LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah (paper) : Analysis on The Contribution of Cross Beam to A Torsional Buckling of Thin, Rectangular Beam Section
Jumlah Penulis : 3 orang (Sri Tudjono, Windu Partono, Joko Purnomo)
Status Pengusul : ~~penulis pertama~~/ penulis ke 2/ ~~penulis korespodensi~~

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☐ Prosiding forum ilmiah Internasional
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b. Ruang lingkup dan kedalaman pembahasan (30%)	3.00	3.50	3.25
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Total = (100%)	12.00	13.00	12.50

Penulis ke 2 dari 3 = (12.50 x 40%)/2 = 2.50

Reviewer I

Prof. Dr. Ir. Han Ay Lie, M.Eng
NIP. 195611091985032002
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Reviewer II

Ilham Nurhuda, ST, MT, Ph.D
NIP .197602252000121001
Unit kerja : Departemen T.Sipil FT.UNDIP

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b. Ruang lingkup dan kedalaman pembahasan (30%)	4,5		3
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	4,5		3
d. Kelengkapan unsur dan kualitas penerbit (30%)	4,5		4,5
Total = (100%)	15		12

Catatan Penilaian artikel oleh Reviewer:

1) Prosiding lengkap, penulis beragam, daftar isi, pengantar, informasi keynote dan reviewer lengkap.
2) Paper merupakan analisa numeris terhadap perilaku balok baja. Pustaka & sitasi tidak ada
3) Isi bahasan pengembangan riset terdahulu (Tudjono, 2005) Metodologi jelas dan baik
4) UAJY sebagai lembaga penerbit memiliki kualitas baik dengan pengurus, ISBN dan reviewer yg berkompeten

Penulis II dari 2

$\frac{0,4}{2} \times 12 = 2,4$

Semarang, 24-1-2019
Reviewer

Prof. Dr. Ir. Han Ay Lie, M.Eng.
NIP. 195611091985032002
Unit kerja : Departemen Teknik Sipil FT UNDIP

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Hasil Penilaian *Peer Review* :

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a. Kelengkapan unsur isi prosiding (10%)	1,5		1,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	4,5		3,5
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	4,5		4,0
d. Kelengkapan unsur dan kualitas penerbit (30%)	4,5		4,0
Total = (100%)	15,0		13,0

Catatan Penilaian artikel oleh Reviewer:
a. Prosiding sangat baik, berisi tulisan dari berbagai negara.
b. Latar belakang permasalahan kurang dijelaskan
Dukungan pustaka terbatas.
c. Metode penelitian dilakukan secara numerik
Hasil analisis dijelaskan dengan lengkap dan sesuai dgn kaidah ilmiah.
d. Paper terbagi dlm abstrak, introduction, methods, results, conclusion, dan references.
Kekinian reference perlu ditingkatkan karena pustaka tdk disitir dlm paper.

Penulis II dari 2 = 0,4/2 x 13 =2,6

Semarang,
Reviewer

Ilham Nurhuda, ST., MT., Ph.D
NIP.197602252000121001
Unit kerja : DepartemenTeknik Sipil FT UNDIP

