

Kevin Q. Walsh, PhD, PE



kwalsh8@nd.edu • researchgate.net/profile/Kevin_Walsh19 • +1.513.445.8406

SUMMARY

- Director of Resiliency and Sustainability of Engineering Systems and Assistant Teaching Professor at the University of Notre Dame (Indiana, USA); h-index = 7 per Google Scholar (search for KQ Walsh)
- Concurrent position as Senior Structural Engineer at Frost Engineering & Consulting (Mishawaka, Indiana, USA); Licensed Professional Engineer (PE) with ~9 years of NCEES recognized equivalent full-time design experience

EDUCATION

UNIVERSITY OF AUCKLAND – Auckland, NZ

- [Doctor of Philosophy in Civil Engineering](#), September 2016
 - Doctoral Thesis: [Inventory and seismic assessment of earthquake-vulnerable masonry and concrete buildings](#), supervised by Jason M. Ingham, PhD, MBA

UNIVERSITY OF NOTRE DAME – Notre Dame, IN

- Master of Science in Civil Engineering, May 2009
 - Masters Thesis: Behavior and design of unbonded post-tensioning strand/anchorage systems for seismic applications, supervised by Yahya C. Kurama, PhD, PE

UNIVERSITY OF DAYTON – Dayton, OH

- Bachelor of Civil Engineering, Minor in Business Administration, May 2007
 - 20 credits in architecture and foreign language at Sinclair Community College

REGISTRATIONS & CERTIFICATIONS

- Registered Professional Engineer (Ohio PE 77862) with active NCEES Record (2013 – Present)
- LEED Green Associate (US Green Building Council) (2011 – Present)
- Safety Inspection of In-Service Bridges (National Highway Institute)
- OSHA 10 – General Industry (Occupational Safety and Health Administration)

ACADEMIC EXPERIENCE

UNIVERSITY OF NOTRE DAME, DEPT. OF CIVIL & ENVIRON. ENGR. & EARTH SCIENCES (CEEES) – Notre Dame, IN

- Director of Resiliency and Sustainability of Engineering Systems, July 2017 – Present
 - Recruiting for minor: 1 student declared in Aug 2017 → 32 students declared in May 2018
 - Curriculum development, benefactor development, inter-university workshop in April 2019
- Assistant Teaching Professor, July 2017 – Present
 - Teaching or co-teaching seven courses presently (see “Course History” table below)
- Director of New Zealand Infrastructure Asset Management Program, December 2017 – Present
 - 3-week summer course in asset management, 10-week research internship, 1-credit research capstone in Fall
- Fellow, Liu Institute for Asia & Asian Studies
- Committee Member (active): Real Estate Minor (ND Institute for Real Estate); CEEES undergraduate recruiting and administration committee; CEEES Undergraduate curriculum & research committee; CEEES professional masters program committee; CEEES study abroad programs committee; Sustainable Energy Network
- Adjunct Assistant Professor, December 2010 – July 2012
- Research and Teaching Assistant of Civil Engineering, June 2007 – May 2009

UNIVERSITY OF AUCKLAND, DEPT. OF CIVIL & ENVIRONMENTAL ENGINEERING – Auckland, NZ

- Research and Teaching Assistant of Civil Engineering, August 2012 – November 2015

UNIVERSITY OF DAYTON, SCHOOL OF ENGINEERING – Dayton, OH

- Teaching Assistant of Engineering, January 2004 – December 2006

COURSE HISTORY

<i>Class Code</i>	<i>Class Name</i>	<i>School</i>	<i># times taught (most recent year)</i>	<i>Role</i>
CE 20710	Resiliency of Engineering Systems*	ND	2 (2018)	Instructor
CE 60240	Structural Systems	ND	2 (2019)	Instructor
CE 40620	Transportation Engineering	ND	4 (2018)	Instructor
CE 67600	Special Studies: Masonry Assessment and Design*	ND	1 (2018)	Instructor
CE 34701	Introduction to Asset Management and Life-Cycle Resiliency (New Zealand)*	ND	2 (2019)	Co-instructor
CE 30701 / KSGA 30901	Effective Technical Writing for Global Development Proposals*	ND	1 (2019)	Co-instructor
CE 40621 / ARCH 40621	Sustainable Performance in Heritage Architecture*	ND	1 (2019)	Co-instructor
Civil 313	Reinforced Concrete Design	UoA	2 (2013)	Substitute Instructor

