Urban Roads Bridges & Flood Control

ISSN 1009-7716
CN 31-1602/U

城市道桥与防洪

主管：中华人民共和国住房和城乡建设部
主办：上海市政工程设计研究总院(集团)有限公司

http://www.roadbridgeflood.com

8 2013 August 总第172期

中国学术期刊综合评价数据库统计源期刊 中国期刊全文数据库全文收录期刊
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——《城市道桥与防洪》

● 本期看点

中华人民共和国住房和城乡建设部优秀期刊

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中华人民共和国住房和城乡建设部优秀期刊

城市道桥与防洪（月刊）

CHENGSHI DAOQIAO YU FANGHONG

2013年 第8期 （总第172期）
2013年8月15日出版

1984年创刊

主管：中华人民共和国住房和城乡建设部
主办：上海市政工程设计研究总院（集团）有限公司
协办：全国城市道路与桥梁技术情报网

出 版：《城市道桥与防洪》编辑部
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来稿邮箱：cdq@smedi.com
国外发行：中国国际图书贸易总公司 代号：BM 1859
排版印刷：上海竟成印务有限公司
地址：上海市纪念路500号 邮编：200434

中国标准连续出版物号：CN 31-1602/U
广告许可证号：3101020080007

目 次

期刊基本参数：CN 31-1602/U * 1984 * m * A4 * 378 * zh * P * ¥18.00 * 10000 * 118 * 2013-08

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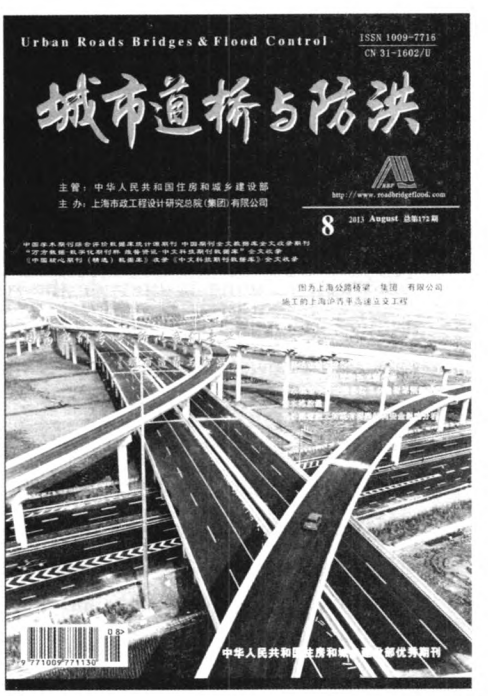

Urban Roads, Bridges & Flood Control
(Monthly)
Number 8, 2013(Total Number 172)

CONTENTS

ROADS & COMMUNICATION

Abstract: In order to make the urban road better satisfy the requirements of convenient transportation and beautiful landscape of the livable city, the traffic jam and the environmental pollution can be reduced by a reasonable cross-section layout to form an energy-saving and environment-friendly travel method of transportation. On the basis of that, the article studies the road cross-section layout standard of the livable city from the aspects of the traffic capacities of motored vehicle lane, non-motorized vehicle lane and sidewalks, and the width of red line etc. Based on the traffic capacity of one motored-vehicle lane, the article considers and calculates all the influence factors to give the traffic capacity standard of different grades and different lanes. According to the traffic capacities of the non-motored vehicle lane and sidewalk stipulated in the standard, and the position and service level of the comprehensive facilities, the article determines the traffic capacities of the non-motored vehicle lane and sidewalk of the different grades and different cross sections. By comprehensively considering the influence factors of traffic flow operation, traffic safety and road greening, the article determines the minimum red line width of road in the different grades and the different sections. The selection standard is provided for the layout of the road cross section of livable city according to the traffic capacity standard and the minimum red line width.

Keywords: cross section, selection standard, traffic capacity, minimum red line width

Abstract: The motored vehicle lane width of urban road directly determines the road width and is related to the urban construction development. Combined with the urban road norm, the article discusses the width value of the urban road motored vehicle lane. The relative experience can be referred for the similar projects.

