

1. NAME AND CONTACT INFORMATION	2
2. ACADEMIC QUALIFICATIONS	2
3. RELATED WORK EXPERIENCE	2
4. SIGNIFICANT AWARDS.....	2
5. LEADERSHIP & SERVICE	3
5.1 EXECUTIVE DIRECTOR - PURDUE APPLIED RESEARCH INSTITUTE (PARI, LLC).....	3
5.2 DIRECTOR - BOWEN LABORATORY FOR LARGE-SCALE CIVIL ENGINEERING RESEARCH	4
5.3 EDITORIAL SERVICES	4
5.4 PROFESSIONAL ORGANIZATIONS	5
5.5 LYLES SCHOOL OF CIVIL AND CONSTRUCTION ENGINEERING	6
6. PUBLICATIONS	7
6.1 ARTICLES IN REFEREED PUBLICATIONS	7
6.2 SHORTER COMMUNICATIONS, LETTERS, NOTES OR BRIEFS IN REFEREED JOURNALS.	14
6.3 BOOKS AND CHAPTERS IN BOOKS	14
6.4 ARTICLES IN CONFERENCE OR SYMPOSIUM PROCEEDINGS	14
6.5 GOVERNMENT, UNIVERSITY, OR INDUSTRIAL REPORTS.	23
6.6 INVITED COLLOQUIUM / SEMINAR SERIES PRESENTATIONS	25
7. GRADUATED STUDENTS, THESES / DISSERTATIONS, CURRENT EMPLOYMENT	27
7.1 MS THESIS COMPLETED	27
7.2 PH.D. DISSERTATION COMPLETED.....	28
7.3 POST-DOCS AND RESEARCH ENGINEERS.....	30
8. GRANT RESEARCH ACTIVITY.....	32
9. IMPACT OF RESEARCH ACTIVITIES	42
9.1 COMPOSITE COLUMNS AND FRAMES	42
9.2 FIRE RESISTANT DESIGN OF STEEL & COMPOSITE STRUCTURES.....	42
9.3 STEEL-PLATE COMPOSITE (SC) WALLS FOR NUCLEAR FACILITIES	43
9.4 APPLICATIONS IN THE US AND IMPACT OF WORK.....	44
9.5 INTERNATIONAL APPLICATIONS AND IMPACT	44
9.6 STEEL-PLATE COMPOSITE WALL CODIFICATION ACTIVITIES AND IMPACT	45
9.7 REINFORCED CONCRETE (RC) DESIGN FOR NUCLEAR FACILITIES	45
9.8 STEEL-PLATE COMPOSITE WALLS FOR HIGH-RISE COMMERCIAL BUILDING CONSTRUCTION.....	46
9.9 COMPOSITE CONSTRUCTION FOR BLAST RESISTANT DESIGN.....	47
10. IMPACT OF TEACHING ACTIVITIES	47
10.1 UNDERGRADUATE COURSES	47
10.2 GRADUATE COURSES.....	48
10.3 ONLINE MS COURSES	48
10.4 RESEARCH MENTORING OF UNDERGRADUATE STUDENTS.....	48

1. NAME AND CONTACT INFORMATION

Amit H. Varma, 3322 Crawford Street, West Lafayette, IN 47906,
Cell: (517) 974 0936, Email: ahvarma@purdue.edu

2. ACADEMIC QUALIFICATIONS

Ph.D. in Civil Engineering (Structures)	January 2001	Lehigh University, Bethlehem, PA
M.S. in Civil Engineering (Structures)	August 1996	University of Oklahoma, Norman, OK
B.Tech in Civil Engineering	July 1994	Indian Institute of Technology, Mumbai, India

3. RELATED WORK EXPERIENCE

Purdue University, West Lafayette, IN, Lyles School of Civil Engineering	2023 – present	Executive Director, Purdue Infrastructure & Innovation Lab (PIIL), Purdue Applied Research Institute (PARI)
	2018 – present	Karl H. Kettelhut Professor
	2017 – present	Director, Bowen Laboratory for Large-Scale Civil Engineering Research
	2014 – 2018	Full Professor
	2008 – 2014	Associate Professor
	2004 – 2008	Assistant Professor
Michigan State University, East Lansing, MI, Department of Civil and Environmental Engineering	2001 – 2004	Assistant Professor

4. SIGNIFICANT AWARDS

ASCE ¹ Charles Pankow Innovation Award	2026	Established by the Civil Engineering Research Foundation (CERF), this award recognizes contributions of organizations working collaboratively to advance the design and construction industry by introducing innovation into practice. In 2026, it was awarded to team of practitioners, academics (including Prof. Varma), foundations and trade organizations that led the development, acceptance, and deployment of SpeedCore for high-rise buildings.
OU CEES Academy	2026	The purpose of the CEES Academy is to honor OU alumni and affiliates of CEES for professional activities and service.
AISC ² Lifetime Achievement Award	2025	Honors individuals whose continued outstanding service has made a difference in the success of AISC, the structural steel industry, and the structural steel design, construction, and academic communities.
Bechtel Innovation of Year Award	2023	Prof. Varma was recognized for his contribution to develop innovative solutions for protective structures for national defense and security applications.
ASCE Stephen D. Bechtel, Jr. Energy Award	2021	ASCE's Energy Division gives the Stephen D. Bechtel, Jr. Energy Award to recognize outstanding achievement in the energy field by a civil engineer. Prof. Varma received this award for his "seminal contributions as a preeminent researcher, leading code/standard developer, educator, and invaluable consultant to the nuclear industry in the fields of steel-plate composite and reinforced concrete structures"
ASCE Alfred Noble Prize	2021	This inter-society award is selected by a committee with representation from ASCE, ASME, IEEE, AIMMP, and WISE. This award is given for a technical paper of exceptional merit published in ANY of these society's technical publications. Prof. Varma and his former PhD student Prof. Lai received this award in 2021 for their paper, "High Strength Rectangular CFT Members: Database, Modeling, and Design of Short Columns."
AISC T. R. Higgins Lectureship Award	2021	Each year, AISC recognizes an outstanding lecturer and author whose technical papers are considered an outstanding contribution to the engineering literature on fabricated structural steel. Prof. Varma was selected on the basis of his several papers on concrete-filled composite plate shear walls, and in recognition of his outstanding reputation as a researcher, Professor, and lecturer.

¹ American Society of Civil Engineers (ASCE)

² American Institute of Steel Construction (AISC)

AISC Special Achievement Award	2020	Prof. Varma is recognized for his groundbreaking work in developing and promoting SpeedCore, a concrete-filled composite plate shear wall system that is revolutionizing the speed at which steel-framed buildings are constructed. His research and lab tests on tall shear walls significantly contributed to the successful implementation of the system.
ASCE Shortridge Hardesty Award	2019	ASCE Structural Engineering Institute gives this award annually. Prof. Varma received this award for "research contributions to the stability and design of steel and composite members and service to the profession as the chair of the ASCE-SEI Metals TAC and chair of the SEI/ACI joint committee on Composite Construction"
AISC Special Achievement Award	2017	Prof. Amit H. Varma received this award for facilitating the development, design, and licensing of the next generation of nuclear power plants in the US and around the world by developing fundamental knowledge in terms of experimental data, numerical models, and design specifications for steel-concrete composite (SC) walls and connections.
University Faculty Scholar	2011 -to- 2016	The Office of the Provost recognizes outstanding faculty members who are on an accelerated path for academic distinction by the University Faculty Scholars Program.
Seeds for Success ACORN Award	2010, 2012 2022, 2024	The Office of the Vice President for Research gives this award in recognition of the accomplishments of single investigators and teams of investigators for their efforts in obtaining a \$1 million dollar or more research grant.
AISC Milek Faculty Fellowship Award	2003	The American Institute of Steel Construction gives this award annually to a faculty member involved in steel design research, education and testing. Prof. Varma was the inaugural recipient of this award for the research and development of innovative long-span composite floor systems for residential construction.

5. LEADERSHIP & SERVICE

5.1 Executive Director - Purdue Applied Research Institute (PARI, LLC)

In 2021, the Purdue Board of Trustees (BOT) along with then Purdue President (Mitch Daniels) established the Purdue Applied Research Institute (PARI), which is a tax-exempt, fully owned subsidiary of Purdue University. PARI was founded as part of the *Purdue Moves* initiative funded by the State of Indiana Legislature. PARI was established to enable and facilitate applied research activities in the domains of national security and defense and the energy sector, which usually require security clearances (CUI / Secret / Top Secret). PARI has its own corporate structure including a Board of Managers (BOM), which is chaired by Purdue President (Mung Chiang) and includes other members of the Purdue BOT. PARI has its own CEO (reporting directly to BOM), COO, CFO, and Legal Counsel (reporting to the Purdue Legal Counsel).

PARI is comprised of four labs. Since its inception, Prof. Varma has been leading PIIL (Infrastructure Innovation Lab) as its Executive Director (reporting to the EVPR initially, and to the CEO upon arrival). This is approximately a 45% FTE appointment for Dr. Varma. Dr. Varma's responsibilities for PIIL include:

- (i) Developing and maintaining the operational budget and financial goals,
- (ii) Business development and strategic partnerships,
- (iii) Recruiting and retaining excellent research and administrative staff,
- (iv) Providing monthly reports to the Executive Leadership in PARI and quarterly reports to the Purdue BOM & Trustees,
- (v) Supporting other Executive Directors and advising PARI Leadership Team with the setup of pre-award (proposal, budgeting, contracting), post-award (time tracking, invoicing, change orders), and other support operations (purchasing, recruiting etc.).

Since Dr. Varma is the only Purdue University faculty member serving on the PARI Leadership Team, he brings unique and insightful perspectives to help with operations, planning, and vision casting. Dr. Varma built his team in PARI from scratch, recruiting high achievers from industry, national labs, and academia to Purdue. His team includes:

- (i) Sr. Director of Technology (industry stalwart with 30+ years of experience),
- (ii) Exec. Dir. of Business Development and Strategic Partnerships (industry leader with 20+ years of experience),
- (iii) 2 Sr. Principal Research Engineers (from national lab and academia with 5-10 years of experience),
- (iv) 2 Research Engineers (from academia with 1-5 years of experience),
- (v) 1 Project Manager (from industry / military complex with 10+ years of experience), and
- (vi) Several Project Engineers (Grad. Students) and Jr. Project Engineers (Undergrad Students).

Dr. Varma's entire team is funded from research projects that were developed, solicited, and contracted with PARI, and funded partially by the Purdue Moves investment. PARI projects include those funded by: (i) the US Air Force through Northrup Grumman through Bechtel National, (ii) Los Alamos National Lab, (iii) Holtec International, (iv) Idaho National Lab through

National Reactor Innovation in Construction program, (v) GE-Vernova, (vi) TerraPower, (vii) X-Energy, (viii) Orano IKE, etc. Over the past 3 years, Dr. Varma's research expenditure in PARI has exceeded approximately \$10 million.

5.2 Director - Bowen Laboratory for Large-Scale Civil Engineering Research

Prof. Varma was the Associate Director of the Bowen laboratory for large-scale civil engineering research from 2015-17. He has been serving as the Director of the laboratory from 2017 onwards. Bowen Lab is one of the largest civil engineering testing laboratories in the US, and the flagship research facility of the Lyles School of Civil Engineering and the College of Engineering. It is an off-campus facility with its own operating budget that is funded primarily through research grants and contracts and the annual disbursements from the Kettelhut and Pankow Foundation endowments.

As the Bowen Lab Director, Dr. Varma's responsibilities include:

- (i) Developing and maintaining laboratory budget and financials,
- (ii) Developing and implementing policies for safe operations,
- (iii) Developing quality procedures and plan for specific projects as needed,
- (iv) Developing and implementing policies for sharing laboratory resources including laboratory space, technician time, testing equipment, etc.
- (v) Interacting with Bowen Advisory Committee (comprised of industry stalwarts and well-wishers) and the Bowen Students Advisory Council (BSAC),
- (vi) Working with the School Head and College Dean to develop and implement plans for sustainability, global visibility, and future growth.

Over the past several years with Dr. Varma as the Lab Director:

- (i) Bowen Lab has grown significantly to include: 4 research technicians, 1 lab manager, 5 research engineers / scientists, and 1 administration specialist.
- (ii) Bowen Lab financials have always been in surplus with indirect costs obtained from research grants and contracts growing steadily, while operating expenses being managed responsibly
- (iii) Bowen Lab resources and large-scale testing equipment including test setups, hydraulic equipment, testing machines, data acquisition systems, calibrated sensors, etc. have grown significantly
- (iv) Bowen Lab remained fully operational through the difficult times of the pandemic and has been indemnified successfully each year after review by OSHA and the University EHS (Environment, Health, and Safety).
- (v) Bowen Lab has developed a strong safety culture with weekly safety briefings with all students and staff, and quarterly safety meetings to review near-miss and incident reports, and develop strategies for further improved operations

In any given semester, there are 40+ graduate students, and 10+ undergraduate students actively working at the lab. Bowen Lab provides the facility and resources for these young minds to develop, create, innovate, execute, and evolve into leaders. Undergraduate students gain hands-on exposure to engineering practice, safety culture, and mentorship from graduate students in a team-based learning environment. Dr. Varma has also helped recruit junior faculty and worked with their research staff to integrate their individual and collaborative research programs into Bowen Lab.