*New course developed

Abbreviations: ND = University of Notre Dame; UoA = University of Auckland

PROFESSIONAL PRACTICE EXPERIENCE

FROST ENGINEERING & CONSULTING – Mishawaka, IN / Cincinnati, OH

- Senior Structural Engineer, Dec 2015 – Present
- Project Structural Engineer, Jun 2009 – Jul 2012
 - Business development, recruiting, and direct supervision of junior engineers, technicians, and administrators
 - Developed plans and specifications for new and rehab building and bridge projects, orchestrate structural forensic investigations, draft proposals, compose technical reports
 - Projects included industrial scaffolding, warehouses, industrial fabrication centers, crane runway frames, educational buildings, interstate bridges

AUCKLAND COUNCIL, DEPT. OF PROPERTY – Auckland, NZ

- Strategic Asset Planner – Seismic Risk Study, Sep 2012 – Sep 2015
 - Assessed seismic risk of council-owned buildings, created detailed database of all assets, field tested retrofit solutions, and composed and implemented retrofit strategies

WOOLPERT, INC. – Dayton, OH

- Structural Engineer Co-op, January 2005 – May 2007
 - Projects included educational buildings, college recreational complex, childcare center, college library, military buildings, convenience stores, multi-span bridges, onsite structural studies at restaurants, onsite structural / seismic study at Lajes Air Force Base in Azores

DESIGN STANDARDS COMMITTEES

American Society of Civil Engineers (ASCE) *Standard 41: Seismic evaluation and retrofit of existing buildings*, 2017 and 2023 updates, Masonry subcommittee

New Zealand Society for Earthquake Engineering (NZSEE) *Assessment and improvement of the structural performance of buildings in earthquakes*, 2016 update, Masonry subcommittee

PUBLICATIONS (IN PROGRESS)

Jafarzadeh, R., Walsh, K., and Ingham, J. (In progress). "Seismic Retrofit Cost Estimating for a Large Public Services Portfolio." Journal TBD.

Khattak, N., Ismail, N., El-Maaddawy, T., Walsh, K., and Ingham, J. (In progress). "Design Recommendations for the Out-of-Plane Performance of Masonry Infills Strengthened Using Fibre Reinforced Matrix." Journal TBD.

Shiro, G., Walsh, K., Giongo, I., and Piazza, M. (In progress). "Experimental Testing of Timber-To-Timber (TTC) Composite Floors." *International Journal of Architectural Heritage*.

Burlotos, C., Walsh, K., Goded, T., McVerry, G., and Ingham, J. (In progress). "Seismic Zonation and Default Suite of Ground-Motion Records for Time-History Analysis in the South Island of New Zealand." Journal TBD.

Finnigan, P., Kim, E., Walsh, K., Kerr, E., and Schurr, M. (In progress). "Experimental Validation of the Material Strengths of 19th Century Clay Brick Masonry at the University of Notre Dame, Indiana, USA." Journal TBD.

Putri, L., Walsh, K., and Ingham, J. (In progress). "Out-of-Plane Fragility Analysis of New Zealand Masonry Infilled Reinforced Concrete Framed Buildings." Journal TBD.

Nataraj, S., Walsh, K., Elwood, K., and Ingham, J. (In progress). "Seismic Assessment of New Zealand's Reinforced Concrete Interwar Art Deco Buildings." Journal TBD.

Hogan, L., Giongo, I., Walsh, K., Beskhyroun, S., Ingham, J., and Dizhur, D. (In progress). "Contribution of Timber-Framed Partition Walls to the Dynamic Characteristics of an Unreinforced Masonry Building." *Earthquake Spectra*.

