problematic soils (e.g., dispersive soils) can be utilized after amendment. The amended soil is supposed to not show its problematic behavior before treatment. It is conventional to treat dispersive soils by the addition of the most used one being lime. However, the addition of lime may cause a considerable reduction in the plasticity index of the mixture that, in turn, can produce other problems. An important consequence caused by the low plasticity index of the amended soil used in earth dams is an arching phenomenon, which can finally lead to failure of the dam. In this research, lime and bentonite are used to amend dispersive soil samples taken from Mirzakhanloo-Dam site located in Zanjan Province. The aim was to treat the dispersivity of samples and, also, to avoid the arching problem. For this reason, a set of laboratory tests was conducted on the prepared samples. Lime was used in samples with amounts of 0.6, 1, 1.5, 3, 5 percents of dry weight of the soil. Moreover, bentonite was used with amounts of 3, 5, 10, 15, and 20 percents. Pinhole test, double hydrometer test, crumb test, and chemical test were performed on the pure soil and additive-soil samples to evaluate the dispersivity of soil samples. Moreover, Atterberg limits, particle size, and hydraulic conductivity of samples were examined. The result showed that the combination of 5% lime and 15% bentonite can solve the problem such that, on the one hand, the dispersivity of soil is treated and, on the other hand, the arching problem is controlled. Almost all previous research studies have recommended the lime and other additives for the amendment of dispersive soils regardless of the arching problem. This paper strongly recommends considering this problem. Since the creation of a small crack in dams can lead to failure with regard to the piping problem, it is important to carefully assess the outcome of soil improvement programs and control the plastic index of the amended soil.

Key Words: Dispersive soil, arching, lime, bentonite, plasticity.

Key Words: Earth slope, permanent displacement, rigid block, rotation effect, semi-empirical model, Iran earthquake records.

FREE VIBRATION OF FUNCTIONALLY GRADED BEAMS ON TWO PARAMETERS ELASTIC FOUNDATION USING DIFFERENTIAL QUADRATURE METHOD

A. Khalili
khaliliafshin@yahoo.com
A.R. Vosoughi(corresponding author)
vosoughi@shirazu.ac.ir
Ma.R. Banan
bananm@shirazu.ac.ir
Mo.R. Banan
banan@shirazu.ac.ir
Dept. of Civil and Environmental Engineering
Shiraz University
DOI:10.24200/J30.2018.50883.2351

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Abstract

Todays, modern materials are widely used for construction of various structural elements such as beams, plates, shell and the other elements. One of these modern materials is functionally graded materials (FGMs). The uses of these materials are due to their mechanical properties and thermal conductivity. During the two past decades structural elements made from these materials have received wide applications in aerospace, mechanical and civil engineering. Material properties of the functionally graded materials vary continuously from metal on one surface to ceramic on the other surface. The distribution makes these materials applicable in different fields of engineering, especially in environments subjected to high thermal change. For obtaining the governing equations of the structural elements different theories of elasticity can be used. For solving the problems different analytical, numerical and semi-analytical methods can be applied. Among the numerical methods finite element, finite difference, finite volume, differential quadrature and the other methods may be used for solving the problems. The differential quadrature (DQ) method is an accurate, efficient and robust numerical solver with low computational cost. The DQ method has been used for solving free vibration, dynamic analysis and so on. This method can be used for solving structural elements alone or in conjunction with the other analytical or numerical methods. In this study, the method is used for free vibration analysis of functionally graded beams on two parameter elastic foundation. The elastic foundation has linear and shearing layers. The governing equations are derived based on the first order shear deformation theory (FSDT). The governing equations and the related boundary conditions are discretized using the DQ method. Then by employing method of separation of variables, the obtained equations are transferred from temporal domain to frequency domain and the frequency of the beam is calculated. Applicability, rapid rate of convergence and accuracy of the proposed method are demonstrated via solving some examples. Influences of different parameters such as linear and shearing layers, boundary conditions and height-to-length ratio on frequency of the beams are investigated.

