

## Kshitij C. Shrestha, Ph.D.

Associate Professor, Pulchowk Campus, Institute of Engineering, Tribhuvan University

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Associate professor with several years of experience on retrofitting and strengthening solutions for bridge superstructures, masonry and reinforced concrete structures. A motivated young professional with an aptitude for innovation and creative problem-solving.

Google Scholar: <https://scholar.google.co.jp/citations?user=jLMJr90AAAAJ&hl=en>

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=52063801000>

ResearchGate: [https://www.researchgate.net/profile/Kshitij\\_Shrestha3](https://www.researchgate.net/profile/Kshitij_Shrestha3)

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### EDUCATION

10/2008 - 9/2011	Ph.D. in Structural Engineering, Kyoto University, Japan
12/2004 - 1/2007	M.Sc. in Structural Engineering, Institute of Engineering, Tribhuvan University (TU), Nepal
10/2000 - 11/2004	B.E. in Civil Engineering, Institute of Engineering, Tribhuvan University (TU), Nepal

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### PROFESSIONAL EXPERIENCE

**PULCHOWK CAMPUS, INSTITUTE OF ENGINEERING, TRIBHUVAN UNIVERSITY, Lalitpur, Nepal,**

**From December 2020**

#### **Associate Professor**

Administrative role: Program Coordinator for MSc Structural Engineering of Department of Civil Engineering

Responsible for undergraduate courses: Design of RCC, Design of Steel Structures, Earthquake Resistant Design of Structures, Nonlinear Analysis of Structures, Building design project works

**NAGOYA CITY UNIVERSITY, Nagoya, Japan, 2017-2020**

#### **Research Assistant Professor**

*Project: Evaluation and Mitigation of Seismic Risk for Composite Masonry Buildings in Bhutan funded by JST/JICA SATREPS project (Grant No. JPMJSA1611) and the Royal Government of Bhutan*

This project as its major outcome gives a multi-facility state-of-the-art test facility in the South Asian region in the field of structural and seismic engineering. My responsibilities for the first year of the project involved construction management of the test facility, both full-scale static test and shaking table system, from the pre-construction planning to actual execution channeled through task based approach, encapsulating the unforeseen hindrances and challenges to post-construction analysis. I was responsible for the design and inspection of the whole construction work for the project. The second and third years' work involved experimental works at the test facility, where I took the responsibility of the design and execution of the research-oriented works involved. The works have already been presented at several international conferences and some portions of the work have already been published in peer-reviewed journals.

<http://www.satrebs-bhutan.jp/>

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### **QATAR UNIVERSITY, Doha, Qatar, 2015-2016**

#### **Post-doctoral Researcher**

*Project: Strengthening of corrosion-damaged reinforced concrete structures with textile-reinforced mortars (TRM) funded by Qatar National Research Fund Grant No.: NPRP 7-1720-2-641*

My responsibilities for the first year of the project involved thorough literature reviews on existing relevant methodologies, review standards for proper material characterizations, and perform material characterization tests. For the second year of the project, my work included experimentations and numerical computations for large scale beam specimens to study effectiveness of the proposed strengthening technique on corrosion-damaged reinforced concrete structures.

*Project: Developing cellular concrete for load bearing structures funded by Qatar University Grant No. QUUG-CENG-CAE-13/14-9*

My responsibilities involve mentoring of graduate student Mr. Mustafa Ahmed for experimentation planning and follow the standard test methodologies for material characterization.

### **UNIVERSITY OF NEVADA, Reno, USA, 2013-2014**

#### **Visiting Research Scholar/Research Associate**

*Project: Design of highway bridge columns subjected to near-fault earthquakes funded by the Federal Highway Administration Grant No. DTFH61-07-C-00031*

My task in the project involved performance evaluation of advanced materials for control of post-earthquake (near-field) damage in four-span bridges through numerical modeling. Some portion of the work has already been published in peer-reviewed journal.

<http://wolfweb.unr.edu/homepage/saiidi/FHWA/NearFaultDesign/nearfaultdesignindex.html>

*Project: Evaluation of Seismic Performance of Bridge Columns w/ Couplers and Development of Design Guidelines*

My task in the project involves starting from preparation of comprehensive catalogue of different mechanical couplers and splices and develop a state-of-the-art rating, followed by evaluation of their performance in bridges. Further, I also contributed to develop design equations that are parallel for bridge columns with couplers in the AASHTO specification and LRFD seismic bridge design guide.