The School and College have recognized the value and impact that Bowen Lab brings to the Profession and the world. The University has recently invested funds to get ISO 9001 quality certification for Bowen Lab. This is based on the years of work done by Dr. Varma's team to develop detailed quality procedures and manual for specific Bowen Lab projects. These quality procedures have been invoked by industrial sponsors to conduct tests with required 'nuclear quality assurance' requirements. The implementation of these quality procedures has been audited successfully by the Nuclear Regulatory Commission (NRC). Receiving the ISO 9001 certification formally is the logical next step in the evolution of Bowen Lab as the world's premier testing lab with excellent quality and safety pedigree.

Bowen Lab completed its 20-year anniversary in 2024. Dr. Varma led the staff and students to organize the 20-year anniversary celebration on a huge scale with guest lectures for future vision casting from academia, industry, and major donors. In an ever-changing, complex world of research funding, contracts, further accentuated by the pandemic, Bowen Lab has been a beacon of stability, growth, success, and tremendous impact on the Profession. Bowen Lab was recognized with the 2020 Charles S. Whitney Medal by the American Concrete Institute Board of Directors specifically "*In recognition for its large-scale civil engineering research in systems, materials, and technologies, for its consistent contributions to the safety and economy of the infrastructure.*"

5.3 Editorial Services

2014 – current	Associate Editor: <i>ASCE Journal of Structural Engineering</i>
2014 – 2017	Associate Editor: <i>ASCE Journal of Bridge Engineering</i>
2014 – 2015	Guest Editor: Elsevier's <i>Nuclear Engineering and Design</i>
2012 – current	<i>Steel and Composite Structures: An Internal Journal</i> from Techno Press, Korea
2023 – current	Guest Editor: Elsevier's <i>Engineering Structures</i>

5.4 Professional organizations

Prof. Varma is a member of several national level committees drafting codes / specifications for the design of steel, concrete, and composite structures. He is a voting member of the AISC committee of specifications (COS), which is the pinnacle committee responsible for all the AISC codes / specifications. He is the Chair of Task Committee 8 on Fire Design, and member of Task Committee 5 on Composite Construction. He was the Vice Chair (2007-16) of the ad-hoc subcommittee on modular composite construction for nuclear facilities.

Prof. Varma is also a member and Vice-Chair of the ACI 349 committee for the design of safety-related nuclear facilities. He is a member of the ASME Section III, Div. 2 – Concrete Containment committee (2023 – present) and the chair of the Task Group on Steel-Plate Composite Containment Vessel (SCCV). He is also Chair of the Modernization Workgroup for containment design.

Prof. Varma is voting member of the ASCE 7 main committee of minimum design loads for buildings and other structures, member of the seismic provisions sub-committee, and the Chair of the General Requirements sub-committee of ASCE 7. He is a member of the Building Seismic Safety Council's (BSSC) Provisions Update Committee (PUC), and the Chair of Issue Team 2 on interfaces between structural components.

Prof. Varma is the past chair of the Structural Engineering Institute (SEI) Metals Technical Administrative Committee (TAC), which in charge of all the metals technical committees in SEI. Prof. Varma is the past chair (2010 – 2016) of the ASCE SEI/ACI committee of composite construction.

American Society of Civil Engineers (ASCE)

2001 – present	Member
2010 – 2016	Chair of Committee on Composite Construction
2003 – 2009	Member of Committee on Composite Construction (control group)
2017 – 2020	Chair, Metals Technical Activities Committee
2018 – present	Member, Main Committee: ASCE/SEI 7 – Minimum Design Loads and Associated Criteria for Buildings and Other Structures
2023 – present	Chair, General Requirements Sub-Committee of ASCE / SEI 7 – Minimum Design Loads...
2023 – present	Member, Seismic Sub-Committee of ASCE / SEI 7 – Minimum Design Loads ...

American Institute of Steel Construction (AISC)

2001 – present	Member and AISC Mielek Faculty Fellow.
2014 – present	Member of AISC <i>Committee of Specification (CoS)</i>
2016 – present	Chair of AISC/AISI Task Committee 8 – Fire Design of Steel Structures
2004 – present	Member of Task Committee 5 – Composite Construction
2014 – 2016	Member of Task Committee 12 – Nuclear Structures
2007 – 2016	Vice-Chair of Sub-committee on Modular Composite Construction for Task Committee 12 – Design of Steel Structures for Nuclear Facilities
2007 – 2016	Member of Sub-committee (SC6) on Composite Structures for Task Committee 9 – Seismic Design Provisions for Steel Structures.
2011 – 2016	Member of Sub-committee (SC5) on the Seismic Design Manual for the AISC Committee on Manuals

American Concrete Institute (ACI)

2020 – present	Vice-Chair of ACI Committee 349 – Safety-Related Nuclear Facilities
2014 – present	Member of ACI Committee 349 – Safety-Related Nuclear Facilities Task Leader for ACI 349.1R <i>Thermal Design</i>
2015 – 2016	Chair of SEI/ACI Committee 335 – Composite and Hybrid Systems
2009 – 2015	Member of ACI Committee 335 – Composite and Hybrid Systems
2004 – current	Member of ACI Committee 216 – Fire Protection Engineering

American Society of Mechanical Engineers (ASME)

2020 – 2024	Member of ASME Section III, Div. 2, Modernization Work Group for Containment Design
2024 – present	Chair of ASME Section III, Div. 2, Modernization Work Group for Containment Design
2023 – present	Chair of ASME Section III, Div. 2. Task Group on Steel-Plate Composite Vessel (SCCV)
2023 – present	Member of ASME Section III, Div. 2, Concrete Containment

5.5 Lyles School of Civil and Construction Engineering

Prof. Varma has been actively serving on committees in the Lyles School of Civil and Construction Engineering. He was a member of the strategic hiring committee (2006-08), and the chair of the computational mechanics faculty search committee (2008-10). He has been a member of the internal awards committee from 2009-2020, and a member of the structures area graduate admissions committee from 2012-15.

The Lyles School of Civil and Construction Engineering conducted an external review in 2018, and Prof. Varma was a member of the internal review committee (2017) preparing for the visit. He was a member of the faculty search committee in 2019 for the structures area, and the Chair of the faculty search committee in 2022-23. He was a member of the affordable online MS committee from 2020-25.

He is a member of the School's Named Professor Committee (NPC), the College of Engineering Named Professor Committee (ENPC) and the Engineering Leadership Team (ELT)

Committee	Date	Membership
Strategic Hiring Committee	2006 – 2008	Member
Computational Mechanics Faculty Search Committee	2008 – 2010	Chair
CE Internal Awards Committee	2009 – 2020	Member
CE Structures Area Graduate Admissions Committee	2012 – 2015	Chair
Internal Review Committee	2017	Member
Structures Faculty Search Committee	2019	Member
Affordable Online MS Committee	2020 – 2025	Member
Structures Faculty Search Committee	2022 – 23	Chair
Named Professor Committee	2018 – present	Member
Engineering Named Professor Committee	2025 – present	Member
Engineering Leadership Team	2024 – present	Member

6. PUBLICATIONS

6.1 Articles in refereed publications

J1.	Varma, A.H., Wallace, B., and Russell, B. W. (1997). "Large Scale Rotating Bending Fatigue Tests for Offshore Pipe Connections," <i>Experimental Mechanics</i> , SEM, Volume 37, No. 2., pp. 147 – 153. http://dx.doi.org/10.1007/BF02317851
J2.	Varma, A.H., Ricles, J.M., Sause, R., Hull, B., and Lu, L.W. (2000). "An Experimental Evaluation of High Strength Square CFT Columns," <i>ACI SP-196: Composite and Hybrid Systems</i> , Eds. Aboutaha, R.S., and Bracci, J.M., Amer. Conc. Inst., Farmington Hills, MI, pp. 51-86. https://www.concrete.org/publications/internationalconcreteabstractsportal/m/details/id/10005
J3.	Varma, A.H., Salecha, A.K., Wallace, B., and Russell, B.W. (2002). "Flexural Fatigue Behavior of Threaded Connections for Large Diameter Pipes," <i>Experimental Mechanics</i> , SEM, Volume 42, No. 1, pp. 1-7. http://dx.doi.org/10.1177/0018512002042001783
J4.	Varma, A.H., Ricles, J.M., Sause, R., and Lu, L.W. (2002). "Experimental Behavior of High Strength Square Concrete Filled Steel Tube (CFT) Columns," <i>Journal of Structural Engineering</i> , ASCE, Volume 128, No. 3, pp. 309-318. http://dx.doi.org/10.1061/(ASCE)0733-9445(2002)128:3(309)
J5.	Varma, A.H., Ricles, J.M., Sause, R., and Lu, L.W. (2002). "Seismic Behavior and Modeling of High Strength Composite Concrete Filled Steel Tube Beam-Columns," <i>Journal of Constructional Steel Research</i> , Elsevier Applied Science, Volume 58, Issue 5-8, pp. 725-758. http://dx.doi.org/10.1016/S0143-974X(01)00099-2
J6.	Varma, A.H., Ricles, J.M., Sause, R., and Ream, A. (2004). "Seismic Behavior and Design of High Strength Square Concrete Filled Steel Tube Beam-Columns," <i>Journal of Structural Engineering</i> , ASCE, Volume 130, Issue 2, pp. 169-179. http://dx.doi.org/10.1061/(ASCE)0733-9445(2004)130:2(169)
J7.	Varma, A.H., Sause, R., Ricles, J.M., and Qinggang, L. (2005). "Development and Validation of Fiber Models for High Strength Square CFT Beam-Columns," <i>ACI Structural Journal</i> , American Concrete Institute, Vol. 102, Issue 1, pp. 73-85, Farmington Hills, MI. https://www.concrete.org/publications/internationalconcreteabstractsportal/m/details/id/13532
J8.	Kowalkowski, K. and Varma, A. H. (2005). "Experimental Investigations of the Effects of Multiple Damage-Heat Straightening Repair Cycles on the Structural Properties of Bridge Steels," <i>Transportation Research Record: Journal of the Transportation Research Board</i> , Issue 1907, pp. 67-77, TRB, Washington, D.C. http://dx.doi.org/10.3141/1907-08
J9.	Prabhu, M., Varma, A.H., Buch, N., and Thandavesvara, D. (2006). "Experimental Investigation of Effects of Dowel Misalignment on Joint Pullout Behavior," <i>Transportation Research Record: Journal of the Transportation Research Board</i> , Issue 1947, pp. 15-27, TRB, Washington, D.C. http://dx.doi.org/10.3141/1947-02
J10.	Kowalkowski, K. and Varma, A.H. (2006). "Structural Properties of Steels Subjected Multiple Cycles of Damage Followed by Heating Repair," <i>Journal of Structural Engineering</i> , ASCE, Vol. 133, No. 2, pp. 283-296. http://dx.doi.org/10.1061/(ASCE)0733-9445(2007)133:2(283)
J11.	Prabhu, M., Varma, A.H., and Buch, N. (2007). "Experimental and Analytical Investigations of the Mechanistic Effects of Dowel Misalignment in Concrete Pavement Joints," <i>Transportation Research Record: Journal of the Transportation Research Board</i> , Issue 2037, pp. 12-29, TRB, Washington, D.C. http://dx.doi.org/10.3141/2037-02
J12.	Kowalkowski, K., and Varma, A. H. (2007). "Effects of Multiple Heat Straightening Repairs on Steel Beams," <i>Journal of the Transportation Research Board</i> , Issue 2028, pp. 67-77, TRB, Washington, D.C. http://dx.doi.org/10.3141/2028-08
J13.	Prabhu, M., Varma, A.H., Buch, N. (2009). "Analytical Investigation of the Effects of Dowel Misalignment on Concrete Pavement Joint Opening Behavior," <i>International Journal of Pavement Engineering</i> , Volume 10, Issue 1, Feb. 2009, pp. 49-62, Taylor and Francis Group. http://dx.doi.org/10.1080/10298430802342708
J14.	Hong, S. and Varma, A.H. (2009). "Analytical Modeling of the Standard Fire Behavior of Loaded CFT Columns," <i>Journal of Constructional Steel Research</i> , Volume 65, pp. 54-69, Elsevier. http://dx.doi.org/10.1016/j.jcsr.2008.04.008
J15.	Choe, L., Wheeler, E., and Varma, A.H. (2009). "Validation of Prestressed Concrete Bridge LRFD Software Using NCHRP Process 12-50," <i>Journal of the Transportation Research Record</i> , Issue 2131, pp. 34-46, TRB, Washington, DC, 24 pp. http://dx.doi.org/10.3141/2131-04
J16.	Hong, S. and Varma, A.H. (2010). "Predicting Column Buckling Under Fire Loading Using Fundamental Section Behavior," <i>Journal of ASTM International</i> , ASTM, Volume 7, Issue 1, 23 pp. http://dx.doi.org/10.1520/JAI102311
J17.	Wellman, E., Varma, A.H., Fike, R., and Kodur, V., (2011). "Experimental Evaluation of Thin Composite Floor Assemblies under Fire Loading," <i>Journal of Structural Engineering</i> , Special 9/11 Commemorative Issue, ASCE, Vol. 37, No. 9, pp. 1002-1016. http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0000451
J18.	Choe, L., Varma, A.H., Agarwal, A., and Surovek, A. (2011). "Fundamental Behavior of Steel Beam-Columns and Columns Under Fire Loading: Experimental Evaluation" <i>Journal of Structural Engineering</i> , Special 9/11 Commemorative Issue, ASCE, Vol. 37, No. 9, pp. 954-966. http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0000446
J19.	Agarwal A., and Varma, A.H. (2011). "Design of Steel Columns for Fire Loading Including Effects of Rotational Restraints," <i>Engineering Journal</i> , Vol. 48, No.4, pp. 297-314, AISC. https://doi.org/10.62913/engj.v48i4.1018
J20.	Kodur, V.K.R., Naser, M., Pakala, P., and Varma, A.H. (2013). "Modeling the response of beam-column assemblies exposed to Fire," <i>Journal of Constructional Steel Research</i> , Elsevier Science, Vol. 80, pp. 163-173. http://dx.doi.org/10.1016/j.jcsr.2012.09.005