Key Words: Functionally graded beams, elastic foundations, FSDT, differential quadrature method.

DISPERSIVE SOIL AMENDMENT USING LIME AND BENTONITE AND PLASTICITY IMPROVEMENT IN EARTH DAMS FOR REDUCING ARCHING EFFECTS

A.R. Firoozfar(corresponding author)
firoozfar@znu.ac.ir
M. Jafari
mohammad.jafari@znu.ac.ir
Dept. of Civil Engineering
University of Zanjan
DOI:10.24200/J30.2018.5174.2208

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Abstract

Problematic soils are sometimes needed to be used in dam construction. This usually occurs when appropriate materials are located far from the dam site and cannot be used for economic reasons. In this case, available

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Abstract

A study of shear strength and compressibility characteristics of soils considering anisotropy phenomenon is essential to the accurate design of foundations and stability analysis of earth structures. The directional dependency of physical and mechanical behavior of soil is referred as anisotropy phenomenon. The sedimentation process in soil formation arranges the soil particles in a special direction, known as the bedding direction. Due to this pattern, changing loading direction relative to stratification changes the soil behavior, which is known as inherent anisotropy. On other hand, the construction of high-rise buildings has developed at the north and northwest of Tabriz city. Subsurface materials of this area have formed from yellow and olivaceous marl. With regard to the construction of building foundations and the necessity of stability of excavations in this area, it is the most important characteristics of these soils with considering anisotropic behavior. In this research, a series of triaxial tests were conducted to evaluate the mechanical behavior of a fine-grained soil and the effect of inherent anisotropy on the behavior of fine-grained soils located in Negin-Park and Marzdaran regions in Tabriz city. To this end, a special soil sampler was designed to coring soil with capability in different directions. Then, cylindrical triaxial samples were prepared with 38 mm in diameter and 76 mm in height and saturated by passing distilled water and applying back pressure up to the B-value of 0.97. The samples finally were isotropically consolidated under effective stresses of 200, 300 and 500 kPa, and loaded at a rate of 0.05 mm/min. The results showed that the shear strength and compressibility of the samples intensively depend on the sampling direction so that the shear strength and pore water pressure reach the minimum and maximum values at a given anisotropy angle, respectively. The reason for this behavior can be related to change failure surface as compared with bedding orientation.

Key Words: Inherent anisotropy, triaxial test, undrained behavior, compressibility, fine-grained soils.

A SEMI-EMPIRICAL MODEL FOR PREDICTING SEISMIC PERMANENT DISPLACEMENT OF SLOPES BASED ON IRAN EARTHQUAKE RECORDS

A. Lashgari
ali.lashgarii@semnan.ac.ir
Dept. of Civil Engineering
Semnan University
Y. Jafarian(corresponding author)
yjafarianm@iiees.ac.ir
Geotechnical Engineering Research Center
International Institute of Earthquake Engineering and Seismology
A. Haddad
ahadad@semnan.ac.ir
Dept. of Civil Engineering
Semnan University
DOI:10.24200/J30.2018.50518.2319