<http://wolfweb.unr.edu/homepage/saiidi/USDOT/index.html>

*Project: Sustainable highway bridges with novel material and deconstructible components funded by the National Science Foundation Grant IIP-1114406*

The project is a collaborative research between University of Nevada (Dr. M. Saiidi) and Kyoto University (Dr. Y. Araki). My role in this project was to act as an expert on CuAlMn superelastic shape memory alloy and work with Dr. Saiidi and Mr. S. Varela (PhD student) on project implementation and execution.

<http://wolfweb.unr.edu/homepage/saiidi/NSF-PFI/>

### **KYOTO UNIVERSITY, Kyoto, Japan, 2011-2014**

#### **Post-doctoral Researcher**

*Project: Development and application of long-life concrete structural system with crack repair, Research project number - 4360226*

This is a collaborative research between Nihon University (Dr. S. Pareek) and Kyoto University (Dr. Y. Araki). In this project, my role, as researcher, under Dr. Araki and Dr. Pareek, involved planning and design of several experimental works on reinforced concrete beams with challenges of activated repair techniques

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on concrete. The works have already been presented at several international conferences and some portions of the work have already been published in peer-reviewed journals.

*Project:* Development of seismic retrofit techniques for conservation, regeneration, and use of historic masonry constructions, Research project number - 20360253

This is the project I was involved during my PhD work. My responsibilities involved work from planning through design and development with further up to implementation, experimentation/numerical simulation and final presentations, with several works involving application of innovative and high performance materials for masonry retrofitting. As an example of excellent execution of the project work, I, as a first author, published six peer-reviewed journal papers under this project.

### **SUPERVISING/CO-SUPERVISING/MENTORING OF GRADUATE STUDENTS:**

- Mr. Rabin Thapa on topic "Gapped-Inclined Bracing (GIB) System as a Retrofitting Strategy for Soft-Story Buildings in Nepal" (2022-2023)
- Mr. Prasanna Adhikari on topic "Seismic Performance Enhancement Using Expanded Polystyrene (EPS) Core Reinforced Concrete Sandwich Panel (RCSP) Over Brick Infill Structure" (2022-2023)
- Mr. Neeraj Bhandari on topic "EFFECTIVENESS OF STONE CONCRETE BLOCK MASONRY TO RESIDENTIAL BUILDINGS THROUGH NUMERICAL SIMULATION" (2022-2023)
- Mr. Shuvam Pyakurel on topic "INFLUENCE OF TYPICAL TIMBER JOIST-TO-WALL CONNECTIONS ON THE PERFORMANCE OF UNREINFORCED MASONRY STRUCTURES OF THE KATHMANDU VALLEY" (2022-2023)
- Mr. Sabin Ban on topic "SEISMIC PERFORMANCE ASSESSMENT OF STONE MASONRY BUILDINGS: A CASE STUDY" (2021-2022)
- Mr. Lalit Bhatt on topic "SEISMIC VULNERABILITY FUNCTION GENERATION FOR RESIDENTIAL BUILDINGS OF A SITE IN HETAUDA" (2021-2022)
- Mr. Sasin Prajapati on topic "SEISMIC PERFORMANCE EVALUATION OF TWO TIERED BRICK MASONRY PAGODA TEMPLE: A CASE STUDY ON NARSINGHA TEMPLE" (2021-2022)
- Ms. Suraksha Bhandari on topic "Problems in Residential Space facing Occupancy Change and Developing a Template for Qualitative Risk Assessment: A Case Study of Butwal City" (2021-2022)
- Mr. Dipesh Pokharel on topic "Comparison Of Different Machine Learning Algorithms for Landslide Susceptibility Mapping: A case study in the Bhotekoshi Rural Municipality, Nepal" (2021-2022)
- Mr. Pramod Tiwari on topic "SEISMIC VULNERABILITY ASSESSMENT OF BRIDGES USING FRAGILITY CURVES" (2020-2021)
- Ms. Krishna Shrestha on topic "EMERGENCY RESPONSE PLANNING IN THE HIGH RISE BUILDINGS OF KATHMANDU MUNICIPALITY" (2020-2021)
- Mr. Kailash Chaudhary on topic "SEISMIC VULNERABILITY ASSESSMENT OF A RESIDENTIAL STEEL BUILDING CONSIDERING SOIL STRUCTURE INTERACTION" (2020-2021)
- Ms. Phuntsho Wangmo on topic "Protection of traditional Bhutanese architecture made with rammed earth and stone masonry techniques from earthquake damage" (2017-2021)