J21.	Varma, A.H., Hong, S., and Choe, L. (2013). "Fundamental Behavior of CFT Beam-Columns Under Fire Loading." <i>Steel and Composite Structures – An International Journal</i> , Vol. 15, No. 6, pp. 679-703, Techno-Press, Taejon Korea, http://dx.doi.org/10.12989/scs.2013.15.6.679
J22.	Varma, A.H., Malushte, S., Sener, K., and Lai, Z., (2014). "Steel-Plate Composite (SC) Walls for Safety Related Nuclear Facilities: Design for In-Plane Force and Out-of-Plane Moments." <i>Nuclear Engineering and Design</i> , Special Issue on SMiRT-21 Conference, Vol. 269, pp. 240-249, Elsevier Science, http://dx.doi.org/10.1016/j.nucengdes.2013.09.019
J23.	Zhang, K., Varma, A.H., Malushte, S., and Gallocher, S. (2014). "Effects of Shear Connectors on the Local Buckling and Composite Action in Steel Concrete Composite Walls." <i>Nuclear Engineering and Design</i> , Special Issue on SMiRT-21 Conference, Vol. 269, pp. 231-239, Elsevier Science, http://dx.doi.org/10.1016/j.nucengdes.2013.08.035
J24.	Agarwal, A., Selden, K., and Varma A.H. (2014). "Stability Behavior of Steel Building Structures in Fire Conditions: Role of Composite Floor System with Shear-Tab Connections." <i>Journal of Structural Fire Engineering</i> , Special Issue on Structures in Fire-2012 Conference, Vol. 5, No. 2, June. http://dx.doi.org/10.1260/2040-2317.5.2.77 ,
J25.	Agarwal, A., and Varma, A.H. (2014). "Fire Induced Progressive Collapse of Steel Building Structures: The Role of Interior Gravity Columns." <i>Engineering Structures</i> , Special Issue on Fire Analysis of Structures, Vol. 58, pp. 129-140, Elsevier Science. http://dx.doi.org/10.1016/j.engstruct.2013.09.020 .
J26.	Agarwal, A., Choe, L., and Varma, A.H. (2014). "Fire Design of Steel Columns: Effects of Thermal Gradients." <i>Journal of Constructional Steel Research</i> , Elsevier Science, Vol. 93, pp. 107-118, http://dx.doi.org/10.1016/j.jcsr.2013.10.023 .
J27.	Walz, J., Choe, L., Surovek, A., and Varma, A.H. (2014). "Section Characterization of Wide-flange Steel Sections Subjected to Combined Thermal and Mechanical Loading." <i>Journal of Structural Engineering</i> , ASCE, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001089 , Vol. 141, No. 6, 04014162
J28.	Cha, H., Diggelman, L., Connor, R., and Varma, A.H. (2014). "Experimental and Numerical Evaluation of the Post-Fracture Redundancy of a Simple Span Truss Bridge." <i>Journal of Bridge Engineering</i> , Vol. 19, No. 11, 04014048, ASCE, http://dx.doi.org/10.1061/(ASCE)BE.1943-5592.0000622
J29.	Sener, K., and Varma, A.H. (2014). "Steel-Plate Composite SC Walls: Experimental Database and Design for Out-of-Plane Shear." <i>Journal of Constructional Steel Research</i> , Elsevier Science, Vol. 100, pp. 197-210, http://dx.doi.org/10.1016/j.jcsr.2014.04.014
J30.	Lai, Z., Varma, A.H., and Zhang, K. (2014). "Noncompact or Slender Rectangular CFT Members: Experimental Database, Analysis and Design." <i>Journal of Constructional Steel Research</i> , Vol. 101, October 2014, pp. 455-468, http://dx.doi.org/10.1016/j.jcsr.2014.06.004 , Elsevier Science,
J31.	Sohn, Y., and Varma, A.H. (2014). "Effects Of Realistic Heat Straightening Repair On Damaged Steel Beams." <i>Transportation Research Record: Journal of the Transportation Research Board</i> , Vol. 2406, Structures 2014, No. 1, pp. 68 – 78, http://dx.doi.org/10.3141/2406-08
J32.	Epacakchi, S., Nguyen, N., Kurt, E., Whittaker, A. and Varma, A.H. (2014). "In-Plane Behavior of Rectangular Steel-Plate Composite Shear Walls." <i>Journal of Structural Engineering</i> , ASCE, Vol. 141, Issue 7, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001148
J33.	Bruhl, J., Varma, A.H., and Johnson, W.H. (2014). "Design of Composite SC Walls to Prevent Perforation from Missile Impact." <i>International Journal of Impact Engineering</i> , Vol. 75, Jan., pp. 75 – 87, Elsevier Science, http://dx.doi.org/10.1016/j.ijimpeng.2014.07.015
J34.	Cha, H., Liu, B., Prakash, A., and Varma, A.H. (2014), "Effect of local damage caused by overweight trucks on the durability of steel bridges." <i>Journal of Performance of Constructed Facilities</i> , ASCE, http://dx.doi.org/10.1061/(ASCE)CF.1943-5509.0000685 , 04014183
J35.	Fischer, E., Varma, A.H. (2014). "Design of Split-Tee Connections for Special Composite Moment Resisting Frames." <i>Engineering Journal</i> , AISC, Vol. 52, No. 3, pp. 185-201, AISC, https://doi.org/10.62913/engj.v52i3.1085
J36.	Lai, Z., and Varma, A.H. (2014). "Noncompact or Slender Circular CFT Members: Experimental Database, Analysis, and Design." <i>Journal of Constructional Steel Research</i> , Elsevier Science, Vol. 106, pp. 220 – 233 http://dx.doi.org/10.1016/j.jcsr.2014.11.005
J37.	Sener, K., Varma, A.H., and Ayhan, D. (2015). "Steel-Plate Composite SC Walls: Experimental Database and Design for Out-of-Plane Flexure." <i>Journal of Constructional Steel Research</i> , Vol. 108, May, pp. 46-59, Elsevier Science, http://dx.doi.org/10.1016/j.jcsr.2015.02.002
J38.	Fischer, E. and Varma, A.H. (2015). "Numerical Models for Predicting Fire Behavior of Composite Beams with Simple Connections." <i>Journal of Constructional Steel Research</i> , Volume 111, Aug., pp. 112-125, Elsevier Science, http://dx.doi.org/10.1016/j.jcsr.2015.03.013
J39.	Verma, D., Singh, J., Varma, A.H., and Tomar, V. (2015). "Evaluation of Incoherent Interface Strength of Solid State Bonded Ti64/Stainless Steel under Dynamic Impact Loading." <i>JOM</i> , Springer, Volume 67, Issue 8, pp 1694-1703, http://dx.doi.org/10.1007/s11837-015-1448-y
J40.	Bruhl, J., Varma, A.H., and K., J.M. (2015). "Static Resistance Function for Steel-Plate Composite (SC) Walls Subjected to Impactive Loading." <i>Nuclear Engineering and Design</i> , Volume 295, Pages 843-859, Special Issue of SMiRT-22 in San Francisco: Improving Safety and Reliability of Nuclear Energy, Elsevier Science, http://dx.doi.org/10.1016/j.nucengdes.2015.07.037
J41.	Sener, K., Varma, A.H., Booth, P.N., and Fujimoto, R. (2015). "Seismic Behavior of a Containment Internal Structure Consisting of Composite SC Walls." <i>Nuclear Engineering and Design</i> , Volume 295, Pages 804-816,

	Special Issue of SmiRT-22 in San Francisco: Improving Safety and Reliability of Nuclear Energy, Elsevier Science, http://dx.doi.org/10.1016/j.nucengdes.2015.07.038
J42.	Booth, P.N., Varma, A.H., Sener, K., and Mori, K. (2015). "Seismic Behavior and Design of a Primary Shield Structure Consisting of Steel-Plate Composite (SC) Walls." <i>Nuclear Engineering and Design</i> , Volume 295, Pages 829-842, Special Issue of SmiRT-22 in San Francisco: Improving Safety and Reliability of Nuclear Energy, Elsevier Science, http://dx.doi.org/10.1016/j.nucengdes.2015.07.006
J43.	Booth, P.N., Varma, A.H., Sener, K., and Malushte, S. (2015). "Flexural Behavior and Design of Steel-Plate Composite (SC) Walls for Accident Thermal Loading." <i>Nuclear Engineering and Design</i> , Volume 295, Pages 817-828, Special Issue of SmiRT-22 in San Francisco: Improving Safety and Reliability of Nuclear Energy, Elsevier Science, http://dx.doi.org/10.1016/j.nucengdes.2015.07.036
J44.	Varma, A.H., (2015). "SMiRT-22 in San Francisco: Improving Safety and Reliability of Nuclear Energy." <i>Nuclear Engineering and Design</i> , Volume 295, Page 679. (This is an editorial for the special issue with Prof. Varma as guest editor) http://dx.doi.org/10.1016/j.nucengdes.2015.11.009
J45.	Epacakchi, S., Whittaker, A., Varma, A.H., and Kurt, E. (2015). "Finite Element Modeling of Steel-Plate Concrete Composite Wall Piers." <i>Engineering Structures</i> , Elsevier Science, Vol. 100, pp. 369-384, http://dx.doi.org/10.1016/j.engstruct.2015.06.023
J46.	Lai, Z., Varma, A.H., and Griffis, L. (2016). "Analysis and Design of Noncompact and Slender CFT Beam-Columns." <i>Journal of Structural Engineering</i> , ASCE, Vol. 142, Issue 1, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001349 , 04015097
J47.	Lai, Z., Connor, R., and Varma, A.H. (2016). "Retrofit Analysis and Design of Built-up Steel Columns: Modeling and Fundamental Behavior." <i>Journal of Bridge Engineering</i> , ASCE, Vol. 21, Issue 3, http://dx.doi.org/10.1061/(ASCE)BE.1943-5592.0000808
J48.	Selden, K., Fischer, E., and Varma, A.H. (2016). "Experimental Investigation of Composite Beams with Shear Connections Subjected to Fire Loading." <i>Journal of Structural Engineering</i> , ASCE, Vol. 142, Issue 2, Reston, VA, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001381 , 04015118
J49.	Fischer, E.C., Liu, J., and Varma, A.H. (2016). "Investigation of cylindrical steel tank damage during earthquakes: Lessons learned and mitigation opportunities." <i>Practice Periodical on Structural Design and Construction</i> , ASCE, Vol. 21, No. 3, http://dx.doi.org/10.1061/(ASCE)SC.1943-5576.0000283 , 04016004.
J50.	Kurt, E.G., Varma, A.H., Booth, P.N., and Whittaker, A., (2016). "In-plane Behavior and Design of Rectangular SC Wall Piers Without Boundary Elements." <i>ASCE Journal of Structural Engineering</i> , Vol. 142, No. 6, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001481 , 04016026
J51.	Choe, L., Agarwal, A., and Varma A.H. (2016). "Steel Columns Subjected to Thermal Gradients from Fire Loading: Experimental Evaluations" <i>Journal of Structural Engineering</i> , ASCE, Vol. 142, No. 7, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001500 , 04016037
J52.	Selden, K., and Varma, A.H. (2015). "Flexural Capacity of Composite Beams Subjected to Fire: Fiber-Based Models and Benchmarking." <i>Fire Technology</i> , Springer, February, http://dx.doi.org/10.1007/s10694-016-0565-7
J53.	Seo, J., Varma, A.H., Sener, K., and Ayhan, D. (2016). "Steel-Plate Composite (SC) Walls: In-Plane Shear Behavior, Database, and Design." <i>Journal of Constructional Steel Research</i> , Elsevier Science, Volume 119, Pages 202-215, http://dx.doi.org/10.1016/j.jcsr.2015.12.013
J54.	Choe, L., Zhang, C., Luecke, W., Gross, J., and Varma, A.H. (2017). "Influence of Material Models on Predicting the Fire Behavior of Steel Columns." <i>Fire Technology</i> , Vol. 53, Issue 1, pp. 375-400, Springer, http://dx.doi.org/10.1007/s10694-016-0568-4
J55.	Lai, Z., Connor, R., Varma, A.H., and Patterson, D. (2016). "Retrofit of Built-Up Steel Columns: Parametric Studies and Design." <i>Journal of Bridge Engineering</i> , Vol. 21, Issue 11, ASCE, http://dx.doi.org/10.1061/(ASCE)BE.1943-5592.0000950 , 04016080
J56.	Washleski, T.L. Sener, K.C., Connor, R.J., and Varma, A.H. (2016). "Load Rating Procedures for Railroad Flatcars Repurposed as Sustainable Highway Bridges." <i>Journal of Bridge Engineering</i> , ASCE, Vol. 21, Issue 11, http://dx.doi.org/10.1061/(ASCE)BE.1943-5592.0000945 , 04016078
J57.	Selden, K., and Varma, A.H. (2016). "Composite Beams Under Fire Loading: Numerical Modeling of Behavior." <i>Journal of Structural Fire Engineering</i> , Vol. 7, No. 2, pp. 142-157, http://dx.doi.org/10.1108/JSFE-06-2016-011
J58.	Lai, Z., and Varma, A.H. (2016). "Effective Stress-Strain Curves for Noncompact and Slender CFT Members." <i>Engineering Structures</i> , Elsevier Science, Vol. 124, pp. 457-472, http://dx.doi.org/10.1016/j.engstruct.2016.06.028
J59.	Sener, K., Varma, A.H., and Seo, J. (2016). "Experimental and Numerical Investigations of the Shear Behavior of Steel-Plate Composite (SC) Beams Without Shear Reinforcement." <i>Engineering Structures</i> , Elsevier Science, Vol. 127, pp. 495-509, http://dx.doi.org/10.1016/j.engstruct.2016.08.053
J60.	Fischer, E., Selden, K., and Varma, A.H. (2017). "Experimental Evaluation of the Fire Performance of Simple Connections." <i>Journal of Structural Engineering</i> , ASCE, Vol. 143, No. 2, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001664
J61.	Fischer, E., and Varma, A.H. (2017). "Fire Resilience of Composite Beams with Simple Connections: Parametric Studies and Design." <i>Journal of Constructional Steel Research</i> , Vol. 128, pp. 119-135, http://dx.doi.org/10.1016/j.jcsr.2016.08.004
J62.	Bhardwaj, S., Varma, A.H., and Malushte, S. (2017). "Minimum Requirements and Section Detailing Provisions for Steel-Plate Composite (SC) Walls of Safety-Related Nuclear Facilities." <i>Engineering Journal</i> , Vol. 54, Issue 2, pp. 89 – 108, AISC, https://doi.org/10.62913/engj.v54i2.1114