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Abstract

The Iranian plateau is one of the seismic active zones of shallow crustal earthquakes in the world so that annually thousands earthquake occurs in the Iranian plateau. Meanwhile, due to the effect of topographic and geological characteristics of its relief, the Iranian plateau is subjected to diffuse phenomena of landslide, especially in Alborz and Zagros mountains, which are exacerbated by the high seismic activity. The earthquake-induced landslides have reportedly caused major human fatalities and economic losses in Iran. The prediction of sliding displacement can decrease landslide hazards to the civil engineering strcutures. The semi-empirical models have recently received more attention from the geotechnical earthquake engineering practitioners because of their applicability, simplicity, and reasonable performance in large displacements. The rigid block-rotation approach was developed based on the increase of critical acceleration caused by the downward movement of sliding soil mass. This paper represents a semi-empirical model for the earthquake-induced displacement of Iran's slopes using the rigid block-rotation approach. A collection of 3954 strong motion records was used to generate the model based on the results of sliding analyses. The semi-empirical model is presented based on more than 138,000 rigid block-rotation analyses using several input parameters. The model predicts sliding displacement in terms of yield coefficient (k_y), slip length of sliding mass (L), and Arias Intensity (I_a) . It is shown that slip length of sliding mass has an important role in the prediction of seismic permanent displacement, which is generally ignored in the semi-empirical models. The proposed model can be simply used to estimate the seismic displacement of slopes and earthquake-landslide hazards in seismic prone regions of the Iranian plateau.

numerically. Two techniques are available for the numerical simulation of the reinforced soil masses. In the first method, the soil and inclusion are considered separately in a layered or discrete analysis. This procedure is very time consuming. The second approach is a homogenization method by which reinforced soil is replaced with an equivalent homogeneous, yet anisotropic, medium. Layer-by-layer modeling is not needed in the homogenization methods; therefore, the modification of the arrangement of inclusions is easy. The two-phase model is the extension of classical homogenization methods and has developed in the recent two decades. This approach is actually a mechanical framework based on the virtual work method. It is a macroscopic description of a composite medium, which is the superposition of individual continuous media (phases). The matrix phase (soil) and reinforcement phase (inclusion) are geometrically coincident at any given point in the multiphase material. The proposed model introduces a two-phase model to simulate the nonlinear dynamic behavior of geosynthetic reinforced soil walls. A modified generalized plasticity model for granular materials was used in the proposed two-phase model. The approach was validated by the comparison of the results and those of eight reduced-scale reinforced soil walls subjected to seismic loading in shaking tables. The predicted lateral displacement showed good agreement with the test results. The two-phase model predicted critical acceleration amplitudes similar to those observed in the experiments. The predicted potential failure surfaces in the two-phase model were consistent with the observed deformation patterns.

Key Words: Reinforced soil wall, numerical simulation, two-phase model, dynamic behavior, lateral displacement.

AN INVESTIGATION ON THE EFFECT OF HIGH TEMPERATURES ON MECHANICAL PROPERTIES AND MICROSTRUCTURE OF CONCRETE CONTAINING MULTI-WALLED CARBON NANOTUBES

M. Gholhaki(corresponding author)
mgholhaki@semnan.ac.ir
Gh. Pachideh
ghpachideh@semnan.ac.ir
Dept. of Civil Engineering
University of Semnan
A. Moshtagh
amin.moshtagh@ugsr.ir
Dept. of Civil Engineering
University of Garmsar

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Abstract

In this paper, the effect of multi-walled carbon nanotubes on the properties of concrete was evaluated in the post-heat treated condition. Following this, a number of cylindrical specimens (10 x 20 cm) including multi-walled carbon nanotubes in different percentages of 0.5, 1 and 1.5% by weight of cement were cast. Later on, concrete specimens in the electric furnace were exposed to temperatures of 25, 100, 250,500 and 700^0C and after cooling down, compressive and tensile strength tests were carried out on them. The results showed that by increasing multi-walled carbon nanotubes in concrete, compressive and tensile strengths of concrete were increased up to 138% and 88%, respectively. In addition, dissipation of energy and modulus of elasticity of concrete specimens were up to 2 times more than that of control concrete specimens. The SEM test results indicated that a strong bond between concrete particles exists at the room temperature and upper than that.

Key Words: Concrete, mechanical properties, multi-walled carbon nanotube, temperature, SEM.