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- Mr. Pema on topic "SEISMIC EVALUATION AND RETROFITTING OF TRADITIONAL BHUTANESE STONE MASONRY RESIDENTIAL HOUSE" (2019-2020)
- Mr. Ahmed Shalaby on topic "Shear strengthening of reinforced concrete beams with textile-reinforced mortars" (2016)
- Mr. Mohammad Shekaib Afzal on topic "Flexural strengthening of reinforced concrete beams with textile-reinforced mortars" (2015-2016)
- Mr. Mustafa TH Hadi Ahmed on topic "Developing cellular concrete for load bearing structures" (2015)
- Mr. Yuki Miura on topic "Network healing on concrete beams with super-elastic alloy reinforcing bars" (2012-2014)
- Ms. Nao Maekawa on topic "Shaking table test on structural steel frame with Cu-based super-elastic alloy bars as tension braces" (2012-2013)
- Mr. Shinnousuke Kaneuchi on topic "Polymer-cement paste as bonding agents on masonry retrofitting" (2010-2011)
- Mr. Hiroki Sekine on topic "Pinning retrofit technique for masonry retrofitting with polymer cement paste as bonding agent" (2010-2011)

### Reviewer for International Journals

- Reviewed manuscripts for international journals: *Construction and Building Materials, Engineering Structures, Polymers, Journal of Building Engineering, Earthquakes and Structures, Experimental Techniques, Journal of Earthquake Engineering, ASCE Journal of Composites for Construction, Journal of Intelligent Material Systems, Journal of Testing and Evaluation, Innovative Infrastructure Solutions*

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## TEACHING EXPERIENCE

- 12/2020 – Present     **Associate Professor** at Tribhuvan University, Institute of Engineering, Pulchowk Campus, Nepal. Teaching courses: Design of Reinforced Concrete Structures, Design of Steel and Timber Structures, Earthquake Resistant Design of Structures, Nonlinear Analysis of Structures
- 4/2017 – 10/2020     Lectures at Nagoya City University, Japan to undergraduate students on Structural Engineering and Architecture Course
- 1/2014 – 10/2014     **Teaching assistant** at University of Nevada, Reno, USA. As a teaching assistant, my responsibilities were to teach several classes and assist Dr. M. Saiidi.
- Courses:**
- CEE 723 Advanced Reinforced Concrete (Spring semester)
  - CEE 480/680 Structural Concrete Design (Fall semester)
- 5/2006 – 9/2007     **Permanent Lecturer** at Purbanchal University, Acme Engineering College, Kathmandu, Nepal. As a permanent lecturer, my responsibilities were to develop lecture materials, give lectures, prepare and conduct exams, and supervise senior students' projects.

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### Taught Courses:

- BEG 157 CI Applied Mechanics II (Dynamics)
- BEG 363 CI Design of Steel and Timber Structures
- BEG 456 CI Design of Reinforced Concrete Structures

### Senior Project Supervision

- BEG 458 CI Civil Engineering Project: Supervision of two different group project works on “Seismic resistant design of multi-storey building”
- Main trainer/instructor on Structural Analysis Program (SAP2000); Coordinated and presented a 6 hours lecture with a course project on a two-storey RCC framed building; analysis and design using Finite Element Program SAP2000

6/2007 – 9/2007

**Part-time Lecturer** at Purbanchal University, Himalayan Institute of Science and Technology, College of Engineering, Kathmandu, Nepal. In this role, I was responsible for preparation and delivery of lecture, conduct of exams.