J63.	Seo, J., and Varma, A.H., (2017). "Experimental behavior and design of steel plate composite-to-reinforced concrete (SC-to-RC) lap splice connections." <i>Journal of Structural Engineering</i> , Vol. 143, Issue 5, ASCE, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001711
J64.	Bruhl, J. and Varma, A.H. (2016). "Experimental Resistance and Available Ductility of Steel-Plate Composite Walls in One-Way Bending." <i>Journal of Structural Engineering</i> , Vol. 143, Issue 4, ASCE, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001714
J65.	Kurt, E.G., Varma, A.H. and Sohn, Y.M. (2016). "Direct Shear Strength of Rebar-Coupler Anchor Systems for Steel-Plate Composite (SC) Walls." <i>International Journal of Steel Structures</i> , Springer, Vol. 16, No. 4, pp. 1397-1409, http://dx.doi.org/10.1007/s13296-016-0096-6
J66.	Ji, X., Cheng, X., Jia, X., Varma, A.H. (2017). "Cyclic In-Plane Shear Behavior of Double-Skin Composite Walls in High-Rise Buildings." <i>Journal of Structural Engineering</i> , Vol. 143, Issue 6, ASCE, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001749
J67.	Lai, X., Lai, Z., Chen, B., Varma, A.H., and Yu, X. (2017). "Creep Prediction Models for Concrete-Filled Steel Tube (CFT) Arch Bridges." <i>Journal of Bridge Engineering</i> , Vol. 22, Issue 7, ASCE, http://dx.doi.org/10.1061/(ASCE)BE.1943-5592.0001051
J68.	Lai, Z., Huang, Z., and Varma, A.H. (2017). "Seismic Analysis and Performance of High Strength Composite Special Moment Frames (C-SMFs)." <i>Structures</i> , Vol. 9, pp. 165-178, Elsevier Science, http://dx.doi.org/10.1016/j.istruc.2016.12.004
J69.	Lai, Z., and Varma, A.H. (2017). "Seismic Behavior and Modeling of Concrete Partially Filled Spirally Welded Pipes (CPF-SWP)." <i>Thin Walled Structures</i> , Volume 113, pp. 240 – 252, Elsevier Science, http://dx.doi.org/10.1016/j.tws.2016.12.025
J70.	Seo, J., and Varma, A.H. (2017). "Behavior and design of steel-plate composite wall-to-wall corner or L-joints." <i>Nuclear Engineering and Design</i> , Elsevier Science, https://doi.org/10.1016/j.nucengdes.2017.04.008
J71.	Chicchi, R., and Varma, A.H. (2017). "Research Review: Post-Earthquake Fire Assessment of Steel Moment Frame Buildings." <i>Advances in Structural Engineering</i> , SAGE publishing, http://journals.sagepub.com/doi/pdf/10.1177/1369433217711617
J72.	Lai, A., and Varma, A.H. (2017). "Modeling of High-Strength Composite Special Moment Frames (C-SMFs) for Seismic Analysis." <i>Journal of Constructional Steel Research</i> , Vol. 138, pp. 526-537, https://doi.org/10.1016/j.jcsr.2017.07.018
J73.	Chen, B., Lai, Z., Yan, Q., Varma, A.H., and Yu, X. (2017). "Experimental Behavior and Design of CFT-RC Short Columns Subjected to Concentric Axial Loading." <i>Journal of Structural Engineering</i> , ASCE, Vol. 143, No. 11, http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001879
J74.	Fischer, E., and Varma, A.H. (2018). "Experimental Evaluation of Single-Bolted Lap Joint at Elevated Temperatures." <i>Journal of Structural Engineering</i> , ASCE, Vol. 144, Issue 1, https://doi.org/10.1061/(ASCE)ST.1943-541X.0001911
J75.	Huang, W., Lai, Z., Chen, B., Xie, Z., and Varma, A.H., (2018). "Concrete-Filled Steel Tube (CFT) Truss Girders: Experimental Tests, Analysis, and Design. <i>Engineering Structures</i> , Vol. 156, pp. 118-129. Elsevier Science. https://doi.org/10.1016/j.engstruct.2017.11.026
J76.	Lai, Z., and Varma, A.H. (2018). "High-Strength CFT Members: Database, Modeling, and Design of Short Columns." <i>Journal of Structural Engineering</i> , ASCE, Vol. 144, Iss. 5, https://doi.org/10.1061/(ASCE)ST.1943-541X.0002026
J77.	Bruhl, J., and Varma, A.H. (2018). "Experimental Evaluation of Steel-Plate Composite (SC) Walls Subject to Blast Loads." <i>Journal of Structural Engineering</i> , ASCE, Vol. 144, Iss. 9, https://doi.org/10.1061/(ASCE)ST.1943-541X.0002163
J78.	Sohn, Y., Varma, A.H., and Connor, R., (2018). "Realistic Heat Straightening Repair of Steel Beam Bridges." <i>Transportation Research Record</i> , June 2018, http://journals.sagepub.com/doi/abs/10.1177/0361198118780878
J79.	Datta, D, Tomar, V., and Varma, A.H. (2018). "A Path Independent Energy Integral Approach for Analytical Fracture Strength of Steel-Concrete Structures with an Account of Interface Effects." <i>Engineering Fracture Mechanics</i> , Elsevier, https://doi.org/10.1016/j.engfracmech.2018.10.011
J80.	Chicchi, R., and Varma, A.H. (2018). "Assessment of Post-Earthquake Fire Behavior of a Steel MRF Building in a Low Seismic Region." <i>International Journal of Steel Structures</i> , Vol. 18, No. 4, pp. 1470-81, https://doi.org/10.1007/s13296-018-0183-y , Online ISSN 2093-6311, Print ISSN 1598-2351, Springer.
J81.	Bhardwaj, S., Varma, A.H., and Orbovic, N. (2019). "Behavior of Steel-Plate Composite (SC) Walls Under Biaxial Loading." <i>Journal of Structural Engineering</i> , Vol. 145, Issue 2, ASCE, https://doi.org/10.1061/(ASCE)ST.1943-541X.0002247
J82.	Lai, Z., and Varma A.H. (2019). "Database and Review of Beam-to-Column Connections for Seismic Design of Composite Special Moment Frames (C-SMFs)." <i>Journal of Structural Engineering</i> , ASCE, Vol. 145, No. 5, https://ascelibrary.org/doi/10.1061/%28ASCE%29ST.1943-541X.0002295
J83.	Sener, K.C., Bhardwaj, S.R., Varma, A.H. (2019). "Effects of Accident Thermal Loading on Shear Behavior of Reinforced Concrete Members." <i>ACI Structural Journal</i> , Vol. 116, No. 3, pp. 39 – 52. American Concrete Institute, http://dx.doi.org/10.14359/51713305
J84.	Bhardwaj, S.R., Sener, K.C., and Varma, A.H. (2019). "Multi-Hazard Investigation and Testing of Composite (SC) Wall Piers: Seismic and Thermal Loads." <i>Nuclear Engineering and Design</i> , Vol. 348, pp. 121-130, Elsevier Science. https://doi.org/10.1016/j.nucengdes.2019.03.026

J85.	Seo, J., and Varma, A.H. (2019). "Steel Plate Composite Wall-to-Wall T-joints: Joint Shear Strength." <i>Journal of Structural Engineering</i> , ASCE, Vol. 145, No. 7, https://doi.org/10.1061/(ASCE)ST.1943-541X.0002317
J86.	Fischer, E., Agarwal, A., and Varma, A.H. (2019). "Performance-Based Structural Fire Engineering of Steel Building Structures: Design-Basis Compartment Fires." <i>Journal of Structural Engineering</i> , ASCE, Vol. 145, No. 9, https://doi.org/10.1061/(ASCE)ST.1943-541X.0002370
J87.	Terranova, B., Whittaker, A., Bhardwaj, S., and Varma, A.H. (2019). "An Experimental Investigation of the Effects of Out-of-Plane Loading on the In-Plane Seismic Response of SC Wall Piers." <i>Engineering Structures</i> , Vol. 190, pp. 380-388, Elsevier, https://doi.org/10.1016/j.engstruct.2019.04.030
J88.	Sener, K., Washeliski, T., Connor, R., and Varma, A.H. (2019). "Experimental and Analytical Evaluation of the Redundancy of Repurposed Fracture-Critical Railroad-Flatcars." <i>Journal of Constructional Steel Research</i> , Vol. 159, pp. 288-300, Elsevier, https://doi.org/10.1016/j.jcsr.2019.04.034
J89.	Sener, K.C., Varma, A.H., and Chu, M. (2019). "Seismic Performance of an Idealized Steel-Plate Composite (SC) Modular Structure Subjected to Accident Thermal Loading." <i>Nuclear Engineering and Design</i> , Elsevier Science, Vol. 352, 110133, https://doi.org/10.1016/j.nucengdes.2019.05.029
J90.	Sener, K.C., Varma, A.H., Wang, S., Bhardwaj, S.R., and Gallocher, S. (2019). "Modular Steel-Plate Composite (SC) Wall Steelbricks: Experimental and Numerical Evaluation." <i>Nuclear Engineering and Design</i> , Elsevier Science, Vol. 350, pp. 224-233, https://doi.org/10.1016/j.nucengdes.2019.04.032
J91.	Bhardwaj, S.R., Varma, A.H., and Wazalwar, P. (2019). "Axial Force-Biaxial Moment-Shear Interaction For Steel-Plate Composite Wall Piers: A Fiber Model." <i>Nuclear Engineering and Design</i> , Elsevier Science, Vol 349, pp. 162-173, https://doi.org/10.1016/j.nucengdes.2019.04.022
J92.	Liu, F., Wang, Y., Gardner, L., and Varma, A.H. (2019). "Experimental and Numerical Studies of Reinforced Concrete Columns Confined by Circular Steel Tubes Exposed to Fire." <i>Journal of Structural Engineering</i> , ASCE, Vol. 145, No. 11, 04019130, https://doi.org/10.1061/(ASCE)ST.1943-541X.0002416
J93.	Varma, A.H., Shafaei, S., and Klemencic, R. (2019). "Steel Modules of Composite Plate Shear Walls: Behavior, Stability and Design." <i>Thin-Walled Structures</i> , Vol. 145, 106384, https://doi.org/10.1016/j.tws.2019.106384
J94.	Wei, J., Luo, X., Lai, Z., and Varma, A.H. (2019). "Experimental Behavior and Design of High-Strength Circular Concrete-Filled Steel Tube Short Columns." http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0002474
J95.	Yang, H., Yang, X., Varma, A.H., and Zhu, Y. (2019). "Strain-Rate Effect and Constitutive Models for Q550 High-Strength Structural Steel." <i>Journal of Materials Engineering and Performance</i> , Vol. 28, Iss. 11, pp. 6626-6637, https://doi.org/10.1007/s11665-019-04431-2
J96.	Booth, P., Bhardwaj, S., Tseng, T.C., Seo, J., and Varma, A.H. (2020). "Ultimate Shear Strength of Steel-Plate Composite (SC) Walls with Boundary Elements." <i>Journal of Constructional Steel Research</i> , Vol. 165, Elsevier Science, https://doi.org/10.1016/j.jcsr.2019.105810
J97.	Zhang, K., Seo, J., and Varma, A.H. (2020). "Steel-Plate Composite (SC) Walls: Behavior and Design and Behavior for Axial Compressive Loading." <i>Journal of Structural Engineering</i> , ASCE, Volume 146, Issue 4, https://doi.org/10.1061/(ASCE)ST.1943-541X.0002545
J98.	Lee, K., Shin, J., Kim, K. and Varma, A. (2020). "Local Responses of Steel-Plate Composite Walls Subjected to Impact Loads: Intermediate Scale Tests." <i>Engineering Structures</i> , Elsevier, Volume 206, 110131, https://dx.doi.org/10.1016/j.engstruct.2019.110131
J99.	Chicchi, R., Varma, A.H., Seo, J., Bradt, T., and Zhang, K. (2020). "Experimental Testing of Tension-Loaded Deformed Anchors in Concrete." <i>ACI Structural Journal</i> , Sep. 2020, Vol. 117, Issue 5, p133-146.
J100.	Kim, K., Lee, K., Shin, J., Lee, J., and Varma, A.H. (2020). "A Study on the Resistance of SC Walls Subjected to Missile Impact Using Large-Scale Impact Tests." <i>International Journal of Impact Engineering</i> , Elsevier, Volume 139, 103507, https://doi.org/10.1016/j.ijimpeng.2020.103507
J101.	Kim, J.M., Varma, A.H., Seo, J., Bruhl, J., Lee, K.K. and Kim, K. (2020). "Steel-Plate Composite (SC) Walls Subjected to Missile Impact: Experimental Evaluation of Local Perforation." <i>Journal of Structural Engineering</i> , Vol. 147, No. 2, ASCE, https://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0002806
J102.	Chen, J., Chan, T.M., and Varma, A.H. (2020). "Stub Column Behavior of Cold-Formed High Strength Steel Circular Hollow Sections Under Compression." <i>Journal of Structural Engineering</i> , ASCE, https://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0002828
J103.	Bruhl, J., and Varma, A.H. (2020). "Analysis and Design of One-Way Steel-Plate Composite (SC) Walls for Far-Field Blast Effects." <i>Journal of Structural Engineering</i> , Vol. 147, No. 1, pp. 04020288, ASCE, https://doi.org/10.1061/(ASCE)ST.1943-541X.0002868
J104.	Sener, K., and Varma, A.H. (2020). "Steel-Plate Composite Walls with Different Types of Out-of-Plane Shear Reinforcement: Behavior, Analysis, and Design." <i>Journal of Structural Engineering</i> , ASCE, Vol. 147, No. 2, pp. 04020329, https://doi.org/10.1061/(ASCE)ST.1943-541X.0002870
J105.	Alasiri, M.R., Chicchi, R., and Varma, A.H. (2020). "Post-Earthquake Fire Behavior and Performance-Based Fire Design of Steel Moment Frame Buildings." <i>Journal of Constructional Steel Research</i> , Elsevier, https://doi.org/10.1016/j.jcsr.2020.106442
J106.	Yang, Y., Varma, A.H., Kreger, M., Wang, Y., and Zhang, K. (2020). "Shear Strength of Reinforced Concrete Beams with T-Headed Bars for Safety-Related Nuclear Structures." <i>Engineering Structures</i> , Elsevier, https://doi.org/10.1016/j.engstruct.2020.111705
J107.	Kenarangi, H., Bruneau, M., Varma, A.H., and Ahmad, M. (2021). "Simplified Equations for Shear Strength of Composite Concrete Filled Steel Tubes." <i>Engineering Journal</i> , Volume 58, Issue 3, pp. 197-222, AISC, https://doi.org/10.62913/engj.v58i3.1178