Bowman, T., Thomson, C., Weldon, B., and Walsh, K. (In progress). "Serviceability Limit-State Evaluation of an Interlocking Masonry Unit Wall System." Journal TBD.

Zawacki, B., Jafarzadeh, R., and Walsh, K. (In progress). "Framework for Risk Management and Retrofitting Publicly Owned Earthquake Prone Buildings." Journal TBD.

Galvez, P., McGlenn, T., Walsh, K., Ingham, J., and Dizhur, D. (In progress). "Earthquake-induced out-of-plane macroblock failures in the Canterbury earthquakes." Journal TBD.

Pirchio, D., Kerr, L., and Walsh, K. "Large-scale Seismic Risk Survey Methodology for Medieval Churches in Italy." (In progress). Journal TBD.

PUBLICATIONS (IN REVIEW)

Ismail, N., Khattak, N., El-Maaddawy, T., Walsh, K., and Ingham, J. (2019, In review). "Out-of-Plane Testing of Masonry Infills Strengthened Using Fibre Reinforced Matrix with Prior In-Plane Damage." *International Journal of Masonry Research and Innovation*. IJMRI_237153

Dizhur, D., Giarretton, M., Giongo, I., Walsh, K., and Ingham, J. (2019, In review). "Material Property Testing for the Refurbishment of an Historic URM Building in Yangon, Myanmar." *Journal of Building Engineering*. JOBE_2018_1372.

Derakhshan, H., Walsh, K., Ingham, J., and Griffith, M. (2019, In review). "Simulation-based Seismic Fragility of Structural and Non-structural Components in Unreinforced Clay Brick Masonry Buildings." *Earthquake Engineering and Structural Dynamics*. EQE-18-0414.

Jafarzadeh, R., Walsh, K., Ingham, J., and Hassani, N. (2019, In review). "In Search of an Adequate Construction Cost Forecasting Method from Deterministic and Probabilistic Standpoint: A Seismic Retrofit Case Study." *Journal of Forecasting*. FOR-17-0095.

