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

Judul Jurnal Ilmiah (paper) : Building Evaluation Using Two Components of Acceleration Time Histories Causes by Shallow Crustal Fault Earthquakes with Maximum Magnitude 7 Mw

Jumlah Penulis : 6 orang (Windu Partono, Masyhur Irsyam, Indrastono Dwi Atmanto, Andi Retno A S, Sigit Purnomo, Robby Yanuar

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b. Ruang lingkup dan kedalaman pembahasan (30%)	9.00	8.50	8.75
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Penulis ke 1 dari 6 = 29.20 x 60% = 17.52

Reviewer I

Prof. Dr. Ir. Han Ay Lie, M.Eng
NIP . 19561091985032002
Unit kerja : Departemen T.Sipil FT.UNDIP

Reviewer II

Prof. Dr. Ir. Sri Tudjono, MS
NIP .195303091981031005
Unit kerja : Departemen T.Sipil FT.UNDIP

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Jumlah Penulis : 6 orang (Windu Partono, Masyhur Irsyam, Indrastono Dwi Atmanto, Andi Retno A S, Sigit Purnomo, Robby Yanuar)

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b) Data yang tersaji informatif dan baru tapi terbatas pada hanya wilayah Semarang. Rujukan sekenario gempa baik, dan telah memperhitungkan kondisi data di Jepang dan USA. Gambar baik dan jelas.

c) Paper ini mengulas proses evaluasi Gedung akibat pengaruh gempa dan dengan intensitas gempa tertentu. Hasil ulasan dapat digunakan sebagai pedoman bangunan eksisting. Perlu dikembangkan metodologi yang lebih general, aksesibilitas secara umum untuk beragam variasi bangunan meningkat

d) UNS sebagai penyelenggara utama mempunyai reputasi bagus, dan para pengelola dalam Scientif Committee dikenal memiliki komotment ilmiah tinggi. Matec sampai dengan tahun 2018 terindex Scopus

Penulis I : 0.6 x 29.4 = 17.64

Semarang, 11-2-2019
Reviewer

Prof. Dr. Ir. Han Ay Lie, M.Eng.
NIP.19561091985032002
Unit kerja : Departemen Teknik Sipil FT UNDIP

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d. Kelengkapan unsur dan kualitas penerbit (30%)	9.00		8.50
Total = (100%)	**30.00**		**29.00**

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4. Kelengkapan unsur dan kualitas penerbit penerbit terindeks scopus

Penulis I = 0,6 x 29 = 17,4

Semarang,
Reviewer

Prof. Dr.Ir. Sri Tudjono, MS.
NIP. 19530309198103 1005
Unit kerja : Departemen Teknik Sipil FT UNDIP

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Code 138852

Building evaluation using two components of acceleration time histories causes by shallow crustal fault earthquakes with maximum magnitude 7 Mw (Conference Paper) (Open Access)

Partono, W.[a], Irsyam, M.[b], Dwi Atmanto, I.[a], Retno Ari Setiaji, A.[a], Purnomo, S.[a], Yanuar Setiawan, R.[a]

[a]Civil Engineering Department, Diponegoro University, Semarang, 50275, Indonesia
[b]Civil Engineering Department, Bandung Institute of Technology, Bandung, 40132, Indonesia

Abstract

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Spectral acceleration and acceleration time histories are the two seismic loads generally used for dynamic analysis of a building. The structural design of buildings is implemented using spectral acceleration at the ground surface obtained from the national seismic code. However, acceleration time histories are developed from specific earthquake events and implemented for building evaluation. This paper presents building evaluations of three existing buildings located in Semarang with heights of at least 40 m. The buildings were built on three different soil types, that is, hard, medium and soft soils. The evaluation was performed by conducting two component north-south and east-west directions of acceleration time histories modified from Semarang fault earthquake scenarios having a magnitude of 7 Mw and maximum epicentre distance 15 Km. Due to incomplete data on Semarang fault earthquakes, the acceleration time histories incorporated herein were collected from worldwide earthquake data bases and modified using response spectral matching and seismic propagation analysis. Stability analyses in terms of structural deformation and drift ratio were carried out for the three buildings. The results show that all three buildings have the capability to resists earthquakes up to a maximum magnitude of 6.5 Mw with an epicentre distance of over 5 Km. © The Authors, published by EDP Sciences, 2018.

SciVal Topic Prominence

Topic: wave velocity | Shear waves | seismic hazard

Prominence percentile: 63.154

Indexed keywords

Engineering controlled terms: Acceleration | Buildings | Data flow analysis | Faulting | Guard rails | Seismic design

Engineering uncontrolled terms: Acceleration-time history | Building evaluations | Design of buildings | Earthquake scenario | Seismic propagation | Spectral acceleration | Spectral matchings | Structural deformation

Engineering main heading: Earthquakes

Funding details

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This research was financially supported by The)aculty of Engineering, Diponegoro University, Indonesia through Strategic Research *rant 201 .

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Partono, W. , Irsyam, M. , Wardani, S.P.R.
(2017) AIP Conference Proceedings

Development of seismic risk microzonation map for Semarang due to Semarang fault earthquake scenarios with maximum magnitude 6.9 Mw
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Partono, W.; Civil Engineering Department, Diponegoro University, Semarang, Indonesia;
email:windu_bapake_dila@yahoo.com

