

Exponent®
Engineering & Scientific Consulting

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Professional Profile

Dr. Selamet is a Manager in Exponent's Thermal Sciences practice. He specializes in fire protection engineering with focus on buildings and structures. His areas of expertise include heat transfer analysis, stability and critical temperature assessment of structural members, passive fire protection, building envelope (i.e. façade) fires, performance-based structural analysis under fire conditions and house fires in wildland urban interface. He specializes in providing origin and cause determinations for fires and explosions.

Dr. Selamet has specialized experience in solving complex fire-structure related problems by developing finite element modeling solutions. He has substantial experience in thermo-mechanical modeling and response using finite element software Abaqus and OpenSees Fire. In addition, he has gained experience using computer zone models such as OZone and Consolidated Model of Fire and Smoke Transport (CFAST) to simulate compartment fire dynamics.

Dr. Selamet holds an appointment as an Adjunct Lecturer in the School of Engineering at Stanford University where he teaches the course Fire Engineering Design for Buildings. He is currently Principal Member of the NFPA Hazard and Risk of Contents and Furnishings Technical Committee (NFPA 555, NFPA 556, NFPA 557). He also serves on the SFPE Research, Tools and Methods Committee Working Groups for NFPA and International Code Council. He previously served on international technical committees including ASCE/SEI Fire Protection and European Convention of Constructional Steelwork TC3 Fire. Dr. Selamet is currently on the editorial board of Fire Safety Journal and reviewer of civil and fire engineering journals including Fire Technology, Engineering Structures, Journal of Structural Engineering, Journal of Constructional Steel Research, Journal of Building Engineering and Turkish Journal of Civil Engineering.

Prior to joining Exponent, Dr. Selamet was an Associate Professor at Bogazici University in Istanbul, Turkey. He held the faculty position for over 10 years doing research and consulting on structural fire engineering, fire protection optimization, finite element modeling of steel connections, multi-hazard risk (earthquake and fire) evaluation of buildings. Dr. Selamet taught various courses including Strength of Materials, Structural Analysis, Steel Structures and Fire Engineering Design. He is the author of the first Fire Engineering Textbook published in Turkey.

Academic Credentials & Professional Honors

Ph.D., Civil and Environmental Engineering, Princeton University, 2011

M.A., Civil and Environmental Engineering, Princeton University, 2008

B.S.E., Civil Engineering, Duke University, 2006

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Newton Research Collaboration Fellow, 2016-2017

Marie Curie Fellow, 2013-2015

Civil and Environmental Engineering Graduate Prize, Princeton University, 2006

International Honors Program, Duke University, 2006

Pratt Undergraduate Research Fellow, 2005-2006

Licenses and Certifications

Professional Engineer, Colorado, #0069458

Academic Appointments

Adjunct Lecturer (Current), Stanford University

UPS Foundation Visiting Faculty, 2023, Stanford University

Visiting Faculty, 2016-2017, University of Manchester, UK

Visiting Research Scholar, 2014, UC Berkeley

Associate Professor, 2012-2023, Bogazici University, Turkey

Professional Affiliations

Principal Member, NFPA 557 Hazard and Risk of Contents and Furnishings Technical Committee

Professional Member, Society of Fire Protection Engineers (SFPE)

National Fire Protection Association (NFPA)

National Association of Fire Investigators (NAFI)

American Society of Civil Engineers (ASCE)

Earthquake Engineering Research Institute (EERI)

Publications

Selamet S, Orgev AA (in press 2024). Seismic performance of chevron-braced steel buildings using FEMA P695 methodology. Turkish Journal of Civil Engineering.

Orgev AA, Selamet S, Vatansever C (2023). Seismic performance of multistory chevron-braced steel structures with yielding beams. ce/papers 6 No.3-4. https://doi.org/10.1002/cepa.2395.

Selamet S, Ayva B (2023). Car fires in multi-story parking garages. Turkish Journal of Civil Engineering 34 (3): 83-110, https://doi.org/10.18400/tjce.1265492.

Selamet S, Ozer AY, Ildan KB (2023). Experimental Study on the Fire Performance of Prestressed Steel Parallel Wire Strands. Engineering Structures 280, 115709.

https://doi.org/10.1016/j.engstruct.2023.115709

Dundar U, Selamet S (2023). Fire load and fire growth characteristics in modern high-rise buildings. Fire Safety Journal 135, 103710. https://doi.org/10.1016/j.firesaf.2022.103710

Jodi M, Selamet S, Wang YC (2022). City-wide fire vulnerability map of high-rise residential buildings. Fire Technology. https://doi.org/10.1007/s10694-022-01344-w

Selamet S, (2022). Book. Fire Engineering (in Turkish). Nobel Academic Publishing. July, 282 pages. ISBN 978-625-417-965-5.

Calayir M, Selamet S, Wang YC (2022). Post-earthquake fire performance of fire door sets. Fire Safety Journal, 130, 103589.

Selamet S (2022). Determining SFRM thermal properties through fire tests on I-beam sections. 12th International Conference on Structures in Fire (SIF), Hong Kong.

Dundar U, Selamet S (2021). FDS Analysis of a High-Rise Residential Building in Istanbul, 14th International Congress on Advances in Civil Engineering (ACE).