PUBLICATIONS

- Egbelakin, T., Poshdar, M., Walsh, K., Ingham, J., Johnston, D., Becker, J., Mbachu, J., and Rasheed, E. (2018). "[Preparedness of Small to Medium-Sized Enterprises to Earthquake Disaster: Napier And Dunedin Case Studies.](#)" *Bulletin of the New Zealand Society for Earthquake Engineering*, 51(4):171-182
- Fikri, R., Dizhur, D., Walsh, K., and Ingham, J. (2018). "[Seismic Performance of Reinforced Concrete Frame with Masonry Infill Buildings in the 2010/2011 Canterbury, New Zealand Earthquakes.](#)" *Bulletin of Earthquake Engineering*. 10.1007/s10518-018-0476-8
- Walsh, K., Dizhur, D., Giongo, I., Derakhshan, D., and Ingham, J. (2018). "[Predicted Versus Experimental Out-of-plane Force-Displacement Behaviour of Unreinforced Masonry Walls.](#)" *Structures*. 10.1016/j.istruc.2018.07.012
- Dizhur, D., Walsh, K., Giongo, I., Derakhshan, D., and Ingham, J. (2018). "[Out-of-Plane Proof Testing of Masonry Infill Walls.](#)" *Structures*. 10.1016/j.istruc.2018.07.003.
- Hogan, L., Giongo, I., Walsh, K., Ingham, J., and Dizhur, D. (2018). "[Full-Scale Experimental Pushover Testing of an Existing URM Building.](#)" *Structures*. 10.1016/j.istruc.2018.04.007.
- Walsh, K., Dizhur, D., Giongo, I., Derakhshan, H., and Ingham, J. (2017). "[Effect of Boundary Conditions And Other Factors On URM Wall Out-of-Plane Behaviour: Design Demands, Predicted Capacity, And In Situ Proof Test Results.](#)" *Sesoc Journal*, 30(1), 57-81.
- Walsh, K., Cummiskey, P., Jafarzadeh, R., and Ingham, J. (2017). "[Rapid Identification and Taxonomical Classification of Structural Seismic Attributes in a Region-Wide Commercial Building Stock.](#)" *Journal of Performance of Constructed Facilities*, 10.1061/(ASCE)CF.1943-5509.0000927, 04016067.
- Walsh, K., Dizhur, D., and Ingham, J. (2016). "[Estimating Thrust Forces Resulting from Arching Action of Clay Brick Masonry Infill.](#)" *Journal of Structural Engineering*, 10.1061/(ASCE)ST.1943-541X.0001624, 06016003.
- Walsh, K., Jafarzadeh, R., Short, N., and Ingham, J. (2016). "[Seismic Risk Management of a Large Public Facilities Portfolio: A New Zealand Case Study.](#)" *Facilities*, 34(13/14), 809-827.
- Walsh, K., Dizhur, D., Liu, P., Masoudi, M., and Ingham, J. (2016). "[Displacement-Based RC Column Assessment for a Case Study Interwar Building.](#)" *Sesoc Journal*, 29(1), 73-92.
- Walsh, K., Henry, R., Simkin, G., Brooke, N., Davidson, B., and Ingham, J. (2016). "[Testing of RC Frames Extracted from a Building Damaged During the Canterbury Earthquakes.](#)" *ACI Structural Journal*, 113(2), 349-362.
- Walsh, K., Dizhur, Y., Shafaei, J., Derakhshan, H., and Ingham, J. (2015). "[In Situ Out-of-plane Testing of Unreinforced Masonry Cavity Walls in As-built and Improved Conditions.](#)" *Structures*, 10.1016/j.istruc.2015.04.005.
- Walsh, K., Elwood, K., and Ingham, J. (2015). "[Seismic Considerations for the Art Deco Interwar Reinforced-Concrete Buildings of Napier, New Zealand.](#)" *Natural Hazards Review*, 10.1061/(ASCE)NH.1527-6996.0000169, 04014035.
- Jafarzadeh, R., Ingham, J., Walsh, K., Hassani, N., and Ghodrati Amiri, G. (2015). "[Using Statistical Regression Analysis to Establish Construction Cost Models for Seismic Retrofit of Confined Masonry Buildings.](#)" *Journal of Construction Engineering and Management*, 10.1061/(ASCE)CO.1943-7862.0000968, 04014098.
- Walsh, K., Draginis, R., Estes, R., and Kurama, Y. (2015). "[Effects of Anchor Wedge Dimensional Parameters on Post-Tensioning Strand Performance.](#)" *PCI Journal*, 60(3), 63-83.

PUBLICATIONS (CONTINUED)

Walsh, K., Dizhur, D., Almesfer, N., Cummuskey, P., Cousins, J., Derakhshan, H., Griffith, M., and Ingham, J. (2014). "[Geometric Characterisation and Out-of-plane Seismic Stability of Low-rise Unreinforced Brick Masonry Buildings in Auckland, New Zealand.](#)" *Bulletin of the New Zealand Society for Earthquake Engineering*, 47(2), 139-156.

Walsh, K. and Kurama, Y. (2012). "[Effects of Loading Conditions on the Behavior of Unbonded Post-Tensioning Strand-Anchorage Systems.](#)" *PCI Journal*, 57(1), 76-96.

Walsh, K. and Kurama, Y. (2010). "[Behavior of Unbonded Post-Tensioning Monostrand Anchorage Systems Under Monotonic Tensile Loading.](#)" *PCI Journal*, 55(1), 97-117.

CONFERENCE PROCEEDINGS

Giongo, I., Shiro, G., Walsh, K., and Piazza, M. "Strengthening of Timber Floors via Pre-Stressed Timber-To-Timber Composite Solutions." 5th International Conference on Structural Health Assessment of Timber Structures, Guimarães, Portugal, September 25 – 27, 2019.