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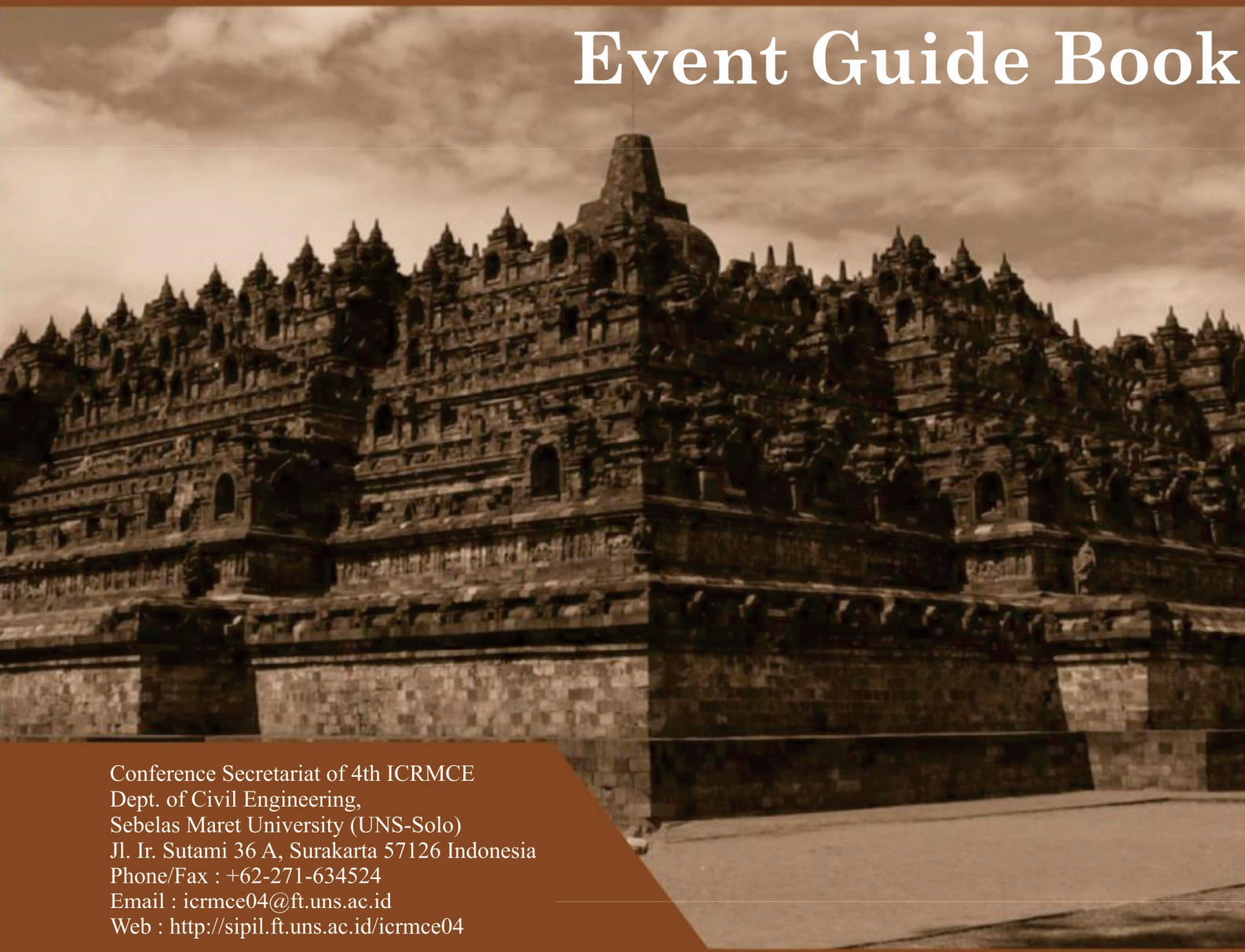

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Kennichiro Nakarai
Graduate School of Engineering, Hiroshima University, Japan
more ... (http://seeds.office.hiroshima-u.ac.jp/profile/en.82b745276185148e520e17560c007669.html)

Masyhur Irsyam
Bandung Institute of Technology (ITB), Indonesia
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Yusep Muslih Purwana

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The 4th ICRMCE and FIB Indonesia Mini **Simposium** on **Concrete Structures**; Past Achievement, Current Issues and Future Development

A mini symposium will be convened by FIB-Indonesia, a group of concrete scientists and engineers in Indonesia, in conjunction with the 4th International Conference on Rehabilitant and Maintenance in Civil Engineering held by collaboration of several university in Indonesia and worldwide. The theme of the mini symposium will be on Concrete Structures; Past Achievement, Current Issues and Future Development. It addresses the legacy, the state of the arts and practices of concrete structures as well as the challenge concrete industry is facing in the future. more... (http://sipil.ft.uns.ac.id/icrmce04/index.php/minis/view)

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PARALLEL CLASS A
DAY 1

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class A
13.10 - 13.30	343	Improvement the California Bearing Ratio of Expansive Subgrade using SiCC Column	Agus Setyo Muntohar	Invited Speaker	
13.30 - 13.40	18	Numerical modelling of dynamic stability of RCC dam	Omer Mughieda*, ADU	G	
13.40 - 13.50	19	Stability evaluation of Sermo dam, Yogyakarta, using two components acceleration time histories causes by Java subduction earthquake scenarios	Partono Windu*, Universitas Diponegoro	G	
13.50 - 14.00	22	Probabilistic Seismic Hazard Assesment for Surakarta, Central Java, Indonesia	Muhammad Adi Ibrahim*, PT Wijaya Karya (Persero) tbk; Yusep Purwana, University of Sebelas Maret	G	
14.00 - 14.10	39	Parametric Study On The Behavior Of Bagasse Ash-Calcium Carbide Residue Stabilized Soil	John Hatmoko*, Universitas Atma Jaya Yogyakarta, INDONESIA	G	
14.10 - 14.20	42	Application of Woven Tires Waste Gabion Wall as Slope Reinforcement for Preventing Landslide in Laboratory	Arwan Apriyono*, Jurusan Teknik Sipil Universitas Jenderal Soedirman	G	
14.20 - 14.30	43	Study of Geotechnical Aspect Base on GIS as Basic Design of Road	Mrs Indrayani*; Arfan Hasan; Andi Herius; Ahmad Mirza, State Polytechnic of Sriwijaya	G	
14.30 - 15.00		Question and Answer			
15.00 - 15.30		Coffee Break			Ruby 2
15.30 - 15.35		Moderator			Class A
15.35 - 15.45	46	Bearing Capacity Analysis of Helical Pile Foundation on Peat	Ferry Fatnanta, Universitas Riau; Andarsin Ongko*, University of Riau	G	
15.45 - 15.55	47	Inverse Distance Weighting Interpolated Soil Properties And Their Related Landslide Occurrences	Purwanto Santoso*; Yanto Yanto; Arwan Apriyono; Rani Suryani, Universitas Jenderal Soedirman	G	
15.55 - 16.05	55	The Effect of Cement Stabilization on the Strength of the Bawen's Siltstone	Edi Hartono*, Diponegoro University	G	
16.05 - 16.15	76	Chemical Stabilization of Expansive Soil using Wood Charcoal Powder and Salt	Paksitya Putra*; Mokhammad Farid Ma'ruf; Diah Ayu Paramiswari; Abdullah Ilham, Teknik Sipil Universitas Jember	G	
16.15 - 16.25	158	Ground Settlement Prediction of the Improved Embankment with Prefabricated Vertical Drain in Soft Soil	Siswoko Saputro*, National Taiwan University of Science and Technology	G	
16.25 - 16.35	200	Determination of the seismicity and peak ground acceleration for Lombok Island: An evaluation on tectonic setting	Didi Agustawijaya*, University of Mataram	G	
16.35 - 17.05		Question and Answer			