STUDY ON THE EFFECT OF INHERENT ANISOTROPY ON THE BEHAVIOR OF FINE- GRAINED SOILS AT THE NORTH OF TABRIZ

H. Soltani-Jigheh(corresponding author)
hsoltani@azaruniv.ac.ir
Dept. of Civil Engineering
Azarbaijan Shahid Madani University Tabriz
Ch. Zarei
chia.zarei@hotmail.com
K. Badv
k.badv@urmia.ac.ir
Dept. of Engineering
Urmia University

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S. Pourzeynali
pourzeynali@guilan.ac.ir
Dept. of Civil Engineering
Faculty of Engineering, University of Guilan
DOI:10.24200/J30.2018.50361.2301

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Abstract

Progressive collapse is defined as a local failure that may occur due to various factors in structural members; then, it can spread to adjacent members and ultimately result in the total collapse of the structure or a large portion of it. Though the abnormal loads could cause progressive collapse, many structures have experienced progressive collapse due to seismic actions in our modern history. Recently, some code specifications and guideline requirements such as Unified Facilities Criteria (UFC) have introduced different analysis methods for the assessment of progressive collapse in buildings based on increasing strength, ductility, and continuity. Many research works have been conducted in relation to the phenomenon of progressive collapse almost considering the gravity loads and, in recent years, seismic progressive collapse has attracted much attention and is an open research area for researchers. Lead Rubber Bearing (LRB) is considered as one of the most conventional isolation systems that has been studied and examined theoretically and developed widely in practice.

This study investigates the potential of LRB base isolation under progressive collapse. For this purpose, the behavior of intermediate steel moment frames in the two cases of fixed and with the LRB seismic isolator with 4, 8, and 12 number of stories under progressive collapse is compared using nonlinear static and dynamic analysis in different situations of the column removal. At first, two fixed and isolated 3D structures were designed by SAP2000 software according to Iranian codes; then, analysis was performed under gravity load (consist of nonlinear static and dynamic analysis) according to UFC guild-lines and seismic loading (by nonlinear time history analysis) using Perform-3D software. The base isolation is modeled with an isolator element in the Perform-3D software, and these separators provide hysteresis damping through the sink of lead core.

The addition of seismic base isolation system to structures averagely reduces the response of the frames under earthquakes by 61%. The progressive collapse potential of fixed and base isolated structures in the middle and corner column removal conditions is the same as the results of nonlinear static and dynamic analysis according to loading UFC instructions. Furthermore, the results of the progressive collapse analysis show that increasing the number of structural members leads to a reduction in progressive failure potential. It is observed that the use of base isolation system has a significant impact on the localization of the failures under seismic loads and prevention of their expansion in the structure.

Key Words: LRB base isolation, seismic progressive collapse, intermediate steel moment frames.

INTRODUCING A TWO PHASE MODEL FOR NONLINEAR AND DYNAMIC SIMULATION OF REINFORCED SOIL STRUCTURES USING A MODIFIED GENERALIZED PLASTICITY MODEL

A. Iraji(corresponding author)
a.iraji@urmia.ac.ir
Dept. of Engineering of Khoy
Urmia University
O. Farzaneh
ofarzane@ut.ac.ir
Dept. of Civil Engineering
University of Tehran
DOI:10.24200/J30.2018.50390.2303

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Abstract

High flexibility and stability of reinforced soil walls make them very useful structures and cause their extended applications as retaining structures at side embankments of roads and slopes and as abutments, especially in regions with high seismic risk. Therefore, such structures could be recommended for Iran as a country with high seismic risk. Reinforced soil structures may present significant deformations under strong earthquake motions. In this regard, they will not provide expected functionality. Therefore, the necessity of extension in the application of reinforced soil walls, especially high geosynthetic reinforced soil walls, and the significance of plastic displacement in these structures motivated researchers to give special attention to the prediction of reinforced soil walls' displacements experimentally and

to mix with sand seems appropriate. To increase the strength of the sand-EPS beads mixture, geotextile layers and sandy lens layers were used. The test results indicate that the geotextile layers encapsulated with sandy lens layers have an influential impact on increasing the strength of mixture. For example, the use of four geotextile layers encapsulated with four sand lens layers gives a 123% increase in the strength compared with the unreinforced sand-EPS beads mixture. Thus, the combination of these two methods significantly increases the resistance of the mixture. On the basis of the study, the concept of sand-EPS beads mixture reinforced by geotextile layers encapsulated with soil lens layers could be used to improve the performance of backfill over soft soil.