### Taught Courses:

- BEG 150 CI Applied Mechanics

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### AWARDS

#### RESEARCH GRANTS AWARDED

- 2023 - 2025 UGC Collaborative Research Grant as a Co-PI  
Topic: Porous concrete and its application to the pavement system to mitigate the high urban runoff complication (<https://www.ugcnepal.edu.np/>)  
Grant amount: 2,000,000 NRs (US\$14000)
- 2013 - 2014 Long-term Overseas Research Grant by The Kyoto University Foundation ([http://www.kyodai-zaidan.or.jp/result/pdf/25/seika\\_25\\_3-shrestha-kshitij.pdf](http://www.kyodai-zaidan.or.jp/result/pdf/25/seika_25_3-shrestha-kshitij.pdf))  
Topic: Assessment on mechanical properties of Cu-Al-Mn super-elastic alloy bars and their possible seismic applications  
Grant amount: 2,500,000 JPY (US\$25000)
- 2011 - 2012 Overseas Travel Grant for 7AMCM Conference by The Kyoto University Foundation ([http://www.kyodai-zaidan.or.jp/result/selection\\_h23.html](http://www.kyodai-zaidan.or.jp/result/selection_h23.html))  
Topic: Finite element study on pinning retrofitting technique of masonry walls with openings subjected to in-plane shear load  
Grant amount: 200,000 JPY (US\$2000)
- 2010 - 2011 Research Grant for young researchers by The Obayashi Foundation ([http://www.obayashifoundation.org/library\\_post/618](http://www.obayashifoundation.org/library_post/618))  
Topic: Study on seismic retrofitting techniques of historic masonry buildings with high performance materials  
Grant amount: 300,000 JPY (US\$3000)

#### ACADEMICS AND FELLOWSHIP AWARDS

- 2012 **Best paper award** for young researchers at the 34th Japan Concrete Institute (JCI) Annual Conference for paper entitled "Feasibility of self-repair network system in concrete beams with Cu-Al-Mn superelastic alloy bars" [C3]
- 2011 - 2014 **Post-doctoral fellowship** from A-Step program provided by Japan Science and Technology Agency (JST)
- 2008 - 2010 **Academic scholarships** from Kyoto University Global Center of Excellence (GCOE) Program provided by Japan Society for Promotion of Science (JSPS) for PhD Program
- 2000 - 2007 **Academic scholarships** from Government of Nepal for Bachelor in Civil Engineering (Ranked among top 2% in entrance examination) and MSc in Structural Engineering

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### PROFESSIONAL MEMBERSHIPS AND SKILLS

#### PROFESSIONAL MEMBERSHIPS AND CERTIFICATIONS

- Architectural Institute of Japan (AIJ) Member #1720302
- Japan Concrete Institute (JCI) Member #1002121
- Nepal Engineers' Association (NEA) Life Member #7655
- Nepal Engineering Council (NEC) License #3809, Civil, "A" Category Registered Engineer
- Structural Engineer's Association (SEANep) Member #222

#### COMPUTATIONAL/DESIGN SKILLS

- Engineering applications: DIANA, OpenSees, MATLAB, SAP2000, XTRACT
- Design: AutoCAD, Adobe Illustrator

#### LANGUAGE SKILLS

- English: Native level; IELTS Overall Band 8.0
- Japanese: Very good; Not native level
- Nepali: Native level
- Hindi (Indian): Native level

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### REFERENCES

1. Dr. Yoshikazu Araki, Professor, Graduate School of Engineering, Kyoto University, C1-382, Katsura, Nishikyo, Kyoto, 615-8540, Japan  
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Phone: +81-75-383-3294
2. Dr. Takayoshi Aoki, Professor, Graduate School of Design and Architecture, Nagoya City University, Nagoya 464-0083, Japan  
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3. Dr. Usama Ebead, Professor, Department of Civil and Architectural Engineering, College of Engineering, Qatar University, Doha 3713, Qatar  
Email: [uebead@qu.edu.qa](mailto:uebead@qu.edu.qa)  
Phone: +974-4403-4189  
Web: <http://qufaculty.qu.edu.qa/uebead/>
4. Dr. M. Saiid Saiidi, Professor (Retired), Department of Civil and Environmental Engineering, University of Nevada, Reno, Nevada 89557-0258, USA  
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Phone: +1-775-784-4839  
Web: <http://wolfweb.unr.edu/homepage/saiidi/>
5. Dr. Prem N. Maskey, Professor, Department of Civil Engineering, Tribhuvan University, Institute of Engineering, Pulchowk Campus, Lalitpur, Nepal  
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6. Dr. Sanjay Pareek, Professor, Department of Architecture, Nihon University, Koriyama, Fukushima 963-8642, Japan  
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### PUBLICATIONS