*G=Geotechnical *M=Management *Mt=Materials *S=Structure *H=Hydrology *T=Transportation

PARALLEL CLASS A
DAY 2

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class A
13.10 - 13.30	4	Proposed Concrete Compaction Method Using An Electrical Internal Vibrator: A Review Of Compaction Standard For Concrete In Laboratory According To Sni 2493:2011	agus maryoto*, Jenderal Soedirman University	Invited Speaker	
13.30 - 13.40	6	Rice Husk As An Alternative Energy For Cement Production And Its Effect On The Chemical Properties Of Cement	agus maryoto*, Jenderal Soedirman University	Mt	
13.40 - 13.50	16	Repair of Rigid Pavement Using Micro concrete Mtials	Jonbi Jonbi*, Pancasila University	Mt	
13.50 - 14.00	17	Effect of added the Polycarboxylate Ether on Slump Retention and Compressive Strength of the High Performance Concrete	Jonbi Jonbi*, Pancasila University	Mt	
14.00 - 14.10	49	Mechanical Properties of Concrete Composed of Sintered Fly Ash Lightweight Aggregate	puput risdanareni*, universitas negeri malang; M. Mirza Abdillah Pratama, Universitas Negeri Malang	Mt	
14.10 - 14.20	52	The Effect of Additional Aluminium to the Strength of Geopolymer Paste	Aulia Rahman, ITS; Januarti Ekaputri*, ITS	Mt	
14.20 - 14.30	64	The influence of molarity variations to the mechanical behaviour of geopolymer concrete	Purwanto Khusnan*, Diponegoro University; Ay Lie Han, Universitas Diponegoro; Nuroji Nuroji, Diponegoro University; Januarti Ekaputri, ITS	Mt	
14.30 - 15.00		Question and Answer			
15.00 - 15.30		Coffee Break			Ruby 2
15.30 - 15.35		Moderator			Class A
15.35 - 15.45	73	Slant shear strength of polyvinil acetat (pva) modified fiber reinforced mortar	Stefanus Kristiawan*, Universitas Sebelas Maret	Mt	
15.45 - 15.55	82	Modulus of elasticity of the graded concrete	M. Mirza Abdillah Pratama*; Bunga Arumsari Mutiara Wulandari, Universitas Negeri Malang; Zhabrinna Zhabrinna, University of Birmingham	Mt	
15.55 - 16.05	89	Microscopic Investigation on Concrete Cured Internally by Using Porous Ceramic Roof-tile Waste Aggregate	Azusa Shigeta*, Hiroshima University; Yuko Ogawa, Hiroshima University; Kenji Kawai, Hiroshima University	Mt	
16.05 - 16.15	276	Evaluation of Bond Strength Between Normal Concrete and High Performance Fiber Reinforced Concrete(HPFRC)	SK MUIZ SK ABD RAZAK*, Universiti Malaysia Perlis	Mt	
16.15 - 16.25	288	Effects of Microbial Agents to The Properties of Fly Ash-Based Paste	Kiki Dwi Wulandari*, Department of Civil Engineering, Institut Teknologi Sepuluh Nopember; Januarti Ekaputri, ITS	Mt	
16.25 - 16.55		Question and Answer			

PARALLEL CLASS B
DAY 1

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class B
13.10 - 13.20	201	The Effect of Egg Shell Powder on The Compression Strength of Fine-Grained Soil	Niken Surjandari*, Sebelas Maret University Surakarta	G	
13.20 - 13.30	206	Contribution of suction on the stability of reinforced soil retaining wall	Nurly Gofar*, Nanyang Technological University; Hanafiah Hanafiah, Sriwijaya University	G	
13.30 - 13.40	233	Method of Removing Secondary Compression on Clay Using Preloading	EGA DHIANTY*, Institut Teknologi Sepuluh Nopember; INDRASURYA B. MOCHTAR, Institut Teknologi Sepuluh Nopember	G	
13.40 - 13.50	235	Effect of Moisture Content of Cohesive Subgrade Soils	Dian Agustina*, Universitas Riau Kepulauan; Adnan Bin Zainorabidin, Universiti Tun Hussein Onn Malaysia	G	
13.50 - 14.00	266	Predicting Heave on The Expansive Soil	Willis Diana*, Universitas Muhammadiyah Yogyakarta	G	
14.00 - 14.10	267	Water Table Evaluation Post the Construction of Canal Blocks on Peatland in West Kalimantan, Indonesia	Henny Herawati*, Tanjungpura University; Dwi Farastika, Tanjungpura University	G	
14.10 - 14.20	275	The Effect of Lime Addition in Physical and Mechanical Soil Properties Due to Drying Process on Bengawan Solo River Embankment in Plangwot Area, Lamongan	Alpha Putri*, Institut Teknologi Sepuluh Nopember	G	
14.20 - 14.30	277	Application of Microtremor HVSR Method for Preliminary Assesment of Seismic Site Effect in Ngipik Landfill, Gresik	Siti Nurlita Fitri*, Institut Teknologi Sepuluh Nopember Surabaya	G	
14.30 - 15.00		Question and Answer			
15.00 - 15.30		Coffe Break			Ruby 2
15.35 - 15.45		Moderator			Class B
15.45 - 15.55	278	A Study on Association between Tilt Angle, Solar Insolation Exposure and Output of Solar PV Panel Using BIM 3D Modelling	SK MUIZ SK ABD RAZAK*, Universiti Malaysia Perlis	M	
15.55 - 16.05	279	The Implementation of Sustainable Concept in Waste Management through Project Life Cycle Process in Gold Coast	Zhabrinna Zhabrinna*, University of Birmingham; M. Mirza Abdillah Pratama, Universitas Negeri Malang	M	
16.05 - 16.15	297	Are Indonesia contractors ready to implement Last Planner System? - An early investigation	Jati Hatmoko*, Universitas Diponegoro	M	
16.15 - 16.25	313	Corporate entrepreneurship level: a case study of contractors in Indonesia	Harijanto Setiawan*, Universitas Atma Jaya Yogyakarta	M	
16.25 - 16.35	341	Reducing Carbon Emission in Construction Base On Project Life Cycle (PLC)	Mochamad Wibowo*, Diponegoro University Semarang	M	
16.35 - 17.05		Question and Answer			