Volume I

EACEF 2011

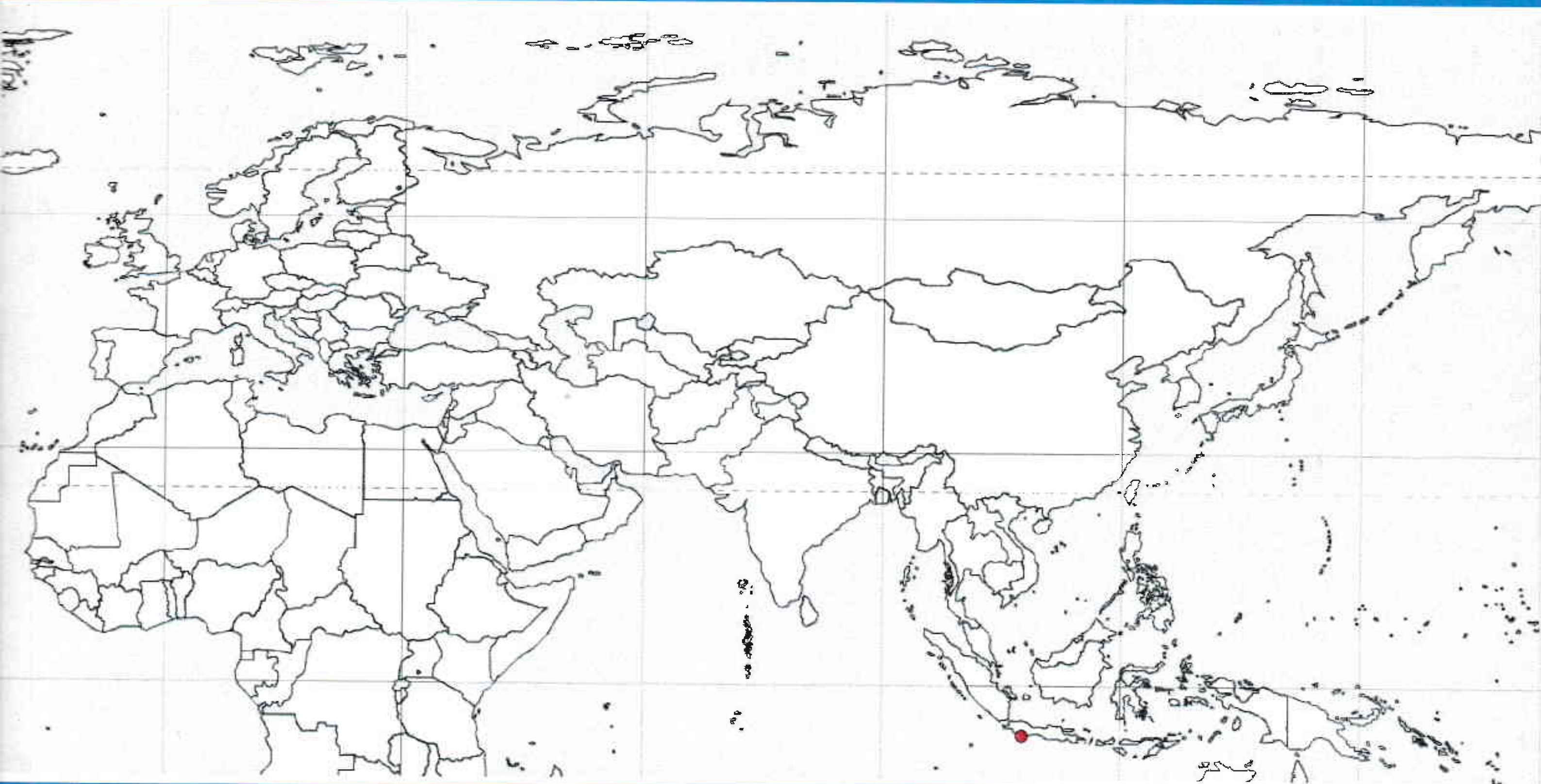
The 3rd International Conference of European Asian Civil Engineering Forum

Yogyakarta, INDONESIA, 20 - 22 September 2011

Proceedings

Designing & Constructing in Sustainability

Volume I - Structural & Construction Engineering,
Infrastructures (environmental, coastal, transportation, water) Engineering



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Designing and Constructing in Sustainability

Keynote Speakers

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- Dr. Norbert Baas, His Excellency, the Ambassador of Republic Federal of Germany

Invited Speakers

The Development of Nanotechnology for Construction Materials
Prof. Dr.-Ing. habil. Michael Schmidt (University of Kassel)

Real-Time Rainfall and Flood Forecasting in Ta Tapao River Basin, Thailand
Prof. Tawatchai Tingsanchali, D.Eng. (Nakhon Pathom Rajabhat University)

Designing the Future
Klaus Thorsten, M.Sc. on behalf of Prof. Dr.-Ing. habil. Werner Sobek (University of Stuttgart, GERMANY)

New Structural Systems Employing Innovative Structural Materials
Keiji Ando (The Japan Iron and Steel Foundation, Japan)

Optimisation of Sustainable Geotechnical Structures in Urban Civil Engineering
Prof. Dr.-Ing. habil. Christian Moormann (University of Stuttgart)

The Development of Construction Safety Management Systems
Prof. Chan Weng Tat (National University of Singapore)

Construction Management Research and Education Activities Moving Up Asian Universities Collaboration

Prof. Shunji Kusayanagi (Kochi University of Technology, Thailand))

BM - Building Materials Engineering (Nanotechnology)

THE CHARACTERISTIC OF DURABILITY IN HIGH PERFORMANCE CONCRETE
(BM-016)

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ABSTRACT

High Performance Concrete (HPC) prepared on the basic of eugenic considerations (cost-effectiveness and long life) is proposed to resolve real world concrete problems. Eugenic HPC was developed with the goal of preventing possible defects during the design and manufacturing stages using DMDA (Densified Mixture Design Algorithm). Durability is one of 5 parameters in eugenic HPC. Durability is emphasized on the strategy of physical dense and chemical strengthen concept. Concrete durability is so important for designing structural concrete of HPC to reduce the content of water and cement and also permeability. The decreasing of water and cement content will make the compactness of concrete be increased then the durability of HPC is improved. Binder in HPC is made by the combinations of cement and supplementary cementitious materials (SCM), such as blast furnace slag, fly ash, silica fume, and other fillers and the reaction between cement and any supplementary cementitious materials will create the durability characteristic of high performance concrete.