J108.	Chicchi, R., and Varma, A.H. (2022). "Comparison of Simple and Advanced Methods of Analysis in AISC 360 for Fire Resistant Structural Design." <i>Engineering Journal</i> , Vol. 59, No. 1, pp. 5-30, AISC, https://doi.org/10.62913/engj.v59i1.1215
J109.	Seo, J., Varma, A.H., and Zhang, K. (2021). "Non-Contact Lap Splice Connections of Steel-Plate Composite Wall-to-Reinforced Concrete Structures." <i>Engineering Structures</i> , Elsevier, Vol. 246, 112954, https://doi.org/10.1016/j.engstruct.2021.112954
J110.	Shafaei, S., Varma, A.H., and Klemencic, R. (2021). "Cyclic Lateral Loading Behavior of Composite Plate Shear Walls / Concrete Filled (C-PSW/CF)." <i>Journal of Structural Engineering</i> , Vol. 147, Iss. 10, ASCE, https://doi.org/10.1061/(ASCE)ST.1943-541X.0003091
J111.	Shafaei, S., Varma, A.H., Broberg, M., and Klemencic, R. (2021). "Modeling the cyclic behavior of composite plate shear walls / concrete filled (C-PSW/CF)." <i>Journal of Constructional Steel Research</i> , Vol. 184, Sept. 2021, 106810, https://doi.org/10.1016/j.jcsr.2021.106810
J112.	Harmon, J., and Varma, A.H. (2021). "Local Buckling of Steel Faceplates Anchored to Concrete Infill in C-PSW/CF." <i>Thin-Walled Structures</i> , Vol. 167, 108230, Elsevier, https://doi.org/10.1016/j.tws.2021.108230
J113.	Kizilarslan, E., Broberg, M., Shafaei, S., Varma, A.H., and Bruenau, M. (2021). "Seismic Design Coefficients and Factors for Coupled Composite Plate Shear Walls / Concrete Filled (CC-PSW/CF)" <i>Engineering Structures</i> , Vol. 244, Oct. 2021, 112766, Elsevier, https://doi.org/10.1016/j.engstruct.2021.112766
J114.	Kizilarslan, E., Broberg, M., Shafaei, S., Varma, A.H., and Bruneau, M. (2021). "Non-Linear Analysis Models for Composite Plate Shear Walls – Concrete Filled (C-PSW/CF)." <i>Journal of Constructional Steel Research</i> , Vol. 184, Sept. 2021, 106803, Elsevier, https://doi.org/10.1016/j.jcsr.2021.106803
J115.	Broberg, M., Shafaei, S., Kizilarslan, E., Seo, J., Varma, A.H., Bruneau, M., and Klemencic, R. (2022). "Capacity Design of Coupled Composite Plate Shear Walls / Concrete Filled (CC-PSW/CF)." <i>Journal of Structural Engineering</i> , ASCE, Vol. 148, No. 4, https://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0003296
J116.	Huang, D., Bradt, T., Tseng, T-C, Wang, S., Olek, J., Varma, A.H., Williams, C., and Nantung, T. (2021). "Influence of Bridge Fires on the Properties of Concrete and Steel Components." <i>Transportation Research Record</i> , National Academy of Sciences: Transportation Research Board 2021, https://doi.org/10.1177/03611981211036343
J117.	Huber, D., Varma, A.H., and Ramesh, S. (2022). "Experimental Evaluation of Long Span Composite Cellular Deep Deck Floor Systems." <i>Engineering Journal</i> , AISC, Accepted, in press.
J118.	Anwar, S.H., Seo, J., Varma, A.H., and Nam, Y. (2022). "Steel-Plate Composite (SC) Wall to Reinforced Concrete (RC) Wall Mechanical Connection – Part 1: Out-of-Plane Flexural Strength." <i>Engineering Journal</i> , AISC, Vol. 59, No. 1, pp. 31-52, AISC, https://doi.org/10.62913/engj.v59i1.1214
J119.	Fischer, E.C., Varma, A.H., and Gordon, J.A. (2022). "Performance-based Structural Fire Engineering of Steel Building Structures: Travelling Fires." <i>Frontiers in Built Environment</i> , Vol. 8, No. 907237, https://doi.org/10.3389/fbuil.2022.907237
J120.	Kurt, E.G., Seo, J., and Varma, A.H. (2022). "SC Wall-to-RC Basemat Over-Strength Connection: Behavior and Design." <i>CivilEng</i> 2022, 3, 503-524, https://doi.org/10.3390/civileng3020030
J121.	Carlos Alberto Madera Sierra, Saahastaranshu R. Bhardwaj & Amit H. Varma. (2022). "Design of reinforced concrete (RC) wall panels in industrial facilities: Eurocode 'sandwich' model approach." <i>European Journal of Environmental and Civil Engineering</i> , https://doi.org/10.1080/19648189.2022.2090446
J122.	Kim, J.M., Varma, A.H., Lee, K., and Kim, K. (2022). "Steel-Plate Composite Walls Subjected to Missile Impact: Numerical Evaluation of Local Damage." <i>Journal of Structural Engineering</i> , ASCE, Vol. 148, Issue 10, https://doi.org/10.1061/(ASCE)ST.1943-541X.0003417
J123.	Shafaei, S., Varma, A.H., Seo, J., Huber, D., and Klemencic, R. (2022). "Wind Design of Coupled Composite Plate Shear Walls / Concrete Filled (SpeedCore) Systems." <i>Engineering Journal</i> , Vol. 59, Issue 3, pp. 183-208, AISC, https://doi.org/10.62913/engj.v59i3.1192
J124.	Anvari, A.T., Bhardwaj, S., Sharma, S., and Varma, A.H. (2022). "Performance of Composite plate shear Walls / Concrete Filled (C-PSW/CF) under Fire Loading: A Numerical Investigation." <i>Engineering Structures</i> , Elsevier, https://doi.org/10.1016/j.engstruct.2022.114883
J125.	Seo, J., Rehman, A., Varma, A.H., and Kim, S. (2022). "Pullout Strength of Embed Plates with Welded Anchor Bars in Concrete." <i>ACI Structural Journal</i> , Vol. 119, No. 6, pp. 313-328
J126.	Anwar, S.H., Seo, J., Varma, A.H., and Nam, Y. (2022). "Steel-Plate Composite (SC) Wall to Reinforced Concrete (RC) Wall Mechanical Connection – Part 2: In-Plane and Out-of-Plane Shear." <i>Engineering Journal</i> , Vol. 60, No. 1, pp. 31-59, AISC, https://doi.org/10.62913/engj.v60i1.1198
J127.	Korkmaz, C., Connor, R., Lai, Z., and Varma, A.H. (2022). "Modeling of Shear Studs for Composite Bridges with Haunches." <i>ACI Structural Journal</i> , Vol. 119, No. 6, pp. 129-140, https://doi.org/10.14359/51734797
J128.	Bhardwaj, S., Sener, K., and Varma, A.H. (2023). "Effects of Accident Thermal Loading on In-Plane Shear Behavior of Steel-Plate Composite (SC) Walls." <i>Engineering Journal</i> , AISC, Vol. 60, No. 2, pp. 73-92, AISC, https://doi.org/10.62913/engj.v60i2.1205
J129.	Broberg, M., Agrawal, S., Varma, A., and Klemencic, R. (2023). "Seismic Design Parameters (R, Wo, and Cd) for Uncoupled Composite Plate Shear Walls – Concrete Filled." <i>Earthquake Engineering and Structural Dynamics</i> , Vol. 52, Iss. 10, pp. 3149-3170, https://doi.org/10.1002/eqe.3917
J130.	Tarasova, A., Kanakamadela, D., Varma, A.H., and Connor, R.J. (2023). "Assessment of Innovative Repair Methods for Corroded Steel Girder Bridges Using the House of Quality Matrix." <i>Transportation Research Record</i> , https://journals.sagepub.com/doi/pdf/10.1177/03611981231175893