Keywords: urban road, motored vehicle lane, width value

Abstract: In order to upgrade the road traffic service level, and to provide the high-efficient high-quality traffic service for the urban economic development and urban life, the express way is greatly planned to construct in every city of China. Owing to the disputing factor of expensive construction cost to construct the express way in the central area, the serious lag is led in the construction of expressway network, which has limited the built expressways fully to play its function and efficiency. The express way is constructed by properly lowering the standards in the partial cities. The article analyzes the necessity to plan and construct the express way in the cities of China now, sums up the present situation in the planning and construction of urban express way in China, and puts forward the functions - "extension, supplement, connection and transition" of express way, and the key planning and design elements of design speed, one-way traffic capacity and etc. of express way.

Keywords: express way, function positioning, design speed, traffic capacity

Abstract: On the basis of test and referring materials, the article analyzes the principle of mixing ratio design of the dense framework cement stabilized material, and discusses and puts forward the calculation method of mixing ratio design of the mixture and the calculation methods of the maximum dry density and the optimum water content so as to lighten the laboratory testing workload and labor strength of the mixing ratio design of the cement stabilized material.

Keywords: dense framework, cement stabilized material, design of mixing ration, maximum dry density, optimum water content, calculation method

Abstract: The article puts forward the protection measures for the common municipal pipelines of high-pressure gas pipe, water conveying pipe, low-voltage cable, communication cable, water supply pipe, drainage pipe, low-pressure gas pipe, electric power pipe, communication pipe, small caliber plastic drainage pipe and etc. in the road structure design of pipeline reinforcement, which can decrease the destroying accidents of municipal pipelines.

Keywords: municipal pipeline, reinforcement measures, protection principle

Abstract: Combined with the engineering cases, the article introduces the study on the iron sand at the mouth of Changjiang River used for the roadbed pavement material. There is no further study on the road using performance, design method, construction technology and engineering practice of the river sand, especially this special material of the iron sand hydraulically filled at the mouth of Changjiang River. Its study is just at the starting stage, and no more related contents are in the standard. The road engineers are short of the basic knowledge and understanding on the design indexes, i.e. the compaction degree, resilience modulus, CBR value and etc. of the sand filled at the mouth of Changjiang River used for the roadbed pavement material. Therefore, this study replenishes the above cognizing contents, solves the difficulty of no soil in this project, and specially studies the material properties, mixture properties, construction technologies and control indexes of the iron sand at the mouth of Changjiang River used for the road paving material so as to provide the guidance and reference for its popularization and application.

Keywords: sand of Changjing River, lime and fly ash sand, mixing ratio, roadbed material, pavement material

Abstract: Based on the universality and damage of water damage existing in the asphalt pavements and according to the forming cause of early water damage of expressway asphalt pavement, the article focuses deeper discussion on the technical approach to finish off the early water damage of expressway asphalt pavement from five aspects of scientifically determining the void ratio and gradation of asphalt pavement surface layer of expressway and etc. The results can be referred for the similar projects.

Keywords: expressway, asphalt pavement, water damage, early damage

BRIDGES & STRUCTURES

Abstract: The article sets forth the analysis of seismic ductility of a long span continuous bridge. The elastic-plastic energy dissipation device is installed in the fixed pier of a long span continuous beam in strong earthquake area, which can efficiently reduce the huge horizontal shear exerted on the fixed pier. On this basis, the article conducts the design of seismic ductility for the fixed pier, and analyzes and compares the influences of the different factors on the structural ductility. The result shows that the considered ductility of

FLOOD CONTROL & DRAINAGE

Abstract: On the basis of summing up the construction experience of a sewage engineering pipeline project, the article analyzes and discusses various problems existing in the construction practices by the jacking pipe construction technology, and puts forward its preventive treatment measures, which can be referred for the similar projects.
Keywords: jacking pipe technology, construction, sewage pipe

MANAGEMENT & CONSTRUCITON

Abstract: The construction of metro tunnels will cause an influence on the existing bridges. In order to guarantee the safety of bridge structure, the article studies and analyze the settlement control of bridge foundation by the finite element program, and puts forward the settlement control index, which can be referred for the site construction monitoring.
Keywords: metro tunnel, foundation settlement, crack

Abstract: With the speeding up of city construction course, the problem of traffic organization brought by the urban road maintenance has become one cause of the urban road traffic congestion. The article sets forth the key technical issues of the traffic organization in the construction period including the relative technical standards, management system and rules, and puts forward the expectation of provisional traffic organization of the construction period.
Keywords: provisional traffic organization, urban road, management system

