

CURRICULUM VITAE

Rabab A. Allouzi, Ph.D., A.M.ASCE

Education

- **PhD in Civil Engineering (Structural Engineering)** 2010-2015
Purdue University, USA
Cumulative GPA is **4.0/4.0**
(Golden Key Reward for academic achievement)
- **M.Sc. in Civil Engineering (Structural Engineering)** 2008-2010
University of Jordan, Jordan
Cumulative GPA is **4.0/4.0**
Rank:1/20
- **B.Sc. in Civil Engineering** 2003-2007
University of Jordan, Jordan
Cumulative GPA is **3.9/4.0**
Rank:1/150

Academic Affiliation

Associate Professor

Profession Affiliation

Jordan Engineers Association (2008-present).

Teaching Experiences

- **University of Jordan, 2015-Present**
- **Purdue University, 2013-2014**
“Nellie S. Munson Award is received in April, 30, 2014”
Teaching Assistant for “Finite Elements In Elasticity”.
Teaching Assistant for “Structures Analysis II” class.
Teaching Assistant for “Structures Analysis I” class.
- **Purdue University, 2012-2013**
Grader for “Structural Dynamics” class.
- **University of Jordan, 2008-2010**
Teaching assistant for “Structures Analysis II” class.
Teaching assistant for graduation projects.

Profession Experience

- **Consultant Structural Engineer, 2018**
checked the structural drawings of the College of Shareaa at the University of Jordan
- **Consultant member of a committee at the Ministry of housing and works in Jordan, 2018-2019**
studies the proposed material of CFRP to be used to replace steel rebar for structural uses
- **Structural Engineer at University of Jordan, 2008- 2010**
participated in the design of the building of Finance Administration College in Aqaba campus/the University of Jordan.
- **Structural Engineer at Consolidated Consultant Company, MAR. 2008-AUG. 2008**
participated in the design of ten structures including school buildings, dormitory, and auditorium footings.

Ambassador

Bentham Open Ambassador

Associate Editor

ASCE-Practice Periodical on Structural Design and Construction

Reviewer

- ACI structural Journal
- ASCE-Practice Periodical on Structural Design and Construction
- Advances in Structural Engineering
- KSCE Journal of Civil Engineering
- International Journal of Civil Engineering
- The Open Construction of Building & Technology

Advisory Committee

34th World Conference on Applied Science, Engineering and Technology, 2021, Dubai

2nd International Conference on Advancing Knowledge from Multidisciplinary Perspectives in Engineering & Technology, 29th & 30th April 2021 in Turkey.

Keynote Speaker

International Online Conference on Innovative Science, Engineering, and Technology (IOCISSET-2020)

Publications

Allouzi, R., 2021. New Slenderness Limitations for Shear Strength Estimation of Reinforced Concrete Walls. Practice Periodical on Structural Design and Construction, 26(1), p.04020066.

Salman, D., **Allouzi, R.** and Shatarat, N., 2021. Punching shear behaviour of flat slabs with different reinforcement schemes: openings and rectangularity effects. International Journal of Structural Integrity.

Allouzi, R., 2020. Behavior of Foamed Concrete Slabs Using Various Reinforcement Schemes. ACI Structural Journal, 117(5).

Allouzi, R., Al Qatawna, A. and Al-Kasasbeh, T., 2020. Lightweight Foamed Concrete Mixture for Structural Use. *ACI Materials Journal*, 117(3), pp.99-109.

Abu-Shamah, A. and **Allouzi, R.**, 2020. Numerical investigation on the response of circular double-skin concrete-filled steel tubular slender columns subjected to biaxial bending. *Steel and Composite Structures*, 37(5), pp.533-549.

Abdel-Jaber, M., Abdel-Jaber, M.S., Beale, R.G., **Allouzi, R.** and Shatarat, N.K., 2020. Properties of tube and fitting scaffold connections under cyclical loads. *Journal of Constructional Steel Research*, 168, p.106008.

Shahrour, N. and **Allouzi, R.**, 2020. Shear behavior of captive-and short-column effects using different basalt aggregate contents. *Journal of Building Engineering*, p.101508.

Toqa, A.K. and **Allouzi, R.**, 2020. Behavior of polypropylene fiber reinforced foam concrete beams laterally reinforced with/without glass fiber grid. *International Journal of Structural Integrity*.

Allouzi, R., Al-Azhari, W. and **Allouzi, R.**, 2020. Conventional Construction and 3D Printing: A Comparison Study on Material Cost in Jordan. *Journal of Engineering*, 2020.

Alkloub, A. and **Allouzi, R.**, 2019. Interaction between infill walls and reinforced concrete frames after column removal. *Proceedings of the Institution of Civil Engineers-Structures and Buildings*, pp.1-14.