J131.	Sener, K., Witte, J., and Varma, A. (2023). "Investigations on the Influence of Load Width on Web Compression Buckling Strength of Wide-Flange Steel Members." Vol. 275, Part A, 114966, https://doi.org/10.1016/j.engstruct.2022.114966
J132.	Alghossoon, A., and Varma, A. (2023). "Fiber-Based Models for Simulating Strength and Stiffness Deterioration of High-Strength Steel Beams." <i>Thin-Walled Structures</i> , Vol. 183, 110432, https://doi.org/10.1016/j.tws.2022.110432
J133.	Alghossoon, A., and Varma, A. (2023). "Rectangular Filled Composite Members Made from High-Strength Materials: Behavior and Design of Columns and Beams." <i>Thin-Walled Structures</i> , Vol. 185, 110641, https://doi.org/10.1016/j.tws.2023.110641
J134.	Madera Sierra, C.,A., Bhardwaj, S., and Varma, A.H. (2023). "Design of Reinforced Concrete (RC) Panels in Industrial Facilities: Eurocode 'Sandwich' Model Approach. <i>European Journal of Environmental and Civil Engineering</i> , Vol. 27, No. 9, pp. 2922-2949, https://doi.org/10.1080/19648189.2022.2090446
J135.	Shafaei, S., Varma, A., Huber, D., and Klemencic, R., (2023). "Lateral Load Behavior of C-PSW/CFs Using Steel Members as Boundary Elements." <i>Journal of Structural Engineering</i> , Vol. 149, No. 9, 04023112, https://doi.org/10.1061/JSENDH.STENG-12085
J136.	Debnath, P.P., Chen, J., Varma, A.H., and Chan, T.K. (2023). "Study on Headed Shear Studs Influencing the Interfacial Bond Behaviour in CFST Columns." <i>CE/papers</i> , Vol. 6, Issue (3-4), pp. 72-77, https://doi.org/10.1002/cepa.2368
J137.	Alghossoon, A., and Varma, A.H. (2023). "Beam-column behavior and design equations for high-strength composite filled tube (CFT) members: Investigating the interaction between section and member slenderness ratio." <i>Journal of Building Engineering</i> (2023), https://doi.org/10.1016/j.jobe.2023.107943
J138.	Varma, A.H., Ahmad, M., Shafaei, S., and Klemencic, R. (2024). "Seismic Design and Performance of Composite Coupling Beam-to-SpeedCore Wall Connections." <i>Engineering Journal</i> , Vol. 61, Issue 1, pp. 1 – 24, AISC, https://doi.org/10.62913/engj.v61i1.1309
J139.	Saleem, O.B., Varma, A.H., and Bruhl, J. (2024). "Evaluating concrete material models for blast analysis using 3D finite element analysis." <i>International Journal of Protective Structures</i> , https://doi.org/10.1177/20414196241269051
J140.	Ahmad, M., Shafaei, S., Varma, A.H., and Klemencic, R. (2024). "Experimental Investigation of Composite Coupling Beam-to-Wall Connections in Coupled C-PSW/CF Systems." <i>Journal of Structural Engineering</i> , ASCE Vol. 150, No. 9, 04024114, https://doi.org/10.1061/JSENDH.STENG-13453
J141.	Rodriguez, F.B., Moini, R., Agrawal, S., Williams, C.S., Zavattieri, P.D., Olek, J., Youngblood, J.P., and Varma, A.H. (2024). "Mechanical response of small-scale 3D-printed steel-mortar composite beams." <i>Cement and Concrete Composites</i> , Vol. 154, 105795, https://doi.org/10.1016/j.cemconcomp.2024.105795
J142.	Anvari, A., Bhardwaj, S., and Varma, A.H. (2024). "Performance of Composite Plate Shear Walls (SpeedCore) Under Fire Loading: An Experimental Investigation." <i>Fire Technology</i> , https://doi.org/10.1007/s10694-024-01658-x
J143.	Alghossoon, A., Omoush, D., and Varma, A. (2024). "AISC 360-22 Design Equations for High-Strength Concrete-Filled Tubes: From Rectangular to Circular Sections." <i>Journal of Constructional Steel Research</i> , Vol. 226, 109148, https://doi.org/10.1016/j.jcsr.2024.109148
J144.	Alghossoon, A., Omoush, D., and Varma, A. (2025). "Local Buckling Behavior in High-Strength Steel Beams: A Concentrated Plasticity Approach." <i>Thin-Walled Structures</i> , Vol. 210, pages 113055, https://doi.org/10.1016/j.tws.2025.113055
J145.	Alghossoon, A., Omoush, D., and Varma, A. (2025). "Flexural Behavior and Design of Circular Concrete-Filled Tube Beams: Effective Stress Method." <i>Engineering Structures</i> , Vol. 332, pages 120104, https://doi.org/10.1016/j.engstruct.2025.120104
J146.	Sharma, S., Shafaei, S., Varma, A. and Klemencic, R. (2025). "Bolted Splice Connections for Composite Plate Shear Walls / Concrete Filled: Monotonic Behavior and Numerical Modeling." <i>Journal of Structural Engineering</i> , ASCE, Vol. 151, No. 7, pages 04025085, https://doi.org/10.1061/JSENDH.STENG-14655
J147.	Alghossoon, A., Omoush, D., and Varma, A. (2025). "Modern Techniques for Designing High-Strength Circular Concrete-Filled Tube Columns: Knowledge-Guided Data Approach." <i>Structures</i> , Vol. 78, pages 109220, https://doi.org/10.1016/j.istruc.2025.109220
J148.	Alghossoon, A., Omoush, D., and Varma, A. (2025). "Modeling of Wide Flange High-Strength Steel Columns Using Fiber-Based Models." <i>Journal of Constructional Steel Research</i> , Vol. 235, pages 109780, https://doi.org/10.1016/j.jcsr.2025.109780
J149.	Sharma, S., Shafaei, S., Varma, A., and Klemencic, R. (2025). "Wind and Seismic Behavior of Noncontact Lap-Splice Connections for Concrete-Filled Composite-Plate Shear Walls." <i>Journal of Structural Engineering</i> , Vol. 52, No. 1, 04025225, https://doi.org/10.1061/JSENDH.STENG-14869
J150.	Kanakmedala, D., Seo, J., Tarasova, A., Varma, A.H., and Connor, R.J. (2025). "In-Depth Investigation of Web Corrosion's Influence on Bearing and Shear Capacity in Steel Girders." <i>Journal of Bridge Engineering</i> , Vol. 30, No. 12, 04025083, https://doi.org/10.1061/JBENF2.BEENG-7268
J151.	Alasiri, M.R., Anvari, A.T., Varma, A.H. (2025). "Experimental Investigations of the Fire Behavior of Floor-to-SpeedCore Wall Connections." <i>Journal of Building Engineering</i> , Vol. 112, No. 15, 113637, https://doi.org/10.1016/j.jobe.2025.113637
J152.	Sierra, CAM, Bhardwaj, S.R., and Varma, A.H. (2025). "ACI-Based Design Approach for Reinforced-Concrete Panels in Industrial Facilities." <i>ACI Structural Journal</i> , Vol. 123, No. 2, https://doi.org/10.14359/51749163
J153.	Sharma, S., Shafaei, S., Varma, A., and Klemencic, R. (2025). "Design of Noncontact Lap Splice Connections for C-PSW/CF (SpeedCore)." <i>Engineering Journal</i> , Vol. 63, Issue 1, pp. 27-47, AISC, https://doi.org/10.62913/engj.v63i1.1365

J154.	Chobe, G., Davariya, I., Waghmare, D., Sharma, S., Sharma, A., Varma, A.H., and Pol, V.G. (2026). "A Pilot Study on Upcycling of Lithium-Ion Battery Waste in Greener Cementitious Construction Materials." <i>CivilEng</i> , Vol. 7, Iss. 1, https://doi.org/10.3390/civileng7010007
J155.	Debnath, P., Chen, J., Chan, T.M., and Varma, A.H. (2026). "Assessment of Steel-Concrete Interfacial Strength in CFST Columns with Headed Shear Studs." <i>Thin-Walled Structures</i> , Vol. 225, Part A, 114755, https://doi.org/10.1016/j.tws.2026.114755
J156.	Sharma, S., Shafaei, S., and Varma, A. (2026). "Seismic and Wind Behavior of Bolted Wall-to-Wall Connections for C-PSW/CF (SpeedCore) Systems." <i>Structures</i> , Vol. 87, 111702, https://doi.org/10.1016/j.istruc.2026.111702
J157.	Tarasova, A., Kanakamedala, D., Seo, J., Varma, A.H., and Connor, R. (2026). "Experimental and Numerical Evaluation of the "Sandwich Panel" Repair Method for Corrosion-Damaged Bridge Girders." <i>Journal of Bridge Engineering</i> , ASCE, in press.
J158.	Sharma, S., Shafaei, S., Varma, A.H., and Klemencic, R. (2026). "Behavior and Design of Bolted Splice Connections for C-PSW/CF (SpeedCore) Walls." <i>Journal of Structural Engineering</i> , ASCE, in press
J159.	Kanakamedala, Deven and Xiao, Jinwu and Ju, Ha Kyun and Seo, Jungil and Kang, Kyubyung and Varma, Amit H., A Framework for Residual Strength Assessment of Corroded Steel Bridge Girders Using 3D Scanning Technologies. Available at SSRN: https://ssrn.com/abstract=6173115 or http://dx.doi.org/10.2139/ssrn.6173115
J160.	Shafaei, Soheil and Varma, Amit H. and Klemencic, Ron, Nonlinear Modeling of Concrete-Filled Composite Coupling Beams in Coupled SpeedCore systems. Available at SSRN: https://ssrn.com/abstract=6250086 or http://dx.doi.org/10.2139/ssrn.6250086

6.2 Shorter communications, letters, notes or briefs in refereed journals.

1	Varma, A.H., Ricles, J.M., and Sause, R. (2003). "Closure of – Experimental Behavior of High Strength Square CFT Beam-Columns," Discussion by C.N. Srinivasan. <i>Journal of Structural Engineering</i> , ASCE, Vol. 129, No. 9., pp. 1285-86.
2	Fischer, E.C., Varma, A.H. (2018). "Closure to – Experimental Evaluation of the Fire Performance of Simple Connections." Discussion by Junming Jiang
3	Fischer, E.C., Varma, A.H. (2018). "Closure to – Experimental Evaluation of Single-Bolted Lap Joints at Elevated Temperatures" Discussion by Lip Teh and Gregory Deierlein
4	Bhardwaj, S.R., Varma, A.H., and Al-Shawaf, T. (2016). "Nuclear Design Development" <i>Modern Steel Construction</i> , AISC, January 2016. http://msc.aisc.org/globalassets/modern-steel/archives/2016/01/nuclear.pdf
5	Varma, A.H., Broberg, M., Shafaei, S., and Anvari, A. (2023). "Designed for Speed" <i>Modern Steel Construction</i> , https://lsc-pagepro.mydigitalpublication.com/article/Designed+for+Speed/4589340/793358/article.html

6.3 Books and chapters in books

B1.	<i>Guide to Stability Design Criteria for Metal Structures</i> . Sixth Edition. Edited by Ronald D. Ziemian. Wiley. [Chapter 10. Composite Columns and Structural Systems. By Varma, A. H., Chair of Task Group 20 – Composite Columns]
B2.	<i>AISC Design Guide 32: Design of Modular Steel Plate Composite (SC) Walls for Safety Related Nuclear Facilities</i> . By, Bhardwaj, S., and Varma, A.H. Published by: AISC, Chicago, IL
B3.	Lai, Z., Fischer, E., and Varma, A.H. (2020). <i>Composite Special Moment Frames: Wide Flange Beam to Concrete-Filled Steel Column Connections</i> . American Society of Civil Engineers, Reston, VA.
B4.	<i>AISC Design Guide 38 (2023): SpeedCore Design for Wind, Seismic, and Fire Loading</i> . By, Varma, A.H., Broberg, M., Shafaei, S., and Taghipour, A. Published by: AISC, Chicago, IL.

6.4 Articles in conference or symposium proceedings

C1.	Varma, A.H., Ricles, J.M., Sause, R., Hull, B., and Lu, L.W. (1998). "Behavior of High Strength Square CFT Columns," <i>Proceedings of the Sixth U.S. National Conference on Earthquake Engineering</i> , proceedings on CD-ROM, Earthquake Engineering Research Institute, Oakland, CA, 12 pp.
C2.	Varma, A.H., Hull, B. K., Ricles, J. M., Sause, R., and Lu, L.W. (1998). "Experimental Studies of High Strength CFT Beam-Columns," <i>Proceedings of the Fifth Pacific Structural Steel Conference</i> , (Invited Paper), Seoul, Korea, October 13 – 16, pp. 894-900.
C3.	Varma, A.H., Hull, B.K., Ricles, J.M., Sause, R., and Lu, L.W. (1999). "High Strength Square CFT Columns: An Experimental Perspective," Proceedings of the SSRC Annual Technical Session and Meeting, Structural Stability Research Council, Univ. of Missouri, Rolla, pp. 205-218. http://www.scopus.com/inward/record.url?eid=2-s2.0-3042598401&partnerID=MN8TOARS
C4.	Varma, A.H., Sause, R., and Ricles, J.M. (2000). "FEM Analysis of High Strength Square CFT Columns," Proceedings of the Annual Technical Session and Meeting, Structural Stability Research Council, Univ. of Missouri, Rolla, pp. 272-287. http://www.scopus.com/inward/record.url?eid=2-s2.0-3042684725&partnerID=MN8TOARS
C5.	Varma, A.H., Ricles, J.M., and Sause, R. (2000). "Seismic Behavior of High Strength CFT Beam-Columns," <i>Composite and Hybrid Structures, Proceedings of the 6th ASCCS International Conference on Steel-Concrete Composite Structures</i> , eds. Y. Xiao and S.A. Mahin, ASCCS-6 Secretariat, Univ. of Southern California, Los Angeles, CA, Vol. 1, pp. 547-556.