#### REFEREED INTERNATIONAL JOURNAL PAPERS

- [J1] Santosh Aryal, Smriti Dahal, Suraj Thapa, Sujal Koirala, Suniti Shrestha, Sushil Raj Pandey, **Kshitij C Shrestha**, Enhancing code compliance of non-engineered and pre-engineered buildings in urban Nepal through retrofitting interventions in RC construction, *Bulletin of Earthquake Engineering*, August 2025. <https://doi.org/10.1007/s10518-025-02252-4>
- [J2] Nima Sthapit, **Kshitij C. Shrestha**, Prem N. Maskey, Diagrid Systems In High-rise Reinforced Concrete Frame Structures, *ASCE Journal of Structural Design and Construction Practice*, 2025. (Accepted for publication: 27<sup>th</sup> June, 2025).
- [J3] Aayush Shrestha, Ashish Sharma, Anuj Chalise, Aakriti Chalise, Takayoshi Aoki, **Kshitij C. Shrestha**, In-plane Shear Strength Characteristics Of Masonry Walls With Varying Mortar Types And Aspect Ratios: An Experimental And Numerical Study, *ASCE Journal of Structural Design and Construction Practice*, 2025. (Accepted for publication: 23<sup>rd</sup> July, 2025)
- [J4] Rabin Thapa, **Kshitij C. Shrestha**, Gapped Inclined Bracing (GIB) retrofit for soft-story vulnerable reinforced concrete residential buildings in Nepal, *Structures*, Vol. 74, 108548, April 2025. <https://doi.org/10.1016/j.istruc.2025.108548>
- [J5] Rochak Adhikari, Nabin Gautam, Nischal Guragai, Abhushan Subedi, **Kshitij C Shrestha**, Dynamic Characterization and Fragility Assessment of Nepalese MultiTiered Temples, *International Journal of Architectural Heritage*, May 2025. <https://doi.org/10.1080/15583058.2025.2495964>
- [J6] Sabin Ban, **Kshitij C. Shrestha**, Subash Bastola, Seismic performance assessment of stone masonry buildings: Efficacy of various strengthening elements, *Journal of Building Engineering*, Volume 96, 2024, 110380, ISSN 2352-7102, <https://doi.org/10.1016/j.jobbe.2024.110380>
- [J7] Jiro Takagi, Takeshi Masui, Yoshikazu Araki, Kohju Ikago, Sanjay Pareek, Sanghun Lee, Yusuke Suzuki, Ryuta Enokida, Jia Guo, **Kshitij C Shrestha**, Iori Fukuda, Hayato Miyagawa, Development of Low-cost Rolling Base Isolation System for Seismic Protection of Rubble Stone Masonry Buildings in Himalayan Mountain Range, *Front. Built Environ.*, 10, 2024. DOI:10.3389/fbuil.2024.1495051
- [J8] Suzuki Y, Tada M, Enokida R, Takagi J, Araki Y, Pareek S, Lee S, Ikago K, Guo J, **Shrestha KC**, Fukuda I and Masui T (2024) Feasibility of sliding base isolation for rubble stone masonry buildings in the Himalayan Mountain range. *Front. Built Environ.* 10:1432912, 2024. doi: 10.3389/fbuil.2024.1432912
- [J9] Poudel, O., **Shrestha, K.C.** Enhancing earthquake resilience with strategically arranged inclined columns in multistoried RCC structures. *Innov. Infrastruct. Solut.* 9, 223 (2024). <https://doi.org/10.1007/s41062-024-01540-3>
- [J10] A.P. Gupta, A. Sapkota, S. Shrestha, A. Shrestha, A. Chapagain, S. Khanal, **K.C. Shrestha**, Strengthening non-engineered building using vegetal FRCM retrofitting: A numerical modeling approach for seismic assessment, *Structures*, Vol. 62, 106244, April 2024. <https://doi.org/10.1016/j.istruc.2024.106244>