Keywords: high-performance concrete, supplementary cementitous material, durability.

1. INTRODUCTION

High-performance concrete is the concrete that guarantee high performance of structure in the design, in applications on project site and continually along its ages. By having the high performance on concrete, the capacity and long-term durability of concrete will increase along its ages. High physical density of HPC is related to the optimum of material composition of it. By creating the optimum of material composition in HPC, the cost-production could be minimized and friendly to preserve natural resources.

On the basic of eugenic consideration, the present high-performance concrete (HPC) is to resolve actual concrete problems. HPC is safe, durable, workable, and economic and ecologically sound [1] as shown at Figure 1. The development of HPC from ordinary, superplasticized, high-strength, or pozzolanic concrete was breakthrough in traditional concrete practice [2,3]. In 1989, high-flowing, high-performance concrete (HPC) was first used in high-rise building in Taiwan [3]. In 1992, a domestic task force on HPC was organized to help the concrete industry. In 1994, it was planned to promote HPC after successful development of a densified mixture design algorithm (DMDA) [4,5]. This is because DMDA concerns on homogenous and integrity in isotropy of HPC material composition to achieve high physical density of eugenic HPC, high safety, high workability, long-term durability in low cost and friendly to environmental.

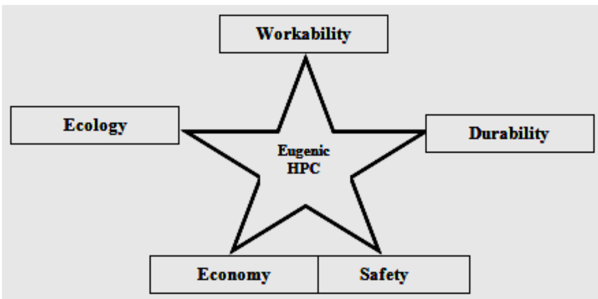

Figure 1. The Eugenic High Performance Concrete

2. PROPERTIES OF EUGENIC HPC

The eugenic high performance concrete is a bright idea as shown as a star on figure 1. which has a goal to minimize the possible defects starting from on planning, designing, choosing materials properties, creating

CM - Construction Management and Project Management

GT - Geotechnical Engineering

IS - Infrastructure (environmental, coastal, transportation, water) Engineering

SQUEEZING POTENTIAL EVALUATION OF TUNNEL IN TROPICAL AREA

(GT-015)

Vahed Ghiasi[1*], Husaini Omar[2], Bujang Kim Huat[3], Zainuddin b. Md. Yusoff[4], Sina Kazemian[5], Mehrdad Safaei[6], Samad Ghiasi[7] Zainab Bakhshipour[8], Ratnasamy Muniandy[9] and Habibeh Valizadeh[10]

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ABSTRACT

Squeezing phenomena happen in tunnels which are surrounded by weak and moderately strength of rock. Squeezing cause to deformed the tunnels cross section and wastes a lot of human and natural source in all of the word every year. The results show that some part of case-study tunnel has potential of squeezing. The purpose of current study is to determine methods employed to classifying and quantifying of potential squeezing in tunnel. Along with the empirical and semi-empirical approaches is available in order to evaluating of potential of squeezing in tunnel are presented moreover squeezing potential evaluation of Padang Renas tunnel which is located in tropical area (Malaysia) are presented. The implications of the anticipated ground conditions and squeezing on machine and ground support selection as well as the field observation of the actual conditions are discussed in this paper.

Keywords: Empirical approaches, semi-empirical approaches, squeezing, Padang Renas tunnel.

1. INTRODUCTION

The current investigation was limited by empirical and analytical methods for construction tunnel alignments. Because of the chosen research approach, the research results may lack generalisability. Therefore, researchers are encouraged to update the proposed propositions further. The magnitude of tunnel convergence, the rate of deformation and the extent of the yielding zone around the tunnel depend on the geological and geotechnical conditions, the in-situ state of stress relative to rock mass strength, the ground water flow and pore pressure, and the rock mass properties. According to the results of this research, some part of the longitudinal axis of this tunnel has potential of squeezing. Squeezing is consequently synonymous with yielding and time-dependence squeezing stands for large time-dependent convergence during tunnel excavation.

It takes place when a particular combination of induced stresses and material properties pushes some zones around the tunnel beyond the limiting shear stress at which creep starts. Deformation may terminate during construction or continue over a long period of time (Barla G., 1995).