Key Words: Triaxial test, sand-EPS beads mixture, reinforcement, geotextile, sandy lens.

DISPLACEMENT-BASED DESIGN OF TORSIONAL BUILDINGS CONSIDERING TWO-WAY NONLINEARITIES

M. Sabet Rasekh
s_s.rasekh@yahoo.com
F. Behnamfar(corresponding author)
farhad@cc.iut.ac.ir
Dept. of Civil Engineering
Isfahan University of Technology
DOI:10.24200/J30.2018.5713.2269

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Abstract

One of the most important and, at the same time, unpredictable types of lateral loads is earthquake load. Extensive research on the safe and economical seismic design of structures has been carried out in this field. The research works can be divided into two general categories: force-based design and performance-based design. Displacement-based design is among the performance-based methods. In this paper, it is purposed to investigate a major drawback in this approach, namely the lack of precision in the estimation of the torsional response of buildings. For this purpose, the model code of displacement-based design (DBD12) is adopted as the basis for studying and modifying a methodology. In this code, there are equations that take into account the involvement of torsional effects in the structural analysis. It is pointed out that the main weak point of the mentioned relationships is the consideration of nonlinear behavior only in the earthquake direction, while a linear behavior is considered in the perpendicular direction when calculating the torsional stiffness. Therefore, it is required to evaluate and modify these relations. For the purpose of this study, three buildings with 4, 7, and 10 floors are selected. Eccentricity in the buildings is assumed to be equal to 0, 5, 10, 15, 20, and 30% of the plan dimension in the transverse direction. The structural system is selected to be steel moment-resisting frames, and the diaphragm of the floors is assumed to be rigid. Studying the accuracy of the design equations for torsion and implementation of the necessary corrections is done using the nonlinear time history analysis. In this analysis, by utilizing the OpenSees software, the structures are subjected to 11 consistent records that are properly scaled. After obtaining the results of exact nonlinear analysis and the displacement-based design method, the equation of the code for calculating the story twist angle is corrected against the average values determined by the nonlinear dynamic analysis. The accuracy of the corrected relationships in comparison with the exact values is evaluated. It is shown that the corrected equations successfully predict the torsional response of the investigated buildings with good accuracy, thus reducing the estimation errors to less than 10%.

Key Words: Displacement-based design, torsional buildings, DBD12, nonlinear dynamic analysis, modification.

THE EFFECT OF LEAD RUBBER BEARING SEISMIC ISOLATOR ON PROGRESSIVE COLLAPSE POTENTIAL OF STEEL MOMENT FRAMES

M. Fakhari-Nia
milad.8721@gmail.com
Islamic Azad University
Branch of Ramsar
T. Bakhshpoori(corresponding author)
tbakhshpoori@guilan.ac.ir
Dept. of Civil Engineering
East of Guilan, University of Guilan

B. Kalantari
behzad996@yahoo.com
M. Dehghani
masouddehghani38@gmail.com
Dept. of Civil Engineering
University of Hormozgan
DOI:10.24200/J30.2018.50302.2296