PARALLEL CLASS B
DAY 2

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class B
13.10 - 13.20	92	Effect of co-existing ions on lead leaching behavior from hardened cement paste	Takumi Nishiwaki*, Hiroshima university	Mt	
13.20 - 13.30	100	Effect of Recycled Coarse Aggregate (RCA) with Surface Treatment on Concrete Mechanical Properties	Anggun Atmajayanti*; Chrisyanto Saragih G, Universitas Atma Jaya Yogyakarta; Yanuar Haryanto, Jenderal Soedirman University	Mt	
13.30 - 13.40	104	Development of Self-compacting Fibre Reinforced Structural Mortar for Concrete Repair	Ernie Sahari*; Dr. A.B.M Amrul Kaish; Nyiam Len Fong, Infrastructure University Kuala Lumpur (IUKL)	Mt	
13.40 - 13.50	108	Microstructure and mechanical properties of FA/GGBS-based geopolymer	Apriany Saludung*, Hiroshima University	Mt	
13.50 - 14.00	133	Strength development of cement-treated sand using different cement types cured at different temperatures	Lanh Ho*; Kenichiro Nakarai; Kenta Eguchi, Hiroshima University; Takashi Sasaki, Denka Co., Ltd; Minoru Morioka, Denka Co., Ltd	Mt	
14.00 - 14.10	180	The Influence Of OPC And PPC On Compressive Strength Of Alwa Concrete	Fedya Aryani*, Institut Teknologi Sepuluh Nopember Surabaya	Mt	
14.10 - 14.20	194	The usage of Andesit sand grinded and foaming-agent on porosity of foam concrete	Erwin Rommel*, Muhammadiyah University of Malang	Mt	
14.20 - 14.30	198	A Comparative Analysis of the Quality of Concrete Blocks Produced from Coconut Fibre, Oil Palm Empty Fruit Bunch, and Rice Husk as a Filler Mtials	MOHAMMAD LUTFI*, STT MIGAS	Mt	
14.30 - 15.00		Question and Answer			
15.00 - 15.30		Coffee Break			Ruby 2
15.30 - 15.35		Moderator			Class B
15.35 - 15.45	199	A Preliminary Study of the Low Density Particle Boards Quality using Rice Husk and Oil Palm Empty Fruit Bunch with Plastic Waste Adhesive	MOHAMMAD LUTFI*, STT MIGAS ; Muh Yamin, State Agricultural Polytechnic of Samarinda	Mt	
15.45 - 15.55	252	Characterization and Compressive Strength of Geopolymer Paste Based on Fly Ash	Ari Widayanti*; Ria Asih Aryani Soemitro, Institut Teknologi Sepuluh Nopember Surabaya; Hitapriya Suprayitno; Januarti Ekaputri, ITS	Mt	
15.55 - 16.05	256	The Effect Of Addition Of Banana Tree Bark For Compressive Strenght And Crack Tensile Strenght Of Rice Husk Ash Concrete	Muhammad Rizqi*, University of Jember	Mt	
16.05 - 16.15	289	Experimental Study of Accelerating High Early Strength Concrete under Elevated Temperature, Steaming, and Chemical Admixture of Normal and High Strength Concrete	Suryawan Murtiadi*, Mataram University	Mt	
16.15 - 16.45		Question and Answer			

Strength development of cement-treated sand using different cement types cured at different temperatures

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[3]Denka Co., Ltd., Cement & Special Cement Additives Research Dept., Omi Plant, 2209 Oaza Omi, Itoigawa, Niigata 949-0393, Japan

Abstract. This study aimed to investigate the strength development of cement-treated sand using different cement types: ordinary Portland cement (OPC), high early strength Portland cement (HPC), and moderate heat Portland cement (MPC) cured at different temperatures. The cement-treated sand specimens were prepared with 8% of cement content and cured under sealed conditions at 20°C and 40°C, and mortar specimens were also prepared for reference. The results showed that the compressive strength of cement-treated sand increased in order of MPC, OPC, and HPC under high curing temperatures. It was interesting that the compressive strength of the specimens using HPC was much larger than that of the specimen using OPC and MPC under 20°C due to the larger amount of chemically bound water. Additionally, it was revealed that under high curing temperatures, the pozzolanic reaction was accelerated in the cement-treated sand; this may be caused by the high proportions of sand in the mixtures.
Keywords: Cement-Treated Sand, Compressive Strength, Cement Types, Curing Temperatures, Cement Hydration, Pozzolanic Reaction.

1 Introduction

Cement-treated soils have been applied popularly for soft soil improvement, especially for the deep mixing method. It is known that the compressive strength of cement-treated soils is considered an important indicator to characterize soil behavior [1-3]. The strength development of cement-treated soils is governed by many factors such as conditions of soil, mixing, and curing [4]. In terms of curing conditions, the curing temperature is an important factor that affects the strength development of cement-treated sand. With regards to the deep mixing method, large columns of cement-treated soils are usually used. A previous study on the temperature history of field deep mixing columns revealed that the