Onursal A, Selamet S(2019). Fire Engineering Education Framework in Turkish Universities, 6th International Scientific Research Congress (UBAK). Sanliurfa, Turkey.

Jodi M, Selamet S(2019). Egress in High-rise residential buildings under fire conditions, 6th International Scientific Research Congress (UBAK). Sanliurfa, Turkey.

Selamet S, Onursal A (2019). Stability of Steel Portal Frames in Industrial Buildings under Natural Fire Conditions, International Civil Engineering and Architecture Conference (ICEARCH). Trabzon, Turkey.

Selamet S, Yolacan TF (2018). Steel frame-concrete slab composite floor fire resistance experiment. Turkish Journal of Civil Engineering, 28: 2131-2145.

Selamet S (2017). Thermal Gradient Estimation due to Surface Heat Exchange in Steel I-Sections. Journal of Structural Engineering-ASCE, 143(9): 04017101.

Jones M, Selamet S, Wang Y, Calis M. (2017). Fire safety of high-rise residential buildings: scope of fire engineering and comparison between UK and Turkish Practice. ASFE, Manchester, UK.

Selamet S, Caner Bolukbas (2016). Fire resilience of shear connections in a composite floor: Numerical investigation. Fire Safety Journal, 81: 97-108.

Gernay T, Selamet S, Tondini N, Khorasani NE, (2016). Urban infrastructure resilience to fire disaster: An overview. World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium (WMCAUS) - Procedia Engineering, Prague, Czech Republic.

Yolacan TF, Selamet S (2016). Thermo-Mechanical Behavior of Steel Beam-Concrete Slab Composite Floors. Advances in Civil Engineering (ACE), Istanbul, Turkey.

Selamet S, Caner Bolukbas (2015). Fire performance of single plate shear connections in a composite floor. Journal of Structural Fire Engineering, 7(4): 316-327.

Selamet S, Akbas E (2015). Reliability risk assessment of high-rise buildings in case of fire. 2nd International Conference on Performance-based and Lice-cycle Structural Engineering (PLSE), Brisbane, Australia.

Selamet S, Uzun M (2015). A novel and efficient finite element software for heat transfer: FEHEAT. 1st

International Conference on Structural Safety under Fire and Blast (CONFAB), Glasgow, Scotland.

Selamet S, Ozdemir T, Bolukbas C (2014). Fire performance of steel shear connections in a composite floor. 8th International Conference on Structures in Fire (SIF), Shanghai, China.

Selamet S, Garlock ME (2014). Fire Resistance of Shear Connections. Fire Safety Journal, 68: 52-60.

Selamet S, Garlock ME (2013). Plate buckling in wide-flanged beams considering nonlinear steel behavior at elevated temperatures. Journal of Structural Engineering, ASCE, 139(11): 1853-1865.

Ozdemir T, Selamet S (2013). Collapse of tall buildings at elevated temperatures. TUYAK Third Symposium and Exhibition on Fire and Security, Istanbul, Turkey.

Selamet S (2013). The impact of fire scenario to the collapse of a tall structure. SEMC Fifth International Conference on Structural Engineering, Mechanics and Computation, Cape Town, South Africa.

Kilic SA, Selamet S (2013). Symmetric and asymmetric collapse mechanisms of a multi-story steel structure subjected to gravity and fire. ASCE Structures Congress: Bridging your passion with your profession, Pittsburgh, PA.

Selamet S (2013). Fire performance of an unprotected composite beam with semi-rigid end restraints. ASFE Applications of Structural Fire Engineering, Prague Czech Republic.

Pakala P, Kodur V, Selamet S, Garlock M (2012). Fire behavior of shear angle connections in a restrained steel frame. Journal of Constructional Steel Research 77: 119-30.

Selamet S and Garlock ME (2012). Predicting the maximum compressive beam axial force during fire considering local buckling. Journal of Constructional Steel Research 71: 189-201.

Selamet S (2011). Behavior, Design and Finite Element Modeling of Shear Connections under Fire Hazard. Ph.D. Thesis, Princeton University.

Selamet S and Garlock M (2011). A comparison between the single plate and angle shear connection performance under fire. ASCE Structures Congress: Don’t Gamble on your Future, Las Vegas, NV.

Selamet S and Garlock ME (2010). Robust fire design of single plate shear connections. Engineering Structures, 32(8): 2367 – 2378.

Garlock ME and Selamet S (2010). Modeling and behavior of steel plate connections subject to various fire scenarios. Journal of Structural Engineering, 136(7): 897–906.

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Selamet S and Garlock M (2010). Guidelines for modeling three dimensional structural connection models using finite element methods. ECCS International Symposium Steel Structures: Culture and Sustainability 2010, pages 351–360, Istanbul, Turkey

Selamet S and Garlock ME (2009). Modified connection details for single plate steel connections under fire. ASCE Structures Congress: Don’t Mess with Structural Engineers, pages 642–649, Austin, TX

Selamet S and Garlock M (2008). Behavior of steel plate connections subject to various fire scenarios. In Proceedings of the 5th International Conference on Structures in Fire (SIF), pages 139–149, Singapore.

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