C6.	Varma, A.H., Ream, A., Ricles, J.M., Sause, R., and Lu, L. (2000). "Seismic Performance of High Strength CFT Beam-columns," Proceedings of the ASCE Structures Congress – 2000, proceedings on CD-ROM, ASCE, Reston, VA, pp. 1-8, http://dx.doi.org/10.1061/40492(2000)120
C7.	Varma, A.H., Ream A., Ricles, J.M., Sause, R., and Lu, L.W. (2000). "Performance of High Strength CFT Columns under Seismic Loading," <i>Behaviour of Steel Structures in Seismic Areas: STESSA 2000</i> , Mazzolani, F.M. and Tremblay, R. (eds.), A. A. Balkema, Rotterdam, Netherlands, pp. 79-86.
C8.	Varma, A.H., Ricles, J.M., and Sause, R. (2001). "Seismic Behavior of High Strength Square CFT Beam-Columns," Proceedings of the Annual Technical Session and Meeting, Structural Stability Research Council, Univ. of Missouri, Rolla, pp. 459-480. http://www.scopus.com/inward/record.url?eid=2-s2.0-3042688912&partnerID=MN8TOARS
C9.	Varma, A.H., Ricles, J.M., Sause, R., and Lu, L.W. (2002). "Seismic Behavior and Design of High Strength Composite Concrete Filled Steel Tube (CFT) Beam-Columns," <i>Proceedings of the 7th U.S. National Conference on Earthquake Engineering</i> , proceedings on CD-ROM, Earthquake Engineering Research Institute, Oakland, CA, 12 pp.
C10.	Varma, A.H., Ricles, J.M., and Sause, R. (2002). "Analysis and Design of High Strength Square CFT Beam-Columns," Proceedings of the Annual Technical Session and Meeting, Structural Stability Research Council, University of Missouri, Rolla, pp. 219-244. http://www.scopus.com/inward/record.url?eid=2-s2.0-3042847537&partnerID=MN8TOARS
C11.	Kowalkowski, K., and Varma, A.H. (2003). "Evaluation of Analytical Models for High Strength Square CFT Beam-Columns," Proceedings of the Annual Technical Session, Structural Stability Research Council, University of Missouri, Rolla, pp. 539–564. http://www.scopus.com/inward/record.url?eid=2-s2.0-3042728231&partnerID=MN8TOARS
C12.	Varma, A.H., Kowalkowski, K., and Shingledecker, J. (2004). "Multiple Heat Straightening of Damaged Steel Bridges," <i>Proceedings of the Transportation Research Board Meetings</i> , proceedings on CD-ROM, TRB, Washington, D.C., 21 pp.
C13.	Huang, Z., Varma, A.H., Harichandran, R., and Cordero, A. (2004). "Effects of Inelastic Local Buckling on the Behavior of Structural Members and Frames," Proceedings of the Annual Stability Conference, Structural Stability Research Council, Univ. of Missouri, Rolla, pp 329-352. http://www.scopus.com/inward/record.url?eid=2-s2.0-3042722242&partnerID=MN8TOARS
C14.	Varma, A.H., Srisa-Ard, J., and Hong, S. (2004). "Behavior of CFT Columns and Beam-Column Under Fire Loading," Proceedings of the Annual Stability Conference, Structural Stability Research Council, Univ. of Missouri, Rolla, pp. 557-580. http://www.scopus.com/inward/record.url?eid=2-s2.0-3042842696&partnerID=MN8TOARS
C15.	Varma, A.H., Srisa-Ard, J., and Hong, S. (2004). "Analytical Investigations of the Fire Behavior of Concrete Filled Steel Tube (CFT) Columns," Proceedings of the ASCE Structures Congress, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1-11, http://dx.doi.org/10.1061/40700(2004)125
C16.	Kowalkowski, K., and Varma, A. H. (2005). "Experimental Investigations of the Effects of Multiple Damage-Heat Straightening Repair Cycles on the Structural Properties of Bridge Steels," <i>Proceedings of the Transportation Research Board Meetings</i> , proceedings on CD-ROM, TRB, Washington, D.C., 27 pp.
C17.	Hong, S., and Varma, A.H. (2005). "Behavior of CFT Beam-Columns Under Elevated Temperatures from Fire Loading," Proceedings of the ASCE Structures, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1-12, http://dx.doi.org/10.1061/40753(171)52
C18.	Varma, A.H., Hong, S., and Iwankiw, N. (2006). "Stability of Columns Under Fire Loading," Proceedings of the Annual Technical Session, Structural Stability Research Council, Univ. of Missouri, Rolla, pp. 243-266. http://www.scopus.com/inward/record.url?eid=2-s2.0-58149475043&partnerID=MN8TOARS
C19.	Kowalkowski, K., and Varma, A.H. (2006). "Effects of Multiple Damage-Heat Straightening Repairs on Steel Beams," <i>Proceedings of the Transportation Research Board Meetings</i> , proceedings on CD-ROM, Paper #06-1863, TRB, Washington, D.C., 27 pp. http://pubsindex.trb.org/view/2006/C/777130
C20.	Prabhu, M., Varma, A.H., Buch, N., and Thandavesvara, D. (2006). "Experimental Evaluation of Dowel Misalignment on Joint Pullout Behavior," <i>Proceedings of the Transportation Research Board Meetings</i> , proceedings on CD-ROM, TRB, Washington, D.C., 27 pp.,
C21.	Huang, Z., and Varma, A.H. (2006). "Seismic Behavior of Moment Resisting Frames With High-Strength Square CFT Columns," <i>Proceedings of the 8th US National Conference on Earthquake Engineering</i> , proceedings on CD-ROM, Earthquake Engineering Research Institute, Oakland, CA, 12 pp. http://www.scopus.com/inward/record.url?eid=2-s2.0-84865837416&partnerID=MN8TOARS
C22.	Prabhu, M., Varma, A. and Buch, N. (2006). "Effects of Dowel Misalignment on the Stress-States in Concrete Pavement Joints," <i>Proceedings of the 6th International DUT-Workshop on Fundamental Modeling of Design and Performance of Concrete Pavements</i> , Delft University of Technology, The Netherlands.
C23.	Varma, A.H., and Hong, S. (2007). "Column Stability Under Fire Loading Using Fundamental Section Behavior," Proceedings of the Annual Technical Session, Structural Stability Research Council, Univ. of Missouri – Rolla, pp. 477-495. http://www.scopus.com/inward/record.url?eid=2-s2.0-52349120578&partnerID=MN8TOARS
C24.	Huber, D., and Varma, A.H. (2007). "Development of Long Span Floor Systems for Multistory Residential Construction," Proceedings of the North American Steel Construction Conference, Proceedings on CD-ROM,

	AISC, Chicago, IL, pp. 1-15. https://www.aisc.org/bookstore/itemRedirector.aspx?id=16508&customerId=70915&orderNumber=221219
C25.	Hong, S., and Varma, A. H. (2007). "Fundamental Behavior of CFT Beam-Columns Under Standard Fire Loading," Proceedings of the ASCE Structures Congress – 2007, proceedings on CD-ROM, ASCE, Reston, VA, pp. 1-15, http://dx.doi.org/10.1061/40944(249)59
C26.	Kowalkowski, K., and Varma, A.H. (2007). "Analytical Simulation of the Heat Straightening Repair of Damaged Steel Bridges," Proceedings of the ASCE Structures Congress – 2007, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1-10, http://dx.doi.org/10.1061/40946(248)75
C27.	Prabhu, M., Varma, A.H., and Buch, N. (2007). "Experimental and Analytical Investigations of the Mechanistic Effects of Dowel Misalignment in Concrete Pavement Joints," <i>Proceedings of the Transportation Research Board Meetings</i> , proceedings on CD-ROM, TRB, Washington, D.C., 26 pp.
C28.	Kowalkowski, K., and Varma, A. H. (2007). "Effects of Heat Straightening Repairs on The Structural Properties and Microstructure of Bridge Steels," <i>Proceedings of the Transportation Research Board Meetings</i> , Paper #07-3455, proceedings on CD-ROM, TRB, Washington, D.C., 27 pp.
C29.	Booth, P.N., Varma, A.H., Malushte, S., and Johnson, W. (2007). "Response of Modular Composite Walls to Combined Thermal & Mechanical Load," <i>Transactions of SmiRT-19</i> , Toronto, Canada, IASMIRT, North Carolina State University, Rayleigh, NC, pp. 1-8, Link to paper .
C30.	Agarwal, A., and Varma, A.H., (2008) "Modeling the Behavior of Structural Columns under Fire Loading Effects." Proceedings of the ASCE Structures Congress-2008, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1-11, http://dx.doi.org/10.1061/41016(314)60
C31.	Hong, S., Varma, A.H., Agarwal, A., and Prasad, K. (2008). "Behavior of Steel Building Structures Under Realistic Fire Loading." Proceedings of the ASCE Structures Congress-2008, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1-12, http://dx.doi.org/10.1061/41016(314)247
C32.	Hong, S., and Varma, A.H. (2008). "Fundamental Behavior and Overall Stability of Composite Columns under Fire Loading." Proceedings of the 5 th International Structures in Fire Conference (SiF 2008), Nanyang Technological University, Singapore, pp. 572-583. http://www.structuresinfire.com/corpo/conferences/sif08.pdf
C33.	Varma, A.H., Agarwal, A., Hong, S, and Prasad, K. (2008). "Behavior of Steel Building Structures with Perimeter MRFs under Fire Loading." Proceedings of the 5 th International Structures in Fire Conference (SiF 2008), Nanyang Technological University, Singapore, pp. 266-277. http://www.structuresinfire.com/corpo/conferences/sif08.pdf
C34.	Choe, L., Wheeler, E., and Varma, A.H. (2008). "Validation of Prestressed Concrete Bridge LRFD Software Using NCHRP Process 12-50." <i>Proceedings of the Transportation Research Board Meetings</i> , proceedings on CD-ROM, TRB, Washington, DC, 24 pp.
C35.	Cedeno, G., Varma, A.H., and Gore, J., (2008). "Predicting the Standard Fire Behavior of Composite Steel Beams." Composite Construction in Steel and Concrete VI, Engineering Conferences International, July 20-24, Colorado, pp. 642-656, ASCE, Reston, VA. http://dx.doi.org/10.1061/41142(396)53
C36.	Agarwal, A., Varma, A.H., and Cedeno, G. (2009). "Stability Behavior of Building Structures with Perimeter MRFS Under Fire Loading." Proceedings of the ASCE Structures Congress, Proceedings on CD-ROM, ASCE, Reston, VA. Pp. 1-10, http://dx.doi.org/10.1061/41031(341)76
C37.	Agarwal, A., Varma, A.H., and Cedeno, G. (2009). "Steel Columns Under Fire Loading: Stability Behavior and Design." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, pp. 405-422, University of Missouri, Rolla.
C38.	Cedeno, G., Varma, A.H., and Agarwal, A.. (2009). "Behavior of Floor Systems Under Realistic Fire Loading." Proceedings of the ASCE Structures Congress, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1-10, http://dx.doi.org/10.1061/41031(341)224
C39.	Agarwal, A., Varma, A.H., and Choe, L. (2009). "Stability Behavior and Design of Steel Columns Under Fire Loading." Proceedings of the ASCE Structures Congress, Proceedings on CD-ROM, ASCE, Reston, VA. Pp. 1-10, http://dx.doi.org/10.1061/41031(341)181
C40.	Malushte, S.R., Booth, P.N., and Varma, A.H. (2009). "Design of Modular Composite Walls Subjected to Thermal and Mechanical Loading." Proceedings of the ASCE Structures Congress, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1-8, http://dx.doi.org/10.1061/41031(341)103
C41.	Varma, A.H., Malushte, S.R., Sener, K.C.,* and Booth, P.N. (2009). "Analysis and Design of Modular Composite Walls for Combined Thermal and Mechanical Loading." <i>Transactions of SmiRT 20</i> , Espoo, Finland, Aug. 9-14, IASMIRT, NCSU, Rayleigh, NC, pp. 1-11. Link to paper .
C42.	Seo, J., Choe, L., and Varma, A.H. (2010). "Evaluation of Composite Steel I-Girder Bridge Design Software Using NCHRP Process 12-50." <i>Proceedings of the Transportation Research Board Meetings</i> , proceedings on CD-ROM, Paper #10-3487, TRB, Washington, D.C. 20 pp.
C43.	Wellman, E.,* Varma, A.H., Fike, R., Pakala, P. and Kodur, V. (2010). "Experimental Evaluation of Composite Floor Assemblies Under Fire Loading." Proceedings of the Sixth International Conference on Structures in Fire (SiF 2010), Michigan State University, East Lansing, MI, pp. 417-424. http://www.structuresinfire.com/corpo/conferences/sif10.pdf
C44.	Choe, L.,* and Varma, A.H. (2010). "Experimental Investigation of the Fundamental Behavior of Steel Members Under Fire Loading." Proceedings of the Sixth International Conference on Structures in Fire (SiF 2010), Michigan State University, East Lansing, MI, pp. 3-10. http://www.structuresinfire.com/corpo/conferences/sif10.pdf

