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

2011 年 第 3 期 (总第 141 期)
2011 年 3 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
协　办:全国城市道路与桥梁技术情报网
上海斯雄复合材料有限公司
广东省市政行业协会

出　　版:《城市道桥与防洪》编辑部
总 编 辑:李　汾
责任编辑:骆燕妮　周盛伟　杨建华　叶　露
英文校审:孙宁萍
摄　　影:何业兴
地址:上海市中山北二路 901 号　邮编:200092
电话:(021)51298850　传真:(021)51298850
来稿邮箱:yang_jh.fz@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
标准刊号:ISSN 1009-7716 / CN 31-1602/U
广告许可证号:3101020070052
中国土木工程学会市政工程分会
中国勘察设计协会市政工程设计分会　刊物

目　次

期刊基本参数:CN 31-1602/U * 1984 * m * A4 * 154 * zh * P * ¥15.00 * 10000 * 47 * 2011-03

广告索引

编委成员单位(排列不分前后)

Urban Roads,Bridges & Flood Control
(Monthly)
Number 3, 2011(Total Number 141)

CONTENTS

ROADS & COMMUNICATION

Abstract: Beijing Airport South Line (Jingcheng Expressway - East No.6 Ring Road) Highway Project is located at the northeast of Beijing and is one of three expressways supported for the construction of the extension project for the Capital Airport. With the high-speed development of the expressway construction and the sharp increment of vehicle inventory in China, the expressway traffic accident rate presents the rising trend. The traffic security of road has become the first problem. The security facilities of expressway traffic are one of the detail measures to efficiently decrease the traffic accidents. The design of expressway traffic security facilities will fully embody the design idea of "taking people as the foremost", put the security at the first, embody the attention to the people, present the humane requirements, emphasize the highway security, convenience, comfort, joviality and harmony, provide the service of security assurance and humanisity for the road users, and really enhance the security level and service level of highway traffic. The traffic security facilities of expressway are the important component of expressway, and are the necessary supported facilities to play the economical benefit of highway and to ensure the driving security. The article demonstrates the design idea of security facilities by taking people as the foremost of traffic security according to the design idea and design principle of the traffic facilities for the airport south line and based on the design cases.

Keywords: airport south line, traffic sign, design idea, Beijing

Abstract: On the basis of fully analyzing the composing characteristic of the bus rapid transit (BRT) system and aiming at the traffic jam of Datong City, the article studies the feasibility and necessity of implementing the bus rapid transit system, and puts forward the layout idea of the long term and short term for BRT line in Datong City, and the relative BRT design scheme, which can provide the reference for BRT system adapting to their requirements of various cities.

Keywords: bus rapid transit system, scheme, design

Abstract: The "twelfth five-year" period is critical for Wuhan to achieve "'30-minute Smooth Traffic Project' within the Second Ring". The article interprets the objective, studies the realizing premise, the assessed travel mode, travel time period and realizing level.

Keywords: traffic planning, travel mode, travel time period, realizing level, Wuhan City

Abstract: It is difficult to determine the distance from bus station to intersection. Aiming at the valuing contradiction among the design criterions, the article analyzes and points out that the traffic jam at intersection is mostly caused by the insufficient receiving capacity of bus station. The measures should be taken to add the receiving capacity of bus station if traffic jam, and not to remove the bus station outside of intersection. After scanning the function and necessity of acceleration lane and deceleration lane of intersection, and the advantages and disadvantages of bus station setting up at the exit lane and entrance lane, the reasonable distance from the bus station to intersection is determined finally according to the principle of separating the buses from the vehicles turning right at intersection.

Keywords: bus station, intersection, exit lane, entrance lane, distance

Abstract: To assure "express", the city expressway is required to solve the problem how to link the expressway flow with the local traffic network. The article analyzes the advantages and disadvantages in the design of Huaian Road in Shijiazhuang city, sets forth how to serve the internal and surrounding road networks of city in the design of expressway and how to exert the traffic characteristics of city expressway, and puts forward the relative countermeasures for the current problems of expressway.

Keywords: city expressway, link with, traffic capacity

Abstract: The article firstly sets forth the common auxiliary road type of Class I and Class II highways – the parallel mode of the main line and the auxiliary road, then introduces some design contents by Shanghai Caoan Highways, and finally puts forward some opinions of constructing the auxiliary roads for discussion together with the craft brothers.