The magnitude of tunnel convergence, the rate of deformation and the extent of the yielding zone around the tunnel depend on the geological and geotechnical conditions, the in-situ state of stress relative to rock mass strength, the groundwater flow and pore pressure, and the rock mass properties. There are numerous cases of particular interest in Europe where squeezing phenomena have occurred, providing some insights into the ground response during excavation. These include: the Cristina tunnel in Italy, the Gotthard tunnel in Switzerland, the Simplon tunnel crossing the Italian-Swiss border, just to mention some railway tunnels excavated between 1860 and 1910. The technical reports and papers available describing such case-histories are likely to emphasize the phenomenological aspects and behaviour with reference to ground response during excavation, mostly in relation to the excavation methods and support sequence adopted.

Even today, with significant steps forward in geotechnical engineering, the fundamental mechanisms of squeezing are not fully understood (Kovari, 1998 and Barla, 2000). However, the close studies of a number of more recent cases where detailed data are available (e.g. the Frejus Tunnel (Panet, 1996); a number of tunnels in Japan, (Aydan, Akagi, & Kawamoto, 1993); the San Donato tunnel, (Barla, Pazzagli, Rabagliati, & Travagl, 1986) let one derive the following remarks: The construction techniques for excavation and support (i.e. the excavation sequences and the number of excavation stages which are adopted, including the stabilization measures which are undertaken) may influence the overall stability conditions of the excavation.

PREDICTING EROSION RATE DURING THE HOLE EROSION TEST AS AFFECTED BY CLAY CONCENTRATION AND WALL ROUGHNESS

(GT-016)

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ABSTRACT

Internal soil erosion constitutes a major safety problem for dams and levees. This phenomenon yields at its final stage dangerous fluid leakage under the hydraulic infrastructures known as piping which could provoke their rupture. Such catastrophic accidents can generate material losses and result in human casualties with dramatic consequences at the social and economic levels. Many dam ruptures events have occurred throughout the world.

To characterize erodability of foundation soils under hydraulic infrastructures a lot of tests have been introduced. Among them, the hole erosion test was known to be well appropriated to get quantitative information about the erosion phenomenon that could happen. The objective of this work is to model the hole erosion test. For that purpose, we give description of the homogenized biphasic turbulent flow provoking erosion at the hole wall as it could be affected by the applied gradient pressure and the fine particle as well as the actual wall roughness. Fluent software was used to construct a two-dimensional model of the problem.

This had enabled to estimate the wall shear stress which was found to be non uniform along the hole length. Erosion rate was then estimated by using a classical law of erosion. Its variations as affected by the applied gradient pressure, fluid density as well as the actual fluid/soil interface roughness were analyzed. Predicting erosion rate at the start of piping formation can be done by the proposed model. In particular, wall roughness and clay fine particles concentration were found to increase noticeably the erosion rate.

Keywords: Piping, erosion, turbulence, $k-\varepsilon$ model, concentration of clay, wall roughness.

1. INTRODUCTION

Soil erosion is a complex phenomenon that yields at its final stage to insidious fluid leakages under hydraulic infrastructures, known as piping, and which can provoke their failure. Many dam ruptures have occurred throughout the world due to piping, some of these events are reported in reference [1]. Such catastrophic accidents can generate human casualties and material losses with dramatic consequences at the social and economic levels.

Internal erosion is a progressive degradation of soils which is induced by the flowing of water through the porous medium. Many research activities related to the experimental and theoretical characterization of this phenomenon are reported in the literature such as [2], [3] and [4].

Several experiments were designed to reproduce this mechanism in laboratory conditions. Recently, the Hole Erosion Test (HET) has been introduced, figure 1. This test has been the subject of multiple investigations both experimentally and theoretically. Many HET experiments were carried out on several kind of soils, [2] and [3]. Modeling of this test has also been presented [4]. In all cases this test proved to be simple, fast, and well adapted to perform surface erosion characterization during piping development.

A simplified one dimension modeling of the HET was introduced in [5]. This modeling proved to be sufficient in explaining the erosion phenomenology related to piping problem. It yields a comprehensive description of the erosion initiation and kinetics for a given soil constitution. This rudimentary model enables also to evaluate the influence of the hydraulic conditions on piping kinetics.

Aspects associated to the two-dimensional nature of the HET are also present in the problem as it could be seen in figure 2. The objective of this research is to use the commercial CFD code Fluent to model the turbulent flow that develops in the tube during the HET by using the RNG $k-\varepsilon$ based turbulence model. The aim is to determine the shear stress and erosion rate taking place at the wall interface by considering the effect of clay concentration variations and wall roughness.

SC - Structural and Construction Engineering

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