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Abstract

In present study, the behavior of ring footing subjected to repeated loading has been investigated by several experimental tests. These tests have been done by ring footing with outer diameter of 300 mm and optimum inner to outer diameter ratio of 0.4 based on unreinforced bed, rubber-reinforced bed, geogrid reinforced bed and geogrid-rubber reinforced bed. Three levels of repeated loading (240, 560 and 840 kPa) have been applied. The results showed that the residual plastic settlement is reduced about 48% and 17.9% for the reinforced bases with rubber particles and with geogrid layer, respectively, compared to the unreinforced bed, but this reduction is about 63.5% for reinforced base with combination of rubber particles and geogrid layer. Also simultaneous use of rubber particles and geogrid reinforcement can be more effective in increasing the portion of resilient settlements compared to using each of them alone. The resilient settlement ratio increased from 5.95% in unreinforced soil up to 24.2% in geogrid-rubber reinforced beds. In fact using reinforcements in soil bed can decrease the plastic deformations of footing bed during few numbers of loading cycles. This behavior is a result of shakedown phenomenon which could lead to steady-state condition and the system behave more resilient in reinforced beds compared to unreinforced bed. Also the results of tests indicated that in both rubber-reinforced bed (without any geogrid layer) and geogrid-rubber reinforced bed, the optimum value of the thickness of rubber-soil mixture layer to improve the behavior of ring footing, is equal to 0.5 times the outer diameter of ring footing. The enhancement of the thickness of rubber-reinforced layer beyond its optimum value can lead to negative effects (increase in plastic settlement or decrease in the portion of resilient settlement) due to increase in compressibility of the bed. Although the adding of geogrid layer could activate the positive reinforcing effects of deeper layers of rubber-soil mixture; but these positive effects are not big enough to withstand the negative effects of using a thick layer of rubber-soil mixture.

Key Words: Ring footing, repeated loading, rubber, geogrid, total settlement, residual settlement and resilient settlement ratio.

EXPERIMENTAL INVESTIGATION OF THE BEHAVIOR OF SAND-EPS BEADS MIXTURE REINFORCED BY GEOTEXTILE LAYERS ENCAPSULATED WITH LENS LAYERS

A.F. Ahmadian
fahmadian@mail.kntu.ac.ir
S.N. Moghaddas Tafreshi(corresponding author)
nas_moghaddas@kntu.ac.ir
Dept. of Civil Engineering
K.N.ToosiUniversity of Technology
DOI:10.24200/J30.2018.50325.2299

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Abstract

Nowadays, the use of different materials in combination with the soil has been grown in geotechnical applications. One of these materials is the expanded polystyrene beads (EPS) that are used to reduce the density and provide lightweight fill. To investigate the possibility of the strength enhancement of soil-EPS beads mixture, the number of 34 standard triaxial compression tests with a diameter of 100 mm and a height of 200 mm have been conducted on the soil alone, as well as unreinforced and geotextile reinforced soil-EPS beads mixture with and without sandy lens layers. In addition, 0.5%, 1%, and 2% of EPS beads in weight mixed with sand, four layers of geotextiles, and four layers of sand lens with a thickness of 20 mm were used to prepare the samples. The tests were carried out at three different confining pressures of 100, 200, and 300 kPa up to 15% of axial strain. Test results show that although EPS beads produce lightweight material, their low rigidity and large volume strain lead to the loss of mixture strength. It can be seen that the ultimate strength of the mixture (at a strain rate of 15%) decreases 42%, 65% and 78% for 0.5%, 1% and 2% of EPS beads, respectively, as compared with soil alone. To make a balance between weight loss and loss of strength, the use of 0.5% of EPS beads

strate while seismic excitation is of great importance. Identifying the parameters affecting seismic vulnerability enables the designer of a skewed bridge to consider a proper understanding of various aspects of selecting the geometry and distribution of stiffening factors in a skewed bridge in the design process. Based on the geometric conditions, skewed bridges are coupled with mode shapes and significant rotation around the vertical axis is observed in certain conditions in earthquakes. In order to investigate and acquire the parameters affecting the domination of rotation modes in these structures, the present study employed a 3D model with three degrees of freedom whose accuracy had already been confirmed. Results of the numerical calculations revealed that effective parameters in the domination of rotation mode include the ratio of transverse stiffness to longitudinal stiffness of the columns, the ratio of length of the deck to its width, the ratio of the entire bridge mass to the mass of the pavement, the ratio of torsional stiffness of each column to the multiplication of longitudinal stiffness of the bridge by squared width of the bridge deck, the ratio of columns' eccentricity from the center of the mass to the width of the deck and skewedness. For further numerical calculations, a finite element model of the Foothill Boulevard Skewed Bridge was created, and a time history analysis was conducted on it. The results of the analyses of this finite element model were investigated and generalized to other skewed bridges.