Najmi, A.Q., **Allouzi, R.**, and Al-Ateyat, A., 2019. Analysis of reinforced concrete plates with swimmer bars as punching shear reinforcement. *Proceedings of the Institution of Civil Engineers-Structures and Buildings*, pp.1-14.

Allouzi, R., 2019. 3D Printing of Nanomaterials for Concrete Construction. *International Journal of Advances in Mechanical and Civil Engineering (IJAMCE)*, 6(2):20-23.

Allouzi, R. and Irfanoglu, A., 2018. Development of new nonlinear dynamic response model of reinforced concrete frames with infill walls. *Advances in Structural Engineering*, 21(14): pp. 2154-2168.

Allouzi, R. and Alkloub, A., 2018. New nonlinear dynamic response model of squat/slender flanged/non-flanged reinforced concrete walls. *Structural Concrete*, 19(2): pp.582-596.

Allouzi, R. and Irfanoglu, A., 2018. Finite Element Modeling of Reinforced Concrete Frames with Masonry Infill Walls Subjected to Lateral Load Reversals. *The Masonry Society Journal*, 2018, 36 (1):pp. 33-46.

Allouzi, R., 2018. Behavior of Slender RC Columns with Inclination. *Proceedings of the Institution of Civil Engineers-Structures and Buildings*, accepted, Ahead of Print.

Allouzi, R., Alkloub, A., Naghawi, H. and Al-Ajarmeh, R., 2018. Fracture Modeling of Concrete in Plain and Reinforced Concrete Members. *International Journal of Civil Engineering*, accepted, Ahead of Print.

Allouzi, R., Bodour, W.A., Alkloub, A. and Tarawneh, B., 2019. Finite-element model to simulate ground-improvement technique of rapid impact compaction. *Proceedings of the Institution of Civil Engineers-Ground Improvement*, 172(1): pp. 44-52.

Allouzi, R. and Alkloub, A., 2017. Failure Mode Identification Of Reinforced Concrete Coupling Beams. Jordan Journal of Civil Engineering, 11(3).

Allouzi, R. and Irfanoglu, A., 2019. Failure Mode Identification of Masonry Infilled RC Frames. Emirates Journal for Engineering Research, 2019, 24(1)

Alkloub, A. and **Allouzi, R.**, 2018. Modelling of the Flexural Stiffness of Concrete-Steel Beams under Negative Moment. Proceedings of the Institution of Civil Engineers-Structures and Buildings, accepted, Ahead of Print.

Alkloub, A., **Allouzi, R.**, and Naghawi, H., 2019. Numerical Nonlinear Buckling Analysis of Tapered Slender Reinforced Concrete Columns. International Journal of Civil Engineering, accepted.

Alkloub, A., **Allouzi, R.**, Alkloub, H. and Al-Ajarmeh, R., 2018. A Full 3-D Finite Element Analysis of Group Interaction Effect on Laterally Loaded Piles. Modern Applied Science, 12(5): pp. 9-21.

Conferences

Allouzi, R. and Alkloub, A., 2020. 3D Printing of Foamed Concrete. The International Online Conference on Innovative Science, Engineering, and Technology, online.

Allouzi, R., Irfanoglu, A., and Haikal, G., 2014. Non-linear finite element modeling of RC frame-masonry wall interaction under cyclic loadings. Proceedings of the 10th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Anchorage, AK.

Allouzi, R., 2018. 3D Printing of Nanomaterials for Concrete Construction. 519th International Conference of Innovative Engineering Technologies, IRES, London, United Kingdom.

Al-Qatawna, A. and **Allouzi, R.**, 2019. Flexural Behavior of One-Way Fiber Foam Concrete Slabs Reinforced with Glass Fiber Grid. The Second Balq'a International Engineering Conference (BIEC), Dead sea, Jordan.

Awards and Memberships

- **Nellie S. Munson Award**, 2014.
In recognition of excellence in graduate instructors and teaching assistants in Civil Engineering at Purdue University.
- **International Bridge Contest**, Third place, 2011.
In this contest, students build and test to failure scaled models of trusses and/or bridges made with simple daily-use materials. It included universities from US, Japan, and Turkey.
- **Golden Key Membership**, 2011.
This reward is offered due to my academic achievement at Purdue University.
- **PhD scholarship** 2010-2015.
- **Master scholarship** 2008-2010.
- Membership in the Student Council of University of Jordan for the year 2006-2007.

Funded Research

1. A grant of 12,600 US\$ from Scientific Research Deanship at the University of Jordan to conduct a research entitled “**Short-Term and Long-Term Deformations**”

of Foam Concrete Slabs Reinforced with Glass Fiber Grids and Polypropylene Fibers“.