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- [J11] S. Prajapati, **K.C. Shrestha**, M. Shakya, Seismic fragility evaluation of the Nepalese pagoda temple: A case study of Laxmi Narsingha temple, *Journal of Building Engineering*, 108993, March 2024. <https://doi.org/10.1016/j.jobbe.2024.108993>
- [J12] B. Devkota, A. Dahal, B. Sedhain, A.M. Karki, A. Pokhrel, T. Gyawali, **K.C. Shrestha**, RC Row Houses in Nepal and their Vulnerability to Impending Earthquakes. *Journal of Inst. Eng. India Series A* 105, 195–207, February 2024. <https://doi.org/10.1007/s40030-024-00781-w>
- [J13] K. Chaudhary, **K.C. Shrestha**, O. Acharya, Vulnerability assessment of residential steel building considering soil structure interaction, *Earthquakes and Structures*, Vol. 25, Number 2 pp. 79-87, August 2023.
- [J14] O. Acharya, A. Dahal, **K.C. Shrestha**, Confined masonry in seismic regions: Application to a prototype building in Nepal, *Structures*, Vol. 47, pp. 2281-2299, December 2022.
- [J15] B. Ban, J.K. Shrestha, R. Pradhananga, **K.C. Shrestha**, Three-dimensional analysis of flexible pavement in Nepal under moving vehicular load, *Advances in Computation Design*, Vol. 7, No. 4, pp. 371-393, October 2022.
- [J16] P. Wangmo, **K.C. Shrestha**, T. Aoki, Exploratory study of rammed earth walls under static element test, *Construction and Building Materials*, Vol. 266, pp. 121035, October, 2020.
- [J17] P. Wangmo, **K.C. Shrestha**, T. Aoki, M. Miyamoto, P. Pema, Strengthening Strategies for Existing Rammed Earth Walls Subjected to Out-of-Plane Loading. *CivilEng* 2020, 1, 229-242.
- [J18] **K.C. Shrestha**, T. Aoki, M. Miyamoto, P. Wangmo, P. Pema, In-Plane Shear Resistance between the Rammed Earth Blocks with Simple Interventions: Experimentation and Finite Element Study, *Buildings*, Vol. 10, No. 3, 57, March, 2020.
- [J19] **K.C. Shrestha**, T. Aoki, M. Miyamoto, P. Wangmo, P. Pema, J. Zhang, N. Takahashi, Strengthening of rammed earth structures with simple interventions, *Journal of Building Engineering*, Vol. 29, 101179, May, 2020.
- [J20] A. Younis, U. Ebead, **K.C. Shrestha**, Tensile characterization of multi-ply fabric-reinforced cementitious matrix strengthening systems, *Structural Concrete*, Vol. 21, No. 2, pp. 713-723, April 2020.
- [J21] U. Ebead, A. Refai, **K.C. Shrestha**, A. Nanni, Soffit and U-wrap fabric-reinforced cementitious matrix strengthening for reinforced concrete beams, *ACI Structural Journal*, Vol. 116, No. 2, 12pp, March, 2019.
- [J22] U. Ebead, **K.C. Shrestha**, H. Saeed, Development of high-strength lightweight non-autoclaved aerated concrete, *Proceedings of the Institution of Civil Engineers - Structures and Buildings*, March, 2019.
- [J23] P. Wangmo, **K.C. Shrestha**, M. Miyamoto, T. Aoki, Assessment of out-of-plane behavior of rammed earth walls by pull-down tests, *International Journal of Architectural Heritage*, Vol. 13, No. 2, pp. 273-287, February, 2019.
- [J24] S. Kise, A. Mohebbi, M.S. Saiidi, T. Omori, R. Kainuma, **K.C. Shrestha**, Y. Araki, Mechanical splicing of superelastic Cu-Al-Mn alloy bars with headed ends, *Smart Materials and Structures*, Vol. 27, No. 6, 065025, May, 2018.

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