McManus Warnell, J., Hanabusa, N., and Walsh, K. "Energy, Justice & Fukushima: A Multidisciplinary Faculty Collaboration." 28th Annual International Conference of the Association for Practical and Professional Ethics, Baltimore, MD, February 28 – March 3, 2019.

Ismail, N., Khattak, N., El-Maaddawy, T., Walsh, K., and Ingham, J. "Residual Out-of-Plane Strength of In-Plane Damaged FRCM Retrofitted Masonry Infill Walls." 10th International Masonry Conference, Milan, Italy, July 9 – 11, 2018.

Thomson, C., Weldon, B., and Walsh, K. "Experimental Evaluation of an Interlocking Masonry Unit Wall System." 10th International Masonry Conference, Milan, Italy, July 9 – 11, 2018.

Galvez, F., Segatta, S., Giaretton, M., Walsh, K., Giongo, I., and Dizhur, D. "FE and DE Modelling of Out-of-plane Two Way Bending Behaviour of Unreinforced Masonry Walls." 16th European Conference on Earthquake Engineering, Thessaloniki, Greece, June 18 – 21, 2018.

Ingham, J., Dizhur, D., Giaretton, M., Walsh, K., Jafarzadeh, R., Griffith M., and Masia, M. "Securing of Unreinforced Masonry Parapets and Facades – From Fundamental Research to National Policy." 10th Australasian Masonry Conference, Sydney, Australia, February 11 – 14, 2018.

Walsh, K., Dizhur, D., Giongo, I., Derakhshan, H., and Ingham, J. "Comparison Between Predicted URM Wall Out-of-Plane Displacement-Based Performance and In Situ Proof Test Results." 10th Australasian Masonry Conference, Sydney, Australia, February 11 – 14, 2018.

Derakhshan, H., Nakamura, Y., Goldsworthy, H., Walsh, K., Ingham, J., and Griffith, M. "Peak Floor Accelerations In Unreinforced Masonry Buildings With Flexible Diaphragms." 10th Australasian Masonry Conference, Sydney, Australia, February 11 – 14, 2018.

Walsh, K., Dizhur, D., Giongo, I., Derakhshan, H., and Ingham, J. "Comparison Between Predicted URM Wall Out-of-Plane Strength Based Capacity and In Situ Proof Test Results." 13th Canadian Masonry Symposium, Halifax, NS, June 4 – 7, 2017.

Giaretton, M., Walsh, K., Dizhur, D., da Porto, F., and Ingham, J. "Retrofitting URM Cavity Walls for Out-of-Plane Composite Behaviour." 16th International Brick and Block Masonry Conference, Padova, Italy, June 26 – 30, 2016.

Pir, A., Hogan, L., Dizhur, D., Walsh, K., and Ingham, J. "A Comparison of Numerically and Experimentally Obtained In-Plane Responses of a Full-Scale Unreinforced Masonry Wall." 10th Pacific Conference on Earthquake Engineering, Sydney, Australia, November 6 – 8, 2015.

CONFERENCE PROCEEDINGS (CONTINUED)

Hogan, L., Walsh, K., Ingham, J., and Dizhur, D. “Experimental Pushover Testing of a Full-Scale Existing Unreinforced Clay Brick Masonry Building.” 10th Pacific Conference on Earthquake Engineering, Sydney, Australia, November 6 – 8, 2015.

Walsh, K., Dizhur, D., Derakhshan, H., Griffith, M., and Ingham, J. “Out-of-Plane Seismic Assessment of Clay Brick Masonry Cavity Walls Considering Different Boundary Conditions.” 12th North American Masonry Conference, Denver, CO, May 17 – 20, 2015.

