224 Exploration on the Implementation of Whole-Process Cost Control in PPP Projects(ZHANG Du-jin)

- 227 Study on Fixed Price Contract Under EPC Mode(PAN Xiang)

- 230 Talking About How to Effectively Control the Quality of Urban Road Construction Management(LUO Ming)

- 232 Research on Safety Risk Management System of Urban Rail Transit Engineering Construction(ZHOU Yang)

- 235 Study on the Quality Control of Municipal Engineering Water Supply and Drainage Pipe(LIU Yong-sheng, WANG Shao-zheng)

- 237 Analysis of Role Transformation of Design Institution Between Traditional Design Project and EPC Project Led by Design Department(LIU You-tian, YIN Fu-mian, SONG Wei, LI Xin)

- 240 Discussion on the Working Methods and Skills of Municipal Engineering Supervision(MA Jian-xin)

- 242 Study on the Strategy of Improving the Management Level of Construction Machinery and Equipment in Water Conservancy Project(ZHENG Wei)

- 245 Discussion on the Existing Problems and Solutions in the Cost Control and Management of Municipal Engineering(LV Ling)

- 248 Equipment Management of Urban Rail Transit System (WANG Qiang-kun)

- 250 Discussion on Technical Quality Management and Control of Building Construction Site(ZHONG Yi)

- 252 Analysis on the Cost Control of Municipal Engineering Design Stage(WANG Run-zu)

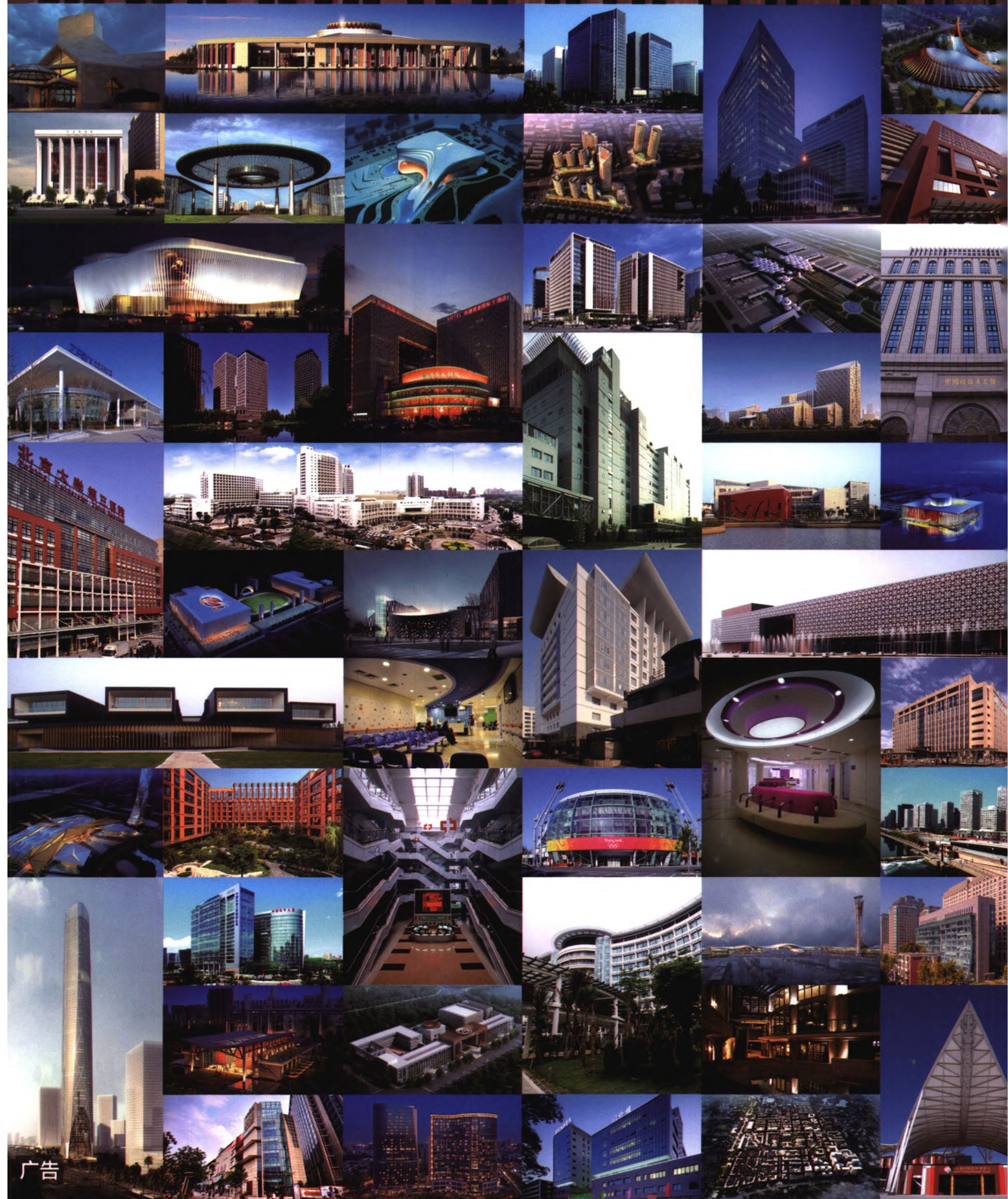
- 254 Discussion on Site Cost Management Measures of Super High-Rise Buildings(XU Le-hua)



国机集团



中国中元国际工程有限公司  
CHINA IPPR INTERNATIONAL ENGINEERING CO., LTD.



广告

地址：北京市西三环北路5号 邮编：100089 电话：(010) 68458355 传真：(010) 68732688 网址：<http://www.ippr.com.cn> 邮箱：[office@ippr.net](mailto:office@ippr.net)

标准刊数据 ISSN1007-9467 广告许可证号：京海工商广字第 8214 号 邮发代号：82-847 定价：20.00 元 / 期 480.00 元 / 年  
CN11-3914/TU