Abstract: In the low-gas tunnel construction, the gas in tunnel is the great hidden danger in the construction security and will bring the serious health injury to the construction members. Therefore, it is necessary to study how to efficiently treat the gas in the tunnel construction and to make various risks reduce the minimum. Combined with the construction of Wangjiawan Tunnel, the article introduces the design of tunnel ventilation, the preparation of the systemic monitoring scheme and the establishment of the professional inspecting test team so as to provide the guarantee for the safe construction of Wangjiawan Tunnel, and also to be referred for the design of gas treatment scheme in the similar tunnel constructions.
Keywords: low-gas tunnel construction, construction security, gas treatment

Abstract: The article mainly discusses how to efficiently construct the bottom formwork support in 100-mm narrow space and how to guarantee the quality of cast-in-situ concrete track beam. At the same time, the bottom formwork must be conveniently and smoothly taken out to ensure the service safety of station structure.
Keywords: track beam, narrow space, bottom formwork support, implementation effect

Abstract: Astor House Hotel is an excellent historical building of Shanghai. The distance between BW-1 foundation pit and the hotel foundation is only 1.7 m. For availably protecting the hotel, the Φ800-mm secant pile is used in the design of this pit building envelope, and the frame casing pile method (FCEC) is used in the construction of this project. By comparing the advantages and disadvantages of several common cast-in-situ pile methods, the article introduces a new casing construction technology. According to the analysis of the settlements in the simple-pile test and row-pile construction by FCEC method, the result shows that the FCEC method has the advantages of small turbulence on the surrounding soil body, easy controlling and

Abstract: The article firstly analyzes the role of bridge support, sums up the quality problems commonly caused in the installation construction of bridge support, then analyzes the causes of the quality problems, and finally puts forward the reasonable proposals of installing the bridge support and ensuring the support installation quality according to the engineering cases.

Abstract: The article introduces the optimization of the construction scheme for the side span cast-in-situ section of (40+64+40) m pre-stressed concrete continuous girder bridge of Majiatang Bridge, and then compares and analyzes the alignment and stress of the optimized bridge structure with the original design scheme. The comparison and the analysis show that the optimized scheme can satisfy the design requirements, shorten the construction period and reduce the engineering construction cost. The results accumulate the valuable experience for the construction of the similar bridge projects.

Abstract: Combined with the engineering practice of Jingguang Road (N) Tunnel in Zhengzhou City, the article introduces the application of cover-excavation method in urban tunnels, which can be referred for the design and construction of the future similar underground projects in the bustling sections.

Abstract: The article introduces the monitoring test of concrete temperature of round-ended solid pier for Bailong River Bridge. On the basis of monitoring the concrete temperature of round-ended solid pier, the article analyzes its change rule and determines the dismantling template time of concrete construction for the round-ended solid pier in order to provide the theoretical basis for the filed practical construction. According to the theoretical calculation of adiabatic temperature rise and practical temperature peak value of the concrete, the article points out the reason of the data difference between the theoretical calculation and the practical monitoring.

Abstract: The article introduces the application of rubber asphalt overlay in the road reconstruction project. The rubber asphalt has the excellent road performance and can satisfy the requirements of driving comfort, noise reduction, reflection crack decrement, waterproof and anti-slip performances through its application in the Chengdu Longquanyi North road reconstruction Project. Also the project upgrades the city landscape, environmental protection and economy in order to accumulate the design and construction experience for the reconstruction of urban cement concrete pavement overlay.

Abstract: The cracks from the pier concrete structure are more common in the pump and sluice engineering. The cracks are through and are also non-through. The most cracks happen within one month after 10 days of

STUDY ON SCIENCE & TECHNOLOGY

Abstract: The warm mix asphalt mixture can reduce the construction temperature and has the advantage of energy saving and environmental protection. Compared with the hot mix asphalt mixture, the moisture stability performance of warm mix asphalt mixture is worse, but can be improved by the mode of adding the modifier. The article introduces its test study. The laboratory test shows that the adding of 1%~2% cement or hydrated lime can obviously improve the moisture stability performance of warm mix asphalt mixture. The use effect of the tested road validates that the warm mix asphalt mixture has the better using performance.