Hogan, L., Walsh, K., Dizhur, D., Beskhyroun, S., and Ingham, J. “Contribution of Timber-Framed Partition Walls to the Dynamic Characteristics of an Unreinforced Masonry Building.” New Zealand Society for Earthquake Engineering Technical Conference, Rotorua, NZ, April 10 – 12, 2015. (*Best Student Paper Award*)

Brown, J., Walsh, K., and Cummiskey, P. “The four R’s – Reduce Risk, Raise Resilience: local authority priorities and the Auckland perspective on engineering requirements for heritage buildings.” 4th Australasian Engineering Heritage Conference, Christchurch, NZ, November 24 – 26, 2014.

Walsh, K., Dizhur, D., Shafaei, J., Derakhshan, H., and Ingham, J. “Out-of-Plane In-Situ Testing of Masonry Cavity Walls in As-Built and Improved Conditions.” Australian Earthquake Engineering Society Conference, Lorne, Australia, November 21 – 23, 2014.

Putri, L., Walsh, K., and Ingham, J. “Seismic Vulnerability Assessment of Existing Reinforced Concrete Buildings with Masonry Infill Located in the Auckland CBD.” Conference for Civil Engineering Research Networks, Bandung, Indonesia, November 4 – 5, 2014.

Walsh, K., Cummiskey, P., Dizhur, D., and Ingham, J. “Seismic Characterisation of Unreinforced Masonry Buildings in Auckland, New Zealand.” 9th International Masonry Conference, Guimarães, Portugal, July 7 – 9, 2014.

Walsh, K., Draginis, R., Estes, R., and Kurama, Y. “Effects of Anchor Wedge Dimensional Properties on Post-Tensioning Strand Performance,” Post-Tensioning Institute Convention, Norfolk, VA, May 5 – 6, 2014.

Walsh, K., Cummiskey, P., Dizhur, D., and Ingham, J. “Structural Seismic Attributes of Auckland’s Commercial Building Stock.” New Zealand Society for Earthquake Engineering Technical Conference, Auckland, NZ, March 21 – 23, 2014.

Walsh, K., Short, N., Cummiskey, P., and Ingham, J. “Seismic Assessment and Retrofit Prioritisation of Auckland Council’s Property Portfolio.” Australian Earthquake Engineering Society Conference, Hobart, Australia, November 15 – 17, 2013. (*Best Student Paper Award*)

Walsh, K., Liu, P., Dizhur, D., and Ingham, J. “Detailed Seismic Assessment of a Hawke’s Bay Art Deco Case Study Building.” New Zealand Concrete Industry Conference, Queenstown, NZ, October 3 – 5, 2013.

Walsh, K. and Ingham, J. “The Earthquake Hazard Posed by Auckland’s Unreinforced Masonry Building Stock.” 12th Canadian Masonry Symposium, Vancouver, BC, June 2 – 5, 2013.

Walsh, K. and Ingham, J. “Seismic Assessment and Improvement of Napier’s Art Deco Buildings.” New Zealand Society for Earthquake Engineering Technical Conference, Wellington, NZ, April 26 – 28, 2013.

Walsh, K. and Kurama, Y. “Effects of Loading Parameters on the Behavior of Unbonded Post-Tensioning Strand/Anchorage Systems in Seismic Regions.” American Society of Civil Engineers Structures Congress, Austin, TX, April 30 – May 2, 2009.

CONFERENCE PROCEEDINGS (CONTINUED)

Walsh, K. and Kurama, Y. “Behavior and Design of Unbonded Post-Tensioning Strand/Anchorage Systems for Seismic Applications.” Precast / Prestressed Concrete Institute Committee Days, Seismic Committee, Chicago, IL, April 24, 2009.

Walsh, K. and Kurama, Y. “Behavior and Design of Anchorages for Unbonded Post-Tensioning Strands in Seismic Regions.” American Society of Civil Engineers Structures Congress, Vancouver, BC, April 24 - 26, 2008.

Walsh, K. and Kurama, Y. “Design of Anchorages for Unbonded Post-Tensioning Strands in Seismic Regions.” Precast / Prestressed Concrete Institute Convention, Seismic Design and Research Session, Phoenix, AZ, October 23, 2007.