



**Exponent<sup>®</sup>**  
Engineering & Scientific Consulting

## Serdar Selamet, Ph.D

Manager | Thermal Sciences

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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 building and structures. His responsibilities include stability and critical temperature assessment of structural members, passive fire protection, performance-based structural analysis under fire conditions, compartment fires and heat transfer analyses of steel and concrete sections.

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).

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. He has served in technical committees including ASCE/SEI Fire Protection and European Convention of Constructional Steelwork TC3 Fire.

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.

Dr. Selamet holds an appointment as an Affiliated Visiting Professor in the School of Engineering at Stanford University where he teaches the course Fire Engineering Design for Buildings

### 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

Newton Research Collaboration Fellow, 2016-2017

Marie Curie Fellow, 2013-2015

Princeton University, Civil and Environmental Engineering Graduate Prize, 2006

Duke University, International Honors Program, 2006

Pratt Undergraduate Research Fellow, 2005-2006

## Academic Appointments

Visiting Affiliate Faculty (Current)

Department of Civil and Environmental Engineering, Stanford University

Newton Program Visiting Faculty, 2016-2017

School of Mechanical, Aerospace and Civil Engineering, University of Manchester, UK

Visiting Research Scholar, 2014

Department of Civil and Environmental Engineering, UC Berkeley

## Professional Affiliations

Society of Fire Protection Engineers (SFPE)

National Fire Protection Association (NFPA)

American Society of Civil Engineers (ASCE)

Fire Protection Technical Committee, ASCE/SEI

Earthquake Engineering Research Institute (EERI)

## Publications

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, Orgev AA (in press 2023). Seismic risk assessment of chevron-braced buildings with secondary yield mechanism. *Engineering Structures*.

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 Life-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.

Selamet S and Garlock ME. (2010). Local buckling study of flanges and webs in I-shapes at elevated temperatures. *ASCE Structures Congress*, pages 1592–1603, Orlando, FL.

Selamet S and Garlock M (2010). Improved details for fire-induced steel single plate shear connections. In *Proceedings of the 6th International Conference on Structures in Fire (SIF)*, pages 621–628, East Lansing, MI.

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.

## Editorships & Editorial Review Boards

Fire Safety Journal