Keywords: warm mix asphalt mixture, moisture stability performance, freeze-thaw splitting strength

Abstract: The article sets forth the factor to affect the planning and design of comprehensive transportation hub, and introduces a method to select the site of comprehensive transportation hub. Based on the transportation four-stage model, several recommended schemes are made up. The article selects the final scheme with the highest comprehensive evaluation from the recommended schemes by the modified analytic hierarchy process, and introduces an example to explain the detail application process of this method, which provides a feasible operation scheme for the planning and selection of the site for the urban comprehensive transportation hub.

Keywords: comprehensive transportation hub, transportation four-stage model, Beckmann model, analytic hierarchy process

Abstract: The waterproof adhesive layer of bridge deck can firmly bond the asphalt paving layer and the cement concrete deck plate into a whole, and is the crucial layer in the deck pavement system. After analyzing the waterproof adhesive failure model, the article compares and studies the basic properties of two waterproof adhesive materials of waterborne epoxy asphalt and SBS modified asphalt, and comprehensively evaluates the different influence factors of mechanical properties on the above two waterproof adhesive materials through the laboratory simulating tests. The result shows that the waterproof adhesive layer of waterborne epoxy asphalt has the excellent comprehensive property in order to provide the scientific basis for reasonably selecting the waterproof adhesive materials.

Keywords: deck pavement, waterproof adhesive layer, waterborne epoxy asphalt, pullout test

Abstract: According to the simulating calculation of the different infilled wall arrangement schemes in the frame structure, and comparison and analysis of the calculation results, the article finds the great influence of the infilled wall on the overall stiffness, considers to pay attention to the design of infilled wall as the non-structural component in the structural design, and sets up the uniform arrangement of infilled wall frame structure can make the structure stiffness improve, deformation reduce, but make the structure ductility reduce. And nonuniform arrangement of infilled wall frame structure will make the structure stiffness change suddenly to form the thin weak layer unfavorable for seismic resistance. The improper arrangement can also form the conclusion of the short column. The relative experience can be referred for the design of frame structure buildings in high seismic intensity area.

Keywords: frame structure, infilled wall, seismic resistance

Abstract: The existence of the static pressure residual stress will result in the change of the pile load transfer characteristics in the work load. The article studies the influence factors of the pile length, pile diameter, pile

APPLICATION OF ACHIEVEMENTS

THE RELATIVE SPECIALITIES

Keywords: ecological dry toilet, application study, design optimization, Sichuan Tibetan Region

PRODUCT INTRODUCTION

Abstract: The article describes the design background of acoustic ventilation window, introduces the design principle, basic type, sound insulation effect, ventilation effect, thermal insulation and energy saving, and introduces the cases of acoustic ventilation window.

Keywords: acoustic ventilation window, design principle, sound insulation effect, thermal insulation and energy saving

WORK & DISCOVERY

Abstract: Taking the *Enterprise Internal Control Basic Norm* and *Enterprise Internal Control Supporting Guidelines* issued by five ministries and commissions of the Ministry of Finance, Securities Regulatory Commission, the Audit Commission, China Banking Regulatory Commission, the China Insurance Regulatory Commission as the background, the article sets forth the comprehension for the enterprise internal control basic norm, analyzes the problems faced in the implementation of the internal control, and puts forward several key points how to implement the enterprise internal control.

Keywords: enterprise, internal control, basic norm, implementaiton

Excellent Journal of the Ministry of Housing and Urban-Rural Development of PRC

Urban Roads, Bridges & Flood Control

Monthly

Number 8, 2013 (Total Number 172)

Publication on August 15th, 2013

http://www.roadbridgeflood.com

Start publication in 1984 Scope of issue: Issue at home and abroad

Department responsible for the work: the Construction Ministry in PRC

Sponsor: Shanghai Municipal Engineering Design & Research Institute

Editor & issue: Editorial department of "Urban Roads, Bridges & Flood Control"

Editor-in-chief: Luo Yanni

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Fax: (021)51298850

E-mail: cdq@smedi.com

ISSN 1009-7716

CN 31-1602/U

Domestic price: 18 yuan RMB

Journal of Municipal Engineering Branch of China Society of Civil Engineering and Municipal Design Branch of China Society of Prospecting Design