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PARALLEL CLASS C
DAY 1

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class C
13.10 - 13.20	12	Towards Competitive Traditional Market in Metropolitan City: a proposal of public building policy in Semarang	Ferry Hermawan*, Diponegoro University; Ismiyati Ismiyati, Diponegoro University; Himawan Indarto, Diponegoro University	M	
13.20 - 13.30	63	The Maintenance Priority for Construction Reliability and Sustainability in Ampel Mosque Surabaya	Agung Sedayu*, Maulana Malik Ibrahim State Islamic University of Malang	M	
13.30 - 13.40	95	Intelligent BIM Record Model for Effective Asset Management of Constructed Facility	Md Aslam Hossain*, Nazarbayev University; AHMAD TARMIZI HARON, FKASA	M	
13.40 - 13.50	124	Development of Quality Management System in Maintenance and Monitoring Process of Repair Work Risk-Based in Government Building	Yusuf Latief, Universitas Indonesia; Rossy Machfudiyanto*, Universitas Indonesia; Khairina Pamudji, Universitas Indonesia; Riany Aldesty, Universitas Indonesia	M	
13.50 - 14.00	126	BIM Adoption Towards the Sustainability Of Construction Industry in Indonesia	Zhabrinna Zhabrinna*, University of Birmingham; M. Mirza Abdillah Pratama, Universitas Negeri Malang; Muhammad Yusuf, University of Leeds; Richard Davies,	M	
14.00 - 14.10	143	Improvement of Business Processes in Developing Standard Operation Procedures on Government Building Maintenance Work in Indonesia	Rossy Machfudiyanto*, Universitas Indonesia	M	
14.10 - 14.20	208	Service Life Planning for Electronics, Mechanical and Electrical Components of an Hotel Building	Peter Kaming*, Universitas Atma Jaya Yogyakarta; Michael Boenardi, UAJY; Desi Maryani, UAJY	M	
14.20 - 14.30	227	Current State Mapping of Supply Chain in Engineering Procurement Construction (EPC) Project: A Case Study	Moh Sholeh*, Diponegoro University	M	
14.30 - 15.00		Question and Answer			
15.00 - 15.30		Coffee Break			Ruby 2
15.30 - 15.35		Moderator			Class C
15.35 - 15.45	263	Readiness Of Local Government In Ppp Project Development - Case Of Lrt Bandung	Revana Putri*, Institute Technology Bandung; Reini Wirahadikusumah, Institut Teknologi Bandung	M	
15.45 - 15.55	272	Optimization Of Waste Management Infrastructure Planning Using Linear Programming Model (Case Study Of Waste Management In Sragen Regency)	Albert Pramono Soesanto*, Program Studi Magister Teknik Sipil Sekolah Pascasarjana Universitas Muhammadiyah Surakarta; Mochammad Solikin, Program Studi Magister	M	
15.55 - 16.05	182	User Cost Estimation On The Construction Of Flexible And Rigid Road Pavement	Fajar Handayani*, Universitas Sebelas Maret Surakarta; Florentina Pramesti, Universitas Sebelas Maret Surakarta; Mochamad Wibowo, Diponegoro University Semarang;	M	
16.05 - 16.15	304	The Management Strategy for Government Building Disposal Process in Jakarta	Ayomi Rarasati*, Universitas Indonesia; Mulyadi Mulyadi, Universitas Indonesia	M	
16.15 - 16.45		Question and Answer			

BIM adoption towards the sustainability of construction industry in Indonesia

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Abstract. The Architecture, Engineering and Construction (AEC) industry is known as one of the prominent sectors contributing to economic stability in Indonesia. On the other hand, this sector is also responsible for significant environmental impact in the country. Building Information Modelling (BIM) is a key innovative technology enabling advanced management within the construction and civil engineering industries and facilitating improvements in sustainability and asset management across the globe. BIM enables the achievement of three sustainable dimensions which are known as Triple Bottom Line (TBL). However, to enable the construction industry in Indonesia to expand and adopt this new engineering technology, the scarcity of the experts in BIM remains a barrier to initiate the migration from traditional management to BIM. From 40 respondents who participated in this study, only 2 respondents had competence in BIM. However, the awareness rate of Indonesian engineers about BIM is actually quite good with 67.5% of respondents having recognised BIM, although mostly with limited or basic knowledge. This research also defines BIM's impact to sustainability aspects in construction.

1 Introduction

According to the latest international financial research, Indonesia is one of the few developing countries in Asia with good economic stability [1] [2] [3]. To sustain the economic situation in Indonesia, the Architecture, Engineering and Construction (AEC) industry highly contributes as a prominent sector [4] [5]. Construction, as part of the AEC industry, provides infrastructure to boost national economic activities and provides employment for various skills and education graduates [4].

The development within the construction industry needs to focus on the maintenance of environmental sustainability. The construction industry is responsible for 30% of the global greenhouse gas (GHG) emission, 40% of global energy consumption, and 40% of all solid waste [6] [7] [8] [9]. The whole construction project life cycle – stages of building

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PARALLEL CLASS C

DAY 2

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class C
13.10 - 13.20	218	Experimental Analysis of T- Beam Reinforced Concrete with hole	Nicxson Pakpahan*, Universitas Sumatera Utara	S	
13.20 - 13.30	224	APPLICATION OF HIGH STRENGTH REINFORCING BARS IN EARTHQUAKE-RESISTANT STRUCTURE ELEMENTS	Kurniawan Kamaruddin*, Institut Teknologi Bandung; Iswandi Imran, ITB; Maulana Derry Imansyah, Institut Teknologi Bandung;	S	
13.30 - 13.40	226	Seismic performance of four-storey building with masonry infilled reinforced concrete frame	isyana hapsari*, universitas sebelas maret; Senot Sangadji, Universitas Sebelas Maret; Stefanus Kristiawan, Universitas Sebelas	S	
13.40 - 13.50	232	Numerical analysis of castellated beam with oval opening	Yanuar Setiawan*, Universitas Islam Indonesia; Ay Lie Han, Universitas Diponegoro; Buntara S. Gan, Department of	S	
13.50 - 14.00	273	PREDICTING BENDING CREEP OF LAMINATED VENEER LUMBER (LVL) SENGON (PARASERIANTHES FALCATARIA) BEAMS FROM INITIAL CREEP TEST DATA	Achmad Basuki*, Universitas Sebelas Maret	S	
14.00 - 14.10	274	One-Way Translational Magnetic Mass Damper Model for Structural Response Control against Dynamic Loadings	SK MUIZ SK ABD RAZAK*, Universiti Malaysia Perlis	S	
14.10 - 14.20	298	A Comparison of Retrofitting Methods on Nursing Faculty Building of Andalas University with Concrete Jacketing and Shear Wall Systems	Fauzan Fauzan*, Andalas University	S	
14.20 - 14.30	300	Survey, Investigation and Repairing on Concrete Wall of Waste Treatment Building	Partogi Simatupang*, Universitas Nusa Cendana	S	
14.30 - 15.00		Question and Answer			

One-way translational magnetic mass damper model for structural response control against dynamic loadings

Nurulashikin Bahaman[1,*], *Sk Muiz* Sk Abdul Razak[1], *Azlan* Adnan[2], *Norrazman* Zaiha Zainol[1], *Norhaizura* Yahya[1], *Khairunnisa* Muhamad[1], *Ahmad* Nurfaidhi Rizalman [3], *Mazizah* Ezdiani Mohamad[4], and *Nur* Adibah Ayuni Abd Malek[1]

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Abstract. Structural responses should be reduced to minimize the consequent structural damage caused by dynamic excitation. The one-way translational magnetic mass damper model is developed as a new type of damper for the purpose of structural response control. The damper utilizes the concept of repulsive force between magnets with same poles to create a magnetic force to stabilize or bring the structure back to its original position. The dynamic performance of the structure was tested using a harmonic shaking table. In this study, the three parameters used are excitation speeds: 2.5V (low), 6.0V (medium) and 8.5V (high); strength of magnets: weak (N35), medium (N45) and strong (N52); and the mass in the damper: 40 g, 101 g and 162 g. The correlations of the parameters towards the structural displacement are verified in the testing. The displacement is highly reduced up to 100% at the first level and 85.2% at the fifth level. The most optimum structural response control was attained when a strong magnetic strength and mass of 162 g are used. When tested with three excitation speeds; 2.5V, 6.0V and 8.5V, the damper with this setting provides the optimum damping effect towards the structure in terms of displacement.