Keywords: Class I and Class II highways, auxiliary road, constructing condition, design scheme, Caoan Highway, Hutai Highway, Shanghai

Abstract: Combined with the engineering cases, the article introduces the design gist of shallow-embedded small-space urban tunnel. The relative experience can be referred for the special members.

Keywords: tunnel, small space, shallow embedding

Abstract: How to deal with the infraction of underground water on the roadbed is the issue required to earnestly handle in the design of road structure in the high underground water section. Taking Dongwan City Changping Zhenxing Road Project as an example, the article introduces the method of combining isolation, leading with interception, and the design case of constructing the intercepting blind drain, pervious bed, water resisting layer and confining bed for the roadbed drainage.

Keywords: high underground water, road structure, roadbed drainage

Abstract: The drainage noise-reducing pavement has a higher porosity and the good drainage noise-reducing function. The pavement extrudes and embodies the safety and environment-protective conception, and satisfies the overall design requirement of Sino-Singapore Tianjin Eco-city. The article introduces the high-viscosity modified asphalt to be used in the material design and efficiently to enhance the functionality and the durability of pavement, and puts forward the construction temperature control standard and the pavement maintenance method.

Keywords: drainage and noise-reducing pavement, Sino-Singapore Tianjin Eco-city, high-viscosity modified asphalt, temperature control standard, maintenance method

Abstract: The article mainly studies the action of wind load on the traffic sign brand and the foundation stability of the traffic sign brand checked and computed by the stress calculation. The article aims at putting forward a method to calculate the foundation stability of traffic sign brand able to be referred for the relative special members.

Keywords: traffic sign brand, wind load, foundation stability

Abstract: With the dismounting and building work of the profile treatment in Handan City, the urban roads are also damaged by the over-weight and over-limit vehicles and the vehicles transporting the special materials. The article analyzes these vehicles how to cause the damage on the urban roads, and pus forward the relative suggestions for the present situation that the over-weight vehicles damage the urban roads.

Keywords: over-weight vehicle, urban road, present situation, suggestion

Abstract: International experience has shown that introducing the market competition system to the public transport sector can reduce the cost and greatly enhance the operational efficiency and service quality of the public transport, and is the efficient route to solve the public transport problems of city and to develop the sustaining traffic. Through review and analysis of various existing market models of public transport worldwide, the article discusses the public transport development models suitable for the Chinese cities, and studies the advanced and appropriate public transport development model to improve the service of public transport and some aspects to enhance the integral level of public transport system.

Keywords: international public transport development model, competition system of public transport market, development model of public transport market, public transport development model of Chinese cities

BRIDGES & STRUCTURES

Abstract: Tianshui City Jihe River Shuangqiao Bridge is an important component of Tianshui Urban Development Project loaned by the Asian Bank. The article introduces the type and structural scheme design of the main bridge.

Keywords: Jihe River Shuangqiao Bridge, bridge type, rigid-frame arch, scheme design, Tianshui City

Abstract: Haihe Bridge is located at the mouth of Haihe River and is the main traffic passage crossing Haihe River in Tianjin City Binhai New Area Collection and Distribution Harbor. The main span of the bridge is the single-pylon cable-stayed bridge. The main span is 310 m. The foundation of main pylon is the foundation of super-large base slab and group piles. The article summarizes the multi-action effects and the combination of action effects used in the foundation calculation of the normal using stage.

Keywords: super-long bridge, main pylon, pile foundation, base slab, action effect, loading combination, Tianjin

Abstract: Combined with the engineering case, the article analyzes the geometric nonlinearity and stability in the construction and operation stages of the deck concrete-filled steel tube stiff framework box arched bridge, compares the linear and nonlinear calculation results, and discusses the factors to influence the integral stable and safe coefficients of this bridge.

Keywords: arched bridge, geometric nonlinearity, stability, analysis

Abstract: In the light of the problem that the current seismic criterion can not satisfy the seismic design of long span cable-stayed bridges and taking Tangshan Caofeidian Industrial Area No.1 Bridge as the background, the article sets forth the seismic fortification criteria and performance objective of the project. According to the seismic design method based on the structural performance and the component capacity protection think, the study of earthquake motion parameters and the seismic performance of the whole bridge solves the technical difficulty of the seismic design for the long-span cable-stayed bridge in the strong earthquake region, which provides the reference for the seismic design of the similar bridges in the future.