C45.	Walz, J.,* Choe, L., Varma, A., and Surovek, A. (2010) "Experimental and Analytical investigations of moment-curvature-temperature behaviour of steel and composite beam-columns at elevated temperature," Proceedings of the 4 th International Conference on Steel and Composite Structures, Sydney, AU. http://dx.doi.org/10.3850/978-981-08-6218-3_CC-Fr033
C46.	Varma, A.H., Malushte, S.R., Sener, K., and Lai, Z. (2011). "Steel-Plate Composite Walls For Safety Related Nuclear Facilities: Design for Combined In-Plane and Out-of-Plane Demands." Transactions of SmiRT 21, New Delhi, India, Paper ID 760, IASMiRT, NCSU, Raleigh, NC, pp. 1-10. http://engineering.purdue.edu/~ahvarma/p760.pdf
C47.	Varma, A.H., Malushte, S.R., Sener, K., Booth, P.N., and Coogler, K. (2011). "Steel-Plate Composite Walls: Analysis and Design Including Thermal Effects." Transactions of SmiRT 21, New Delhi, India, Paper ID 761, IASMiRT, NCSU, Raleigh, NC, pp. 1-10. http://engineering.purdue.edu/~ahvarma/Publications/p761.pdf
C48.	Varma, A.H., Sener, K., Zhang, K., Coogler, K., and Malushte, S.R. (2011). "Out-of-Plane Shear Behavior of SC Composite Structures." Transactions of SmiRT 21, New Delhi, India, Paper ID 763, IASMiRT, NCSU, Raleigh, NC, pp. 1-10. http://engineering.purdue.edu/~ahvarma/Publications/p763.pdf
C49.	Varma, A.H., Zhang, K., Chi, H., Booth, P.N., and Baker, T. (2011) "In-Plane Shear Behavior of SC Composite Walls: Theory vs. Experiment." Transactions of SmiRT 21, New Delhi, India, Paper ID 764, IASMiRT, NCSU, Raleigh, NC, pp. 1-10. http://engineering.purdue.edu/~ahvarma/Publications/p764.pdf
C50.	Varma, A.H., Seo, J., Chi, H., and Baker, T., (2011). "Behavior of SC Wall Lap Splice Anchorages." Transactions of SmiRT 21, New Delhi, India, Paper ID 765, IASMiRT, NCSU, Raleigh, NC, pp. 1-10. http://engineering.purdue.edu/~ahvarma/Publications/p765.pdf
C51.	Choe, L,* Varma, A.H., and Surovek, A., (2011). "Behavior of Steel Columns Under Fire Loading." <i>Proceedings of the Structures Congress 2011</i> , Proceedings on CD-ROM, ASCE, Reston, VA, pp. 463-471. http://dx.doi.org/10.1061/41171(401)40
C52.	Pakala, P.,* Fike, R., Wellman, E., Kodur, V., and Varma, A.H. (2011). "Experimental Evaluation of Composite Floor Assemblies Under Fire Loading." Proceedings of the Structures Congress 2011, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 451-462. http://dx.doi.org/10.1061/41171(401)39
C53.	Walz, J., Surovek, A., Agarwal, A., Choe, L., and Varma, A.H. (2011). "Closed-Form Characterization of Fundamental Section Response of Steel Columns Subjected to Realistic Fire Loading." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, University of Missouri-Rolla. Pp. 1-11. Link to Paper.
C54.	Agarwal, A.,* and Varma A.H. (2012) "Fire Induced Progressive Collapse of Steel Building Structures." Proceedings of the ASCE Structures Congress, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 235-245. http://dx.doi.org/10.1061/9780784412367.022
C55.	Varma, A.H., Malushte, S.R., Sener, K., Booth, P.N. (2012) "Analysis Recommendations for Steel-Composite Walls for Safety-Related Nuclear Facilities." Proceedings of the ASCE Structures Congress, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1871-1880. http://dx.doi.org/10.1061/9780784412367.164
C56.	Selden, K.,* Varma, A.H., and Fischer, E., (2012). "Experimental and Numerical Evaluations of Composite Floor Slabs under Fire Loading." Proceedings of the 7 th International Conference on Structures in Fire (SiF 2012), ETH, Zurich, Switzerland, pp. 305-316. http://www.structuresinfire.com/corpo/conferences/sif12.pdf
C57.	Bradt, T., Rankin, B., Varma, A.H., and Connor, R. (2013). "Effects of Fire Damage on Steel Bridge Elements." <i>Proceedings of the Transportation Research Board Meetings</i> , proceedings on CD-ROM, Paper #14-4296, TRB, Washington, D.C.
C58.	Agarwal, A. Varma, A.H., and Selden, K. (2013). "Parameters Influencing Collapse Resistance of Building Structures Subjected to Fire Loading." Proceedings of the ASCE Structures Congress, Proceedings on CD-ROM, ASCE, Reston, VA, pp. 2578-2589. http://dx.doi.org/10.1061/9780784412848.225
C59.	Sohn, Y., and Varma, A.H. (2013). "Effects Of Realistic Heat Straightening Repair On Damaged Steel Beams." <i>Proceedings of the Transportation Research Board Meetings</i> , proceedings on CD-ROM, Paper #14-4558, TRB, Washington, D.C.
C60.	Booth, P.N., Varma, A.H., and Mitsubishi Heavy Industries Ltd., (2013). "Seismic Behavior and Design of Primary Shield Structure Consisting of SC Walls." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMiRT, NCSU, Raleigh, NC, Link to paper.
C61.	Varma, A.H., Sener, K., Mitsubishi Heavy Industries Ltd. (2013). "Lateral Load Behavior of a Pressurized Water Reactor Containment Internal Structure." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMiRT, NCSU, Raleigh, NC, Link to paper.
C62.	Bruhl, J.C., Varma, A.H., and Johnson, W.H. (2013). "Design of SC Composite Walls for Projectile Impact: Local Failure." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMiRT, NCSU, Raleigh, NC, Link to paper.
C63.	Kurt, E., Varma, A.H., Booth, P.N., and Whittaker, A. (2013). "SC Wall Piers and Basemat Connections: Numerical Investigation of Behavior and Design." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMiRT, NCSU, Raleigh, NC, Link to paper.
C64.	Seo, J., Varma, A.H., and Winkler, D. (2013). "Preliminary Investigations of the Joint Shear Strength of SC Wall-to-Wall T-Joints." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMiRT, NCSU, Raleigh, NC, Link to paper.

C65.	Epacakchi, S., Nguyen, N.H., Kurt, E.G., Whittaker, A., and Varma, A.H., (2013). "An Experimental Study of the In-Plane Response of Steel-Concrete Composite Walls." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMI RT, NCSU, Raleigh, NC, Link to paper .
C66.	Varma, A.H., Zhang, K., and Malushte, S. (2013). "Local Buckling of SC Composite Walls at Ambient and Elevated Temperatures." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMI RT, NCSU, Raleigh, NC, Link to paper .
C67.	Varma, A.H., Sener, K., and Winkler, D. (2013). "Behavior and Design of SC Composite Walls for Accident Thermal Loading." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMI RT, NCSU, Raleigh, NC, Link to paper .
C68.	Sener, K., Varma, A.H., Malushte, S., and Coogler, K. (2013). "Experimental Database of SC Composite Specimens Tested Under Out-of-Plane Shear Loading." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMI RT, NCSU, Raleigh, NC, Link to paper .
C69.	Zhang, K., Varma, A.H., and Gallocher, S., (2013). "Partial Composite Action in SC Composite Walls For Nuclear Structures." <i>Transactions of SmiRT 22</i> , San Francisco, USA, Aug. 18-23, IASMI RT, NCSU, Raleigh, NC, Link to paper .
C70.	Lai, Z.,* and Varma, A.H. (2013). "Flexural Capacity of Noncompact Circular Concrete Filled Steel Tube (CFT) Members." <i>Proceedings of National Conference of China Steel Construction Society – Association of Steel-Concrete Composite Structures (ASCCS)</i> , Xi'an University of Architecture and Technology, Xi'an, Shaanxi, China, September.
C71.	Nguyen, N., Epacakchi, S., Kurt, E., Varma, A.H., and Whittaker, A., (2013). "In-plane Shear Response of Steel-Concrete Composite Shear Walls: Results of Experiments." <i>Proceedings of Australian Earthquake Engineering Society 2013</i> , At Hobart, Tasmania,
C72.	Lai, Z., and Varma, A.H. (2014). "Analysis and Design of Noncompact and Slender CFT Beam-Columns." <i>Proc. of the Annual Stability Conference</i> , SSRC, March 25-28, Toronto, Canada, AISC, Chicago, IL.
C73.	St. Aubin, C., and Varma, A.H. (2014). "Stability of Continuous Steel Column Members at Elevated Temperatures." <i>Proc. of the Annual Stability Conference</i> , SSRC, March 25-28, Toronto, Canada, AISC, Chicago, IL. Link to paper
C74.	Johnson, W., Bruhl, J., Reigles, D.G., Li, J., and Varma, A.H. (2014). "Missile Impact on SC Walls: Global Response." <i>Proceedings of the ASCE Structures Congress</i> , Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1403-1414. http://dx.doi.org/10.1061/9780784413357.124
C75.	Selden, K., Fischer, E., and Varma, A.H. (2014). "Advanced Fire Testing of a Composite Beam With Shear Tab Connections." <i>Proceedings of the ASCE Structures Congress</i> , Proceedings on CD-ROM, ASCE, Reston, VA, pp. 1170-1174. http://dx.doi.org/10.1061/9780784413357.105
C76.	Epacakchi, S., Nguyen, N., Kurt, E., Whittaker, A., and Varma, A.H. (2014) "Numerical and Experimental Investigation of the In-Plane Behavior of Rectangular Steel-Plate Composite Walls." <i>Proceedings of the ASCE Structures Congress</i> , Proceedings on CD-ROM, ASCE, Reston, VA, pp. 2478 – 2487, http://dx.doi.org/10.1061/9780784413357.217
C77.	Bruhl, J., and Varma, A.H. (2014). "Preliminary Study of Blast Response of Steel Plate-Reinforced Concrete Walls." <i>Proceedings of the ASCE Structures Congress</i> , Proceedings on CD-ROM, ASCE, Reston, VA, pp. 105-116. http://dx.doi.org/10.1061/9780784413357.011
C78.	Selden, K., Fischer, E., and Varma, A.H., "Experimental Evaluation of Composite Steel Beams Subjected to Fire Loading." <i>Proceedings of the Structures in Fire Conference</i> , Tongji University, China, June 11-13, 2014, http://www.structuresinfire.com/corpo/conferences/sif14.pdf
C79.	Bruhl, J., Johnson, W., Reigles, D., Li, J., Varma, A.H., and Kim, J. (2015). "Impact Assessment of SC Walls Using Idealized SDOF and TDOF Models." <i>Proceedings of the Structures Congress</i> , April 2015, 75-86, doi: 10.1061/9780784479117.007
C80.	Bruhl, J., and Varma, A.H. (2015). "Summary of Blast Tests on Steel-Plate Reinforced Concrete Walls." <i>Proceedings of the Structures Congress</i> , April 2015, 151-59, doi: 10.1061/9780784479117.013
C81.	Lai, Z., Varma, A.H., and Griffis, L. (2015). "P-M Interaction Equations for Design of CFT Beam-Columns." <i>Proceedings of the Structures Congress</i> , April 2015, 1032-1041, doi: 10.1061/9780784479117.088
C82.	Selden, K., Varma, A., and Mujagic, J. (2015) "Consideration of Shear Stud Slip in the Design of Partially Composite Beams." <i>Proceedings of the Structures Congress 2015</i> , April 2015, pp. 888-899. Doi: 10.1061/9780784479117.076
C83.	Kurt, E., Varma, A., Epacakchi, S., and Whittaker, A. (2015) "Rectangular SC Wall Piers: Summary of Seismic Behavior and Design." <i>Proceedings of Structures Congress 2015</i> : pp. 1042-1051. Doi: 10.1061/9780784479117.089
C84.	Bhardwaj, S., Varma, A., and Al-Shawaf, T. (2015) "Outline of Specification for Composite SC Walls in Nuclear Facilities." <i>Proceedings of Structures Congress 2015</i> : pp. 1021-1031. Doi: 10.1061/9780784479117.087
C85.	Fischer, E. and Varma, A. (2015) "Sustainability and Structural Fire Engineering." <i>Proceedings of Structures Congress 2015</i> : pp. 2293-2299. Doi: 10.1061/9780784479117.199
C86.	Seo, J., and Varma, A.H. (2015). "Behaviour and Design of Corner or L-Joints in SC Walls." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 695, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .

C87.	Sener, K., Varma, A.H., and Bhardwaj, S.R. (2015). "Out-of-Plane Shear Strength of SC Walls: Effects of Additional Forces." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 697, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C88.	Sener, K.C., Varma, A.H., and Bhardwaj, S.R. (2015). "Accident Thermal Loading Effects on Seismic Behaviour of Safety-Related Nuclear Structures." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 701, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C89.	Yang, Y., Varma, A., Kreger, M., and Bradt, T., (2015). "Shear Strnegth and Behavior of RC Structures with T-Headed Bars for Shear Reinforcement." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 708, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C90.	Epacakchi, S., Whittaker, A.S., Varma, A. (2015). "Experimental Behavior of Flexure-Critical Steel Plate Composite Structural Walls." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 849, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C91.	Bhardwaj, S.R., Kurt, E.G., Terranova, B., Varma, A.H., Whittaker, A.S., and Orbovic, N. (2015). "Preliminary Investigation of the Effects of Out-of-Plane Loading on the In-Plane Behavior of SC Walls." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 712, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C92.	Kurt, E.G., and Varma, A.H. (2015). "Preliminary Investigation of Steel-Plate Composite (SC) Wall-to-Concrete Basemat Anchorage Connections." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 718, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C93.	Booth, P., Varma, A.H., and Seo, J. (2015). "Lateral Load Capacity of Steel Plate Composite Wall Structures." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 791, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C94.	Kim, J.M., Bruhl, J., and Varma, A. (2015). "Design of SC Walls Subjected to Impactive Loading for Local and Global Demands." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 818, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C95.	Bhardwaj, S.R., Varma, A.H., and Sener, K.C. (2015). "On the Calculation of Design Demands for Accident Thermal Loading Combination." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 850, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C96.	Bruhl, J.C., and Varma, A.H. (2015). "Summary of the Behavior of Steel-Plate Composite (SC) Walls Subjected to Impulsive Loads." <i>Transactions of SmiRT 23</i> in Manchester, UK, Paper ID 426, IASMI RT, North Carolina State University, Raleigh, NC, pp. 1-10, Link to paper .
C97.	Bruhl, J. C. and Varma, A.H. (2015). "Protection Using SC Composite Structures: Overview of Blast and Impact Resistance." <i>Proceedings of PROTECT 2015 – Fifth International Workshop on Performance, Protection & Strengthening of Structures Under Extreme Loading</i> (East Lansing, MI), pp. 538-545, DEStech Publications, Inc., Lancaster, PA, ISBN: 978-1-60595-227-7
C98.	Selden, K., and Varma, A.H. (2015). "Behavior and Design of Composite Beams For Fire Loading." <i>Proceedings of PROTECT 2015 – Fifth International Workshop on Performance, Protection & Strengthening of Structures Under Extreme Loading</i> (East Lansing, MI), DEStech Publications, Inc., Lancaster, PA, ISBN: 978-1-60595-227-7
C99.	Fischer, E., Lai, Z., and Varma, A.H. (2015). "Design of Connections for Composite Special Moment Frames (C-SMF) with Concrete-Filled Steel Tube (CFT) Columns." <i>Proceedings of 8th International Conference on Behavior of Steel Structures in Seismic Areas</i> , Tongji University, Shanghai, China, July 1-3, 2015.
C100.	Lai, Z., Connor, R., and Varma, A.H. (2015). "Retrofit Analysis and Design of Built-Up Steel Columns." <i>Proceedings of the 8th International Conference on Behavior of Steel Structures in Seismic Areas</i> , Tongji University, Shanghai, China, July 1-3, 2015
C101.	Varma, A.H., Malushte, S., Lai, Z. (2015). "Modularity and Innovation Using Steel-