1 Introduction

Dynamic loading is an external force exerted in certain amounts on a structure upholding them. The occurrence of dynamic loading or synonymously known as dynamic excitation

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PARALLEL CLASS D
DAY 1

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class D
13.10 - 13.30	118	Temporal Variations of Bedload Transport Rate and the Grain Size Distribution of Non-Uniform Size Sediment During A Constant Flow Rates	Yusron Saadi*, Universitas Mataram	Invited Speaker	
13.30 - 13.40	10	The Interrelationship between ISTN lake, Babakan lake and the surrounding wells of shallow groundwater using stable isotopes δ 2H and δ 18O for the LakeBank Filtration potential	W Marsiano; S Syafalni*; Wawan Kuswaya; M Falaqi Djamhuri, Institut Sains dan Teknologi Nasional; BungKus Pratikno, National Nuklir Energy Agency	H	
13.40 - 13.50	40	Multisite daily precipitation simulation in Singapore	Suroso Suroso*, Department of Civil Engineering, Jenderal Soedirman University	H	
13.50 - 14.00	65	The Concept of Lomaya And Pilohayanga Dam Rehabilitation Based On Technical And Economic Aspects	Ninik Khorida*, Universitas Sebelas Maret	H	
14.00 - 14.10	115	Priority Development Of Smalldam In Wonogiri Regency	fisnu pramono*, PT. Inakko Internasional Konsulindo; YUNITTA CHANDRA SARI, BBWS Bengawan Solo; Suripin Suripin, Diponegoro University	H	
14.10 - 14.20	116	Surakarta City Flood Control	fisnu pramono*, PT. Inakko Internasional Konsulindo; YUNITTA CHANDRA SARI, BBWS Bengawan Solo; Suripin Suripin, Diponegoro University	H	
14.20 - 14.30	134	Evaluation of watershed carrying capacity for watershed management (a case study on Bodri Watershed, Central Java, Indonesia)	Sriyana Sriyana*, Diponegoro University	H	
14.30 - 15.00		Question and Answer			

PARALLEL CLASS D
DAY 2

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			
13.10 - 13.20	150	Evaluation of sediment management for two large reservoirs in Lombok Island	Ery Setiawan; syamsul hidayat*; M Bagus Budianto; IB Giri Putra; Salehudin Salehudin, University of Mataram	H	
13.20 - 13.30	175	Tsunami Simulation using Particle Method	Raden Harya Dananjaya*, Universitas Sebelas Maret	H	
13.30 - 13.40	178	Field Performance of Shalow Recharge Well	Edy Susilo*, Diponegoro University	H	
13.40 - 13.50	148	Technical Audit and Performance Assessment of Irrigation Tlatak in District Magetan	Yuli Iswahyudi*, UNS	H	
13.50 - 14.00	255	Analysis of the Distribution of Domestic Wastewater in the Brantas River Area of Malang City	Bekti Prihatiningsih*, Universitas Merdeka Malang	H	
14.00 - 14.10	257	The Analysis of Ancol Polder System as Flood Prevention Infrastructure in Jakarta	Rian Mantasa Salve Prastica*, Universitas Indonesia	H	
14.10 - 14.20	261	The Impact Of Drainage Towards Roads In Maintenance Cost	Erna Ismiyani*, UNS student; Dewi Handayani, Universitas Sebelas Maret; RR. Rintis Hadiani, Universitas Sebelas Maret	H	
14.20 - 14.30	338	Assesment of temporary protection infrastructure performance related to tidal flood in Mulyorejo, Pekalongan, Indonesia	Slamet Imam Wahyudi*, Universitas Islam Sultan Agung, Semarang	H	
14.30 - 15.00		Question and Answer			

PARALLEL CLASS E

DAY 1

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class E
13.10 - 13.30	318	Design and optimization of a rubber-bitumen blend in preparation for a rubberized-asphalt road trial in the State of Kuwait	Salah Zoorob*, KISR	Invited Speaker	
13.30 - 13.40	1	Data Mining Applied for National Road Maintenance Decision Support System	Andri Irfan*, Universitas Internasional Batam; Susanty Handayani, Jabodetabek Transportation Authority	T	
13.40 - 13.50	339	Data Mining Applied for Earthwork Movement Optimization of Toll Road Construction Project	Andri Irfan*, Universitas Internasional Batam	T	
13.50 - 14.00	5	Analysis Of Air Pollution As An Impact Of The Change Of Mass Transportation Design	Ismiyati Ismiyati*, Diponegoro University; Ismiyati Ismiyati, Diponegoro University	T	
14.00 - 14.10	7	Performance Analysis of Underpass Gilingan Development	Setiono ST, MSc, Universitas Sebelas Maret; Budi Yulianto*, Sebelas Maret University	T	
14.10 - 14.20	8	Analysis of Signalized Intersections Performance Using IHCM Method and PTV VISTRO Software	Budi Yulianto*, Sebelas Maret University; Setiono ST, MSc, Universitas Sebelas Maret	T	
14.20 - 14.30	13	Control Of Urban Parking Based On Zoning Rates In The Context Of Sustainable Transportation	Ismiyati Ismiyati*, Diponegoro University	T	
14.30 - 15.00		Question and Answer			
15.00 - 15.30		Coffee Break			Ruby 2
15.30 - 15.35		Moderator			Class E
15.35 - 15.45	41	Evaluation of Hub and Spoke Airport Networks in Sumatra Island, Indonesia to increase Efficiency of Air Transportation	Gito Sugiyanto*, Universitas Jenderal Soedirman	T	
15.45 - 15.55	44	Analysis of Travel Pattern and the Need to Develop Sustainable Transportation Infrastructure in Sarbagita Metropolitan Area, Bali-Indonesia	Putu Suthanaya*, Udayana University	T	
15.55 - 16.05	81	Assessment Of Magetan Regency's Road Performance Based On Pavement And Off Pavement Components	Joko Haryanta*, UNS	T	
16.05 - 16.15	105	Correlation Analysis between Speed Bumps Dimensions and Vehicles Speed in Residential Area	RA Dinasty Purnomo A*, Universitas Sebelas Maret; Dewi Handayani, Universitas Sebelas Maret; syafii syafii, Universitas Sebelas Maret	T	
16.15 - 16.25	138	Application of Deflection Bowl Parameters for Assessing Different Structures of Road Pavement	Bagus Hario Setiadji*, Diponegoro University	T	
16.25 - 16.35	144	The Influences of Age and Gender of Students' Motorcycle Riders on Traffic Violations and Accidents in a Small City using a Structural Equation Model	I Suteja*, Universitas Mataram	T	
16.35 - 16.45	146	The Sustainability of Public Transport Operation Based on Financial Point of View	ARIF BUDIARTO*, CIVIL ENGINEERING DEPARTEMENT UNIVERSITY OF SEBELAS MARET SURAKARTA	T	
16.45 - 17.15		Question and Answer			