Key Words: Skewed highway bridge, simplified model of skewed bridge, dynamic analysis, rotation modes, natural frequencies.

TRANSPORTATION NETWORK DESIGN BASED ON NETWORK FLEXIBILITY AND REGRET THEORY

M.M. Barzegar Ganji
barzegar.ganji.m@gmail.com
A.A. Rassafi(corresponding author)
rasafi@eng.ikiu.ac.ir
Dept. of Engineering
Imam Khomeini International University
DOI:10.24200/J30.2018.5670.2259

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Abstract

Transportation networks are essential infrastructures of the present societies and are progressively growing in importance. Therefore, the network should develop in accordance with the society's needs. Transportation network expansion is a costly process and often is not returnable. Usually, there are not enough resources to satisfy the hole future demand; therefore, available resources must be utilized in an efficient manner. It has been shown that classic transportation planning approach and decision theory should be revised and a more flexible planning approach must be taken to deal with the uncertainties and the internal or external changes. The concept of flexibility has been used in many scientific disciplines including transportation planning. Most of the studies of network flexibility have focused on the concept of capacity flexibility. Network flexibility can be considered as an effective factor in network reliability. A network should be flexible enough to be considered as a reliable one. In this study, a model of transportation network design has been developed based on increasing the flexibility, especially increasing the survivability of the network facing daily variations including daily crashes or rush-hour blockings. Network survivability is the ratio of the demand that will be answered after the occurrence of a failure in a network. Improving the properties of a network will affect the flow pattern all around the network. In most studies, utility theory has been used to model user answer to realize the model to a greater degree. It has been shown that utility theory faces basic shortcomings and regret theory has been introduced as an alternative way to handle the users' behavior. In this study, a stochastic user equilibrium has been developed based on regret theory to model the user reply to the network expansion. Results show that the network improves based on the survivability model, which has better performance when a link is blocked.

Key Words: Transportation network design, flexibility, survivability, stochastic user equilibrium, regret theory.

EXPERIMENTAL INVESTIGATION OF RING FOOTING BASED ON REINFORCED SOIL WITH GRANULATED RUBBER AND GEOGRID UNDER REPEATED LOADING

M.H. Keyghobadi
mhkeyghobadi@yahoo.com
A. Asakereh(corresponding author)
asakereh@hormozgan.ac.ir

in the country, including consulting services and construction services, were investigated. Main causal loops formed as results of current settings of these uniform contracts were extracted and analyzed. As a result of this analysis, assigned roles in these uniform contracts to the public project owners and project designers were challenged and adjustments to the assigned roles were recommended.

Key Words: Technical and executive system, public projects, dynamic system analysis, design-bid-build method, standard-form contract.

COMPARISON OF THE PERFORMANCE OF MACRO-POLYMERIC FIBERS AND STEEL FIBERS IN CONTROLLING DRYING SHRINKAGE CRACKS OF CONCRETE

A.R. Bagheri(corresponding author)
bagheri@kntu.ac.ir
M. Gorgani Firoozjah
mortazagorgani.1222@gmail.com
A. Jamali
arminjamali@email.kntu.ac.ir
H. Zanganeh hamedzanganeh@gmail.com
Dept. of Civil Engineering
K.N. Toosi University of Technology
DOI:10.24200/J30.2018.5210.2221