Keywords: seismic design for bridge, seismic fortification criterion, seismic design of strong earthquake region, cable-stayed bridge, damper

FLOOD CONTROL & DRAINAGE

Abstract: The short-term scope of Ninghe County Lutaiqiaobei Wastewater Treatment Plant is 12000 m3/d. The modified A2/O + fiber turn-plate filter technology is used. The influent is mainly domestic sewage by CODcr350mg/L, BOD5150mg/L, SS200mg/L, NH3-N30mg/L, TN40mg/L, TP4mg/L. The design effluent satisfies Class I A standard of *Pollutant Discharge Standard of Town Wastewater Treatment Plant* (GB18918-2002). The article introduces the general design situation and design thought of wastewater treatment plant, and compared schemes of its main technology.

Keywords: wastewater treatment plant, modified A2/O, fiber turn-plate filter

Abstract: The urban water supply pipeline network is the important component of the urban lifeline engineering. The article mainly introduces some methods of seismic damage assessment on underground water supply pipeline, including the common theoretical analysis method and the empirical assessment method, compares and analyzes the characters of these methods and their applicability. A newly built town underground water supply pipeline in an earthquake area is assessed by the empirical assessment method of Japan Watercourse Association.

Keywords: water supply pipeline, seismic damage assessment, theoretical method, empirical method

MANAGEMENT & CONSTRUCITON

Abstract: The steel pipe Bailey beam pillar bearer is one of the efficient methods to solve the contradiction of the urban cast-in-situ overpass bridge construction and the traffic. Taking the overpass bridge crossing Shenhai Expressway of Xiamen Bus Rapid Transit (BRT) Zhongzhou Road Phase I Project as an example, the article analyzes in detail the design of cast-in-situ box beam bearer scheme under the special construction condition, analyzes and checks the stress system of bearer, which has some reference for the construction of overpass bridges in the future.

Keywords: overpass bridge, cast-in-situ Bailey beam pillar bearer, construction and application

Abstract: The small-radius box steel structural curve beam is not common in the modern installation of steel structural bridge. Taking Mingzhu Ring C-shaped Overpass as an example and aiming tat the engineering characteristics and difficulties, the article describes in detail the relative measures including the reasonable segment, measuring control, hoisting point setting, welding time, system transforming and etc. of the structure, which provide the reference for the construction of the same projects.

Keywords: steel beam segment, hoisting point setting, measuring control, welding sequence, system transforming

Abstract: Taking the engineering cases as an example, the article introduces the technical issues of the barite radiation-proof concrete in some aspects of material, mixture ratio, production transportation, pouring and curing.

Keywords: barite, radiation-proof concrete, mixture ratio

Abstract: The long-span continuous beam is generally constructed by the travelling form cantilever pouring method. Its key technique is the upsetting resistant design of No.0 pier top, the bracket erection and the concrete pouring construction of No.0, the design and construction of travelling form, the transforming and closing up of structural system, and the linear control. The article introduces in detail the above relative techniques through the construction of Tongyu River Bridge, which can provide some reference for the construction of the similar bridges in the future.

Keywords: travelling form, upsetting resistance, closing up, linear control

Abstract: According to the practical construction condition of steel truss beam for a crossing-river bridge in Shanghai, the article sets forth and analyzes the full-welding assembly of integrated segment for the steel truss beam taken as a more advanced construction technology to be applied in the practical construction. Compared with the traditional single-member assembly method, the full-welding assembly technique of integrated segment decreases the overhead working quantity, realizes the objective of field working to factory, overhear working to ground, water working to land and single-assembly working to integration, which widely shorten the constructing period, enhance the installing quality of steel truss, and have the higher economical benefits.

Keywords: large cable-stayed bridge, steel truss, full-welding technique, assembly of integrated segment

Abstract: The article introduces and analyzes the pre-tensioning and post-tensioning technologies of prefabricated hollow plate, and compares two technologies in the practical projects mainly from two aspects of the structure stress and the engineering construction cost. The comparison and analysis can provide the basis for the projects.

Keywords: beam, pre-tensioning construction technology, post-tensioning construction technology

Abstract: The article briefly introduces the large-diameter sewage pipe jacking project in a city area and the underground butting engineering technique implemented for the remained steel reinforced concrete pipe, and the monitoring and protective measures of underground pipelines. It can provide the relative technical support for the construction of underground pipe jacking project in the road sections hard to be excavated in the city area.

Keywords: pipe jacking, butt, sewage pipe, construction technique

Abstract: This paper introduces the linear control of the beam in the construction of long-span pre-stressed concrete continuous beam of the high-speed railway passenger transportation special line by the travelling form cantilever pouring method. The method of numerical simulation to be used separately calculates the cumulative displacement and live-load displacement under the constant loads of bridge as well as the settings of camber. The error analysis and the construction status forecast can amend the calculation model to make the linear control result of beam satisfy the design requirement.