PARALLEL CLASS E

DAY 2

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class E
13.10 - 13.20	154	A Study of CO2 Emission Reduction Due to Transportation Activities in Brebes District through Road Repair	Fajar Mubarok*, Universitas Sebelas Maret; Dewi Handayani, Universitas Sebelas Maret; Syafi'i Syafi'i, Univeristas Sebelas Maret	T	
13.20 - 13.30	101	Assessment Of The Road Based On Pci And Iri Roadroid Measurement	Donny Putra*, Universitas Sebelas Maret	T	
13.30 - 13.40	204	The Influence of Vehicle Speed Changes at Mechanistic Performance of Asphalt Mixture	Senja Rum Harnaeni*, Doctoral Program in Civil Engineering, Faculty of Engineering, UNS, Surakarta	T	
13.40 - 13.50	238	Evaluation of Urban Freight Transport Operations in Surakarta City	Budi Yulianto*, Sebelas Maret University	T	
13.50 - 14.00	251	Analysis of Influencing Factors on Using Rental Bikes at Shopping Tourism Sites in Surakarta	Erlin Setyowati*, Universitas Sebelas Maret; Dewi Handayani, Universitas Sebelas Maret	T	
14.00 - 14.10	285	System Model For Physical Conditions of Road Components In Magetan District	Ferro Gilang Kencana*, Universitas Sebelas Maret	T	
14.10 - 14.20	295	Performance Evaluation of a Trunk-A Road in North Central Nigeria	Mustapha Mohammed Alhaji*, Federal University of Technology, Minna; Musa Alhassan, Federal University of Technology, Minna	T	
14.20 - 14.30	311	Application of Android-based Parking Violations Reporting System to Support Green Campus Program	Setiono ST, MSc, Universitas Sebelas Maret; Budi Yulianto*, Sebelas Maret University	T	
14.30 - 14.40	322	The Analysis of Land Use Weights on Road Trace Selection	Mrs Indrayani*, State Polytechnic of Sriwijaya; Erika Buchari, Sriwijaya University; Dinar D.A. Putranto, Sriwijaya University; Edward Saleh, Sriwijaya University	T	
14.40 - 15.00		Question and Answer			

PARALLEL CLASS F
DAY 1

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class F
13.10 - 13.20	140	Study of Inertia Weight Parameter for Boundary Element Inverse Analysis to Detect RC Corrosion	Syarizal Fonna*, Syiah Kuala University	S	
13.20 - 13.30	58	Analysis of Steel Reinforced Functionally Graded Concrete Beam Cross Sections	Shota Kiryu, Nihon University; Ay Lie Han, Universitas Diponegoro; Ilham Nurhuda, Diponegoro University; Buntara S. Gan*, Nihon University	S	
13.30 - 13.40	210	Aerodynamic Performance of Long Span Steel Truss Bridges in Indonesia	Made Suangga*, Bina Nusantara University; Herry Irpanni, Directorate General of Highway, Ministry of Public Work and Housing	S	
13.40 - 13.50	183	Diagonal Reinforcement as Strengthening to Increase the Stiffness and Strength of Concrete Frame	Yenny Nurchasanah*, Universitas Muhammadiyah Surakarta	S	
13.50 - 14.00	306	Comprehensive condition assessment program on the fire damaged structure – a project case in Singapore	Gunawan Budi Wijaya*, Universitas Kristen Petra	S	
14.00 - 14.10	37	Numerical Analysis on Stress and Displacement of Tapered Cantilever Castellated Steel Beam with Circular Openings	Taufiq Ilham Maulana*; Hakas Prayuda; Bagus Soebandono; Martyana Dwi Cahyati; Eva Hanifatu Zahra, Universitas Muhammadiyah Yogyakarta	S	
14.10 - 14.20	96	Application of NDT Apparatus for Possible Use as Structural Health Monitoring of Concrete Building in the Field	Akmaluddin Akmaluddin*, Universitas Mataram	S	
14.20 - 14.30	320	Crashworthiness assessment of double-hull tanker structures under ship grounding actions	Aditya rio prabowo; Jung Min Sohn; Dong Myung Bae, Pukyong National University; Bangun Harsritanto*, Universitas Diponegoro	T	
14.30 - 14.40	114	The study of ultrasonic pulse velocity on plain and reinforced damaged concrete	Ni Nyoman Kencanawati*, Mataram University	S	
14.40 - 15.00	20	Question and Answer			