The research duration is two years and includes the following tests:

- a- Six full scale slabs were tested for flexural strength
- b- Six full scale slabs were placed to measure short-term and long-term deflections under dead and live loads

The research significance is to test foam concrete slabs reinforced with glass fiber grid and PP fibers selected as an innovative system to build economic, energy efficient, and safe houses due to the following properties of the materials:

- a- Foam concrete: light weight, thermal and acoustic insulation, and flowable
 - b- Glass fiber grid: fire resistance and light weight
 - c- PP fibers: polypropylene fibers help reduce shrinkage and control cracking, light weight, fire resistance, and flexible
2. A grant of 25,000 US\$ from Scientific Research Deanship at the University of Jordan to conduct a research entitled “ **Structural Behavior of bidirectional steel anchors in concrete**“.

Supervised Master's theses

Safaa Sawalqa (not graduated yet)
Zaid Sandooqa (not graduated yet)
Bayan Taisser (Graduated 2021)
Ghadir Abadi (Graduated 2021)
Hanadi Zubadi (Graduated 2021)
Alaa-aldden Hassoun (Graduated 2021)
Hadeel Majali (Graduated 2021)
Maria Raqad (Graduated 2020)
Nayef Sumer (Graduated 2020)
Othman Hammad (Graduated 2020)
Aya Qatawneh (Graduated 2019)
Toqa Kasasbeh (Graduated 2019)
Awni Abu-Shameh (Graduated 2019)
Norhan Shahrour (Graduated 2019)
Aroob Al-Ateyat (Graduated 2018)

Courses Taught

Graduate Courses

- Finite Element Method
- Advanced Numerical Methods
- Scientific Research Methodology

Undergraduate Courses

- Strength of Materials
- Structures I
- Structures II
- Structures III
- Reinforced Concrete Design I
- Reinforced Concrete Design II
- Reinforced Concrete Design III
- Introduction to Earthquake Engineering
- Statics

Workshops

- ACI Concrete Conference on Materials & Design, Amman, Jordan, 2019.
- Post-Disaster Safety Assessment Program (Cal EMA), 2011.
- Application of Software Analysis and Design of High Rise Buildings (ETABS 9) in the Engineers Training Center in JEA.
- Design of Concrete Constructions in the Engineers Training Center in JEA.
- Primavera III in the Engineers Training Center in JEA.

PhD Dissertation

Al Louzi, R., 2015. Seismic in-plane response of reinforced concrete frames with masonry infill walls. Doctoral Dissertation, Purdue University.

This dissertation studied:

1. A new methodology to identify the failure mode of reinforced concrete frames (RC) due to the presence of masonry infill walls is established.
2. All possible failure mechanisms are defined and new hysteresis model for each mechanism is created to present the system as a single degree of freedom model and investigate its ultimate damage state under ground shaking. This was delivered by coding the proposed hysteresis model and dynamic equilibrium in MATLAB and used it to perform a seismic assessment study.
3. Non-linear Finite Element models were developed using ABAQUS where the element discretization and constitutive models of materials and interfaces were selected carefully to capture all expected modes of failures of components and interfaces.

Master Thesis

Al Louzi, R., 2010. Effect of vertical irregularities on the response of R/C frame structures subjected to a wide range of earthquake excitations. Master's Thesis, The University of Jordan.

This thesis studied:

1. The behavior of intermediate rise building with vertical irregularities (soft story) and the dynamic response to various earthquake excitations with different magnitudes, epicenter distances, and soil conditions. The structure considered for the study has a dual system for lateral resistance.
2. The effect of changing the permissible ratio of irregularity between adjacent stories from what is required by seismic codes is studied.

The structural analysis and design of the building was performed using ETABS and SAFE.

Softwares

- ABAQUS
- Matlab
- ETABS, SAFE, and SAP
- STAAD
- AutoCAD
- MathCAD

- **“Non-linear Finite Element Analysis”, 2012**

Finite element method is used to incorporate the effect of geometric nonlinearity on the response of a column subjected to axial and lateral pressure. Total and updated formulation of the problem was derived, but only the total Lagrangian formulation was used to code the problem in Matlab. The effect of aspect ratio, mesh size, lateral to gravity pressure and the element type is studied. Results were compared with ABAQUS outcomes. The solution was approximated for continuum column into system of rigid-linked bars with rotational and linear springs. The ratio of rotational to linear stiffness effect was studied for slender and short columns.

- **“Behavior of Concrete Frames with Masonry Infill Walls”, 2012**

- **Case study of Non-linear Finite Element Analysis with Contact Implementation**

Matlab code is prepared to implement the total lagrangian equations besides the contact constraint implementations. ABAQUS is used to judge the Matlab code results. Many factors contribute into the problem is studied, namely; coupling versus contact interface, openings in infill wall, the number of stories, and vertical traction effect.

- **“Experimental Evaluation of Bottle-Shaped Struts of Plain Concrete”, 2011**

Experimental work was conducted at Bowen Lab (large-scale lab) to evaluate the effect of bottle-shaped strut width into its strength. The results show that strength reduction of bottle-shaped struts may be justified but the rationale used by ACI 318 for the reduction is incorrect.