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Abstract

This study investigates the effect of polymeric and steel fibers in controlling drying shrinkage cracking of concreteby the restrained ring test according to ASTM C1581 and determines the cracking potential of various mixes. In addition the effect of various fibers on physical and mechanical properties of concrete such as a compressive and tensile strength and free shrinkage was investigated. Fibers used include macro polymeric fiber of single-strand type, spun multi-strand type and a hooked end steel fiber, which were used at dosages of 0.25, 0.5 and 1 %. Furthermore a micro polymeric fiber at dosage of 0.25% was investigated. The results showed that the use of steel fibers up to 1% and macro polymeric fibers up to 0.5% have no appreciable effect on compressive strength. With regards to tensile strength, the effect of fibers up to 0.5% was similar to that described for compressive strength. However, at the dosage of 1%, the use of steel fibers increased the tensile strength while macro polymeric fiber slightly decreased this parameter. Free shrinkage test results indicate that the effect of fibers on free shrinkage was negligible. The effect of micro and macro polymeric fibers at the dosage of 0.25% in decreasing the cracking potential of concrete is low, and cracking potentials are classified as "High". At this dosage, steel fiber showed a slightly better performance and the cracking potential was "Moderate to High". By increasing the dosage of fibers to 1%, the cracking potential for macro polymeric fibers and steel fibers were determined as "Moderate to Low" and "Low" respectively. Crack width measurements showed that macro polymeric fiber and steel fiber at a dosage of 0.25% decreased crack widths by about 35% relative to the control mix. At fiber contents of 1%, the maximum crack opening for the macro polymeric fibers showed a decrease of about 60% compared to the control mix. The steel fiber showed the best performance at this dosage and was able to completely prevent shrinkage cracking.

Key Words: Drying shrinkage, concrete, macro polymeric fiber, steel fiber, restrained ring.

EFFECTIVE PARAMETERS A SEISMIC PERFORMANCE OF SKEWED BRIDGES USING A SIMPLIFIED MODEL

M. Asad Pour
mehdiasadpour46@yahoo.com
Dept. of Civil Engineering
Science and Research Branch, Islamic Azad University
A. Kalantari(corresponding author)
a.kalantari@iiees.ac.ir
International Institute of Earthquake Engineering and Seismology
DOI:10.24200/J30.2018.5373.2242

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Abstract

This study investigates the behavior of skewed bridges based on the vulnerabilities that these structures demon-

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ANALYZING DYNAMICS OF IRAN'S PUBLIC CONSTRUCTION PROJECTS DELIVERED UNDER DESIGN-BID-BUILD METHOD

A. Alvanchi
alvanchi@sharif.edu
Dept. of Civil Engineering
Sharif University of Technology
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Abstract

Currently, many public construction projects in Iran are facing time delays, cost overruns, and poor quality. Many research efforts have been conducted to identify the root-causes of the problems these projects are facing. Most of these research efforts, though, have adopted survey and interview-based methods to investigate the contributing factors. Financial resource shortage, project management weakness, and contractual disputes are among the commonly identified contributing factors. In a systemic view of the root causes of problems in public construction projects, projects organization and related regulations can be responsible for the main parts of the root causes. Meanwhile, uniform or standard-form contracts set by Iran's government have major contributions to the structure of the public construction projects organization. Uniform contracts, developed by dedicated groups of experts, save project owners' time and prevent many possible critical issues from the complexity involved in public construction projects. However, in-advance development of the uniform contracts poses the risk that any possible shortfall in the uniform contracts can get populated among all public projects implemented across the country. To address this issue in this research a conceptual system dynamics-based analysis approach was adopted. This approach was used to analyze the complex dynamic interactions of different stakeholders formed as results of the pre-determined instructions of uniform contracts in the public construction projects. The main focus of this research is on the dynamics of the public construction projects implemented under the design-bid-build project delivery method. Two uniform contracts commonly used for the implementation of the design-bid-build projects