PARALLEL CLASS F
DAY 2

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Class F
13.10 - 13.20	121	Analytical Study on Creep Shear Failures of RC Slender Beams without Web Reinforcements	Halwan Saifullah; Kenichiro Nakarai*, Hiroshima University; Nobuhiro Chijiwa, Tokyo Institute of Technology; Koichi Maekawa, Yokohama National University	S	
13.20 - 13.30	142	Influence of Shape Modification and Stirrups On the Axial Capacity of Concrete Columns	Ida Bagus Rai Widiarsa*, Universitas Udayana; Ida Bagus Dharma Giri, Universitas Udayana	S	
13.30 - 13.40	145	Shear Properties Evaluation of Natural Fibre Reinforced Epoxy Composites Using V-Notch Shear Test	Jauhar Fajrin*, Universitas Mataram; Nasmi Sari, Universitas Mataram	S	
13.40 - 13.50	153	Dynamic Bayesian Updating Approach for Predicting Bridge Condition Based on Indonesia-Bridge Management System (I-BMS)	Jojok Widodo Soetjipto*, Universitas Jember; Tri Joko Wahyu Adi; Nadjadji Anwar, Institut Teknologi Sepuluh Nopember Surabaya	S	
13.50 - 14.00	161	Performance of Composite Local Glass Fibre Sheets and Epoxy on Flexural Strengthening of Reinforced Concrete Beams	I Ketut Sudarsana*, Universitas Udayana	S	
14.00 - 14.10	169	Comparative Study on Behaviour of Reinforced Concrete Beam-Column Joints with Reference to Monolith and non-monolith Connection	Ninik Catur Endah Yuliati*, Universitas Merdeka Malang; Sri Murni Dewi; Wisnumurti Wisnumurti; Ari Wibowo, Universitas Brawijaya	S	
14.10 - 14.20	192	Improving Resilience of Moment Frames Using Steel Pipe Dampers	Junaedi Utomo*, Universitas Atma Jaya Yogyakarta	S	
14.20 - 14.30	185	Analytical Prediction on Tension Force of Stirrups in Concrete Beams Longitudinally Reinforced with CFRP Bars	Rendy Thamrin*, Universitas Andalas	S	
14.30 - 15.00		Question and Answer			
15.00 - 15.30		Coffee Break			Ruby 2
15.30 - 15.35		Moderator			Class F
15.35 - 15.45	188	A Comparative Study of Base Isolation Systems featured with Lead Rubber Bearing and Pendulum in Light Rail Transit Structure	Santi Nuraini*; Asdam Tambusay; Priyo Suprobo, Institut Teknologi Sepuluh Nopember	S	
15.45 - 15.55	312	The effect of HVFAC as substitution of fine aggregates to the shear strength of reinforced concrete beams	Ade Lisantono*, Universitas Atma Jaya Yogyakarta	S	
15.55 - 16.05	323	Performance of Glue Laminated Timber Beams Composed of Sengon Wood (Albizia falcatara) and Coconut Wood (Cocos nucifera) with Nylon-Threads Reinforcement	Kusnindar Kusnindar*, Brawijaya University	S	
16.05 - 16.15	79	Stress-strain response of high-volume fly ash self-compacting concrete (HVFA-SCC) under uniaxial loading and its effect on the reinforced HVFA-SCC nominal strength	Stefanus Kristiawan*, Universitas Sebelas Maret	S	
16.15 - 16.25	340	Analysis of Floating House Platform Stability Using Polyvinyl Chloride (PVC) Pipe Material	Henny Adi*, UNISSULA	S	
16.25 - 16.55	30	Question and Answer			

Analytical study on creep shear failures of RC slender beams without web reinforcement

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[4]Department of Urban Innovation, Yokohama National University, Yokohama, Japan

Abstract. Sustained load problems, which can cause excessive deformation and severe damage to concrete structures, have been considered in current worldwide design codes by applying reduction factors on the compressive and tensile strength of concrete. A reduction factor in the shear design may also be required due to the decrease of shear-transfer action corresponding to the increases of the shear cracks opening. However, only a few studies are examining the effect of creep on shear performance of concrete structures, and the results are still inconclusive. As a complement to the previous experimental works, this study aims to investigate the effect of loading rate on the shear capacity of RC slender beams by non-linear finite element (FE) analysis. A space-averaged constitutive model with fixed multi-directional cracks was employed in the simulation of diagonal shear failure. The present study analytically examines the time-dependent effects on the beams under different loading rates until the delayed failure and compares the results with the previous experimental ones.

1 Introduction

Sustained load, which is practically experienced by every single structure, has received much attention in recent decades due to its severe effects. Depending on the duration of the sustained load and load intensity, nonlinear creep strain and micro-cracks can be potentially developed causing damage to the internal structure and reduction of concrete uniaxial compressive strength [1-4]. On the other hand, the basic creep created in tension is much lower than that of creating in compression; hence it is usually ignored in design [5]. In reinforced concrete (RC) structures, excessive deformation problems due to sustained load appear to be more dominant than direct reduction in bending capacity [6,7]. Plastic deformation was reported as being several times larger than the elastic deformation [8,9]. The existing cracks become wider under long-term loading [10] and make structures more vulnerable to aggressive environmental attacks.

Although many researchers on sustained load have been reported over the last decades, only some of them examined the effects on shear performance of RC structures. Time-

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PARALLEL CLASS G
DAY 2

Time (WIB)	Paper ID	Paper Title	Author Names	Category	Room
13.00 - 13.10		Moderator			Ruby 1
13.10 - 13.30	56	Shear-bond behaviour of Fibre Reinforced Polymer (FRP) rods and sheets	Ay Lie Han*, Universitas Diponegoro; Buntara S. Gan, Nihon University; Agung Budipriyanto, Institut Teknologi Sepuluh Nopember	Invited Speaker	
13.30 - 13.40	3	Structural Performance Evaluation of Vertical Housing Model due to Increased Seismic Loads in Semarang Indonesia	Arnie Widyaningrum*; Yanuar Haryanto; Nor Intang Setyo Hermanto, Universitas Jenderal Soedirman	S	
13.40 - 13.50	9	Building evaluation using two component acceleration time histories causes by shallow crustal fault earthquakes with maximum magnitude 7 Mw	Partono Windu*, Universitas Diponegoro	S	
13.50 - 14.00	34	Numerical Study on Beam-Column Connection of Cantilever Precast Concrete Beam with Asymmetric Shape under Static Load	Hakas Prayuda*; Robbi'al Rollyas Syandy; Bagus Soebandono; Taufiq Ilham Maulana; Martyana Dwi Cahyati, Universitas Muhammadiyah Yogyakarta	S	
14.00 - 14.10	88	Peak Ground Acceleration at Surface for Mataram City with a Return Period of 2500 Years using Probabilistic Method	Rian Mahendra Taruna*, Mataram University; Vrieslend Haris Banyunegoro, Stasiun Geofisika Mata Ie. BMKG; Gatut Daniarsyad, Earthquake and Tsunami Center of BMKG	G	
14.10 - 14.20	67	Flexural Performance of HPFRC Plates using PPC and Variation of Steel Fiber Composition	Krisnamurti Krisnamurti*, University of Jember; Agoes Soehardjono; Achfas Zacoeb, University of Brawijaya; Ari Wibowo, Universitas Brawijaya	S	
14.20 - 14.30	74	Effect of monotonic lateral load on the performance of reinforced graded concrete column	M. Mirza Abdillah Pratama*; Gista Prasiwi, Universitas Negeri Malang; Zhabrinna Zhabrinna, University of Birmingham; puput risdanareni, universitas negeri malang	S	
14.30 - 15.00		Question and Answer			

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