Keywords: long-span continuous beam of passenger transportation special railway, construction monitoring control, linearity, stress monitoring

Abstract: Taking a super-large rapid transit railway bridge as the engineering background, the article analyzes and studies the linear error cause and countermeasures of cantilever poured continuous beam bridge of rapid transit railways by the theoretical forecast and the measured

STUDY ON SCIENCE & TECHNOLOGY

Abstract: The article analyzes and discusses the influence of eroding mode, water and latex ratio, mineral admixture on the eroding-resistant performance of concrete. Test result makes clear that the eroding speed of dry and wet cycle is the fastest, the reduction of water and latex ratio and the admixing of fly ash can enhance the sulfate eroding-resistant performance of concrete, but the introduction of initiating air will reduce the sulfate eroding-resistant performance.

Keywords: erode, water and latex ratio, initiating air, dry and wet cycle

Abstract: The article discusses a new construction of combining section, and focuses setting forth on its design think and implementation method, which can provide the technical support for the design of the similar structures in the future.

Keywords: beam, steel-concrete combining section, cabin, changeable height reinforced rib

Abstract: The load test is the most direct and the most efficient method and means to assess the quality of the newly built bridges and the carrying capacity of the built bridges. Its important assessing index is the checkout coefficient. The calculation precision of checkout coefficient directly determines the reliable level of assessing the carrying status of bridge. The article analyzes the main factors to affect the checkout coefficient of the bridge load test through the theoretical calculation analysis and the engineering cases, and discusses the deflection and stress sensitivity.

Keywords: load test, checkout coefficient, influence factor, sensitivity analysis

APPLICATION OF ACHIEVEMENTS

Abstract: The article selects the different base asphalts and analyzes the influence of the rock asphalt on the performance of the asphalt mixture and the optimized dosage of the rock asphalt. According to the related measured indexes, the article analyzes and discusses the influence and level of rock asphalt as the modifying agent on the base asphalt from the high temperature performance, the low temperature and durability performances. The results indicate that the high temperature performance of the asphalt is enhanced greatly, the thermal sensitivity is improved, the ageing resistance capacity and stability are strengthened, and the low temperature performance is slightly reduced after the rock asphalt is modified.

Keywords: rock asphalt, modified bitumen, group analysis of asphalt, road use performance

Abstract: Combined with the engineering cases, the article introduces the theoretical basis of grouting construction and the application of the dyke anti-seepage reinforcement after the pipeline crossing the embankment. The practice shows that it is a feasible and effective engineering measure to solve the problem of dike anti-seepage and reinforcement by grouting technique.

Keyword: grouting technique, dike engineering, reinforcement, anti-seepage

Abstract: The article introduces the fast-vine screen ecological remediation technology. It is a new fast ecological remediation technology for the characteristic of the high-steep rock slope. The ecological remediation of slope surface by the traditional overlay network climb-up plant greening method will last 2.5~3a time. The surviving rate of climb-up plant is low, its covering is slow and its maintenance is greatly difficult. The ecological recovery period of slope surface by the fast-vine screen ecological remediation technology is only 1~1.5a time, which advances 1~2a than the traditional method at least. It is a new one-step ecological remediation technology of rock slope, has the comprehensive landscape superiority of good short-term effect and better long-term effect, and can provide a new way for the ecological remediation of high-steep rock slope.

Keywords: fast-vine screen, rock slope, fast ecological remediation

THE RELATIVE SPECIALITIES

Abstract: The total length of the engineering tunnel from Gongming Yulv Road to Guangming Biyan Road in Guangming New Area of Shenzhen City is about 5 500 m. This project is fully put into construction now. The article introduces the pipeline kinds, selection reasons, standard section arrangement, pipeline design and etc. brought into the design of engineering tunnel able to be referred for the relative special members.

Keywords: engineering tunnel, engineering design, pipeline, transect, Shenzhen City

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

Urban Roads, Bridges & Flood Control

Monthly

Number 3, 2011 (Total Number 141)

Publication on March 15th, 2011

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: Li Fen

Address: No.901 Zhongshan Bei Er Road, Shanghai

P.C.: 200092 Tel.: (021)51298850

Fax: (021)51298850

E-mail: yang_jh.fz@smedi.com

ISSN 1009-7716

CN 31-1602/U

Domestic price: 15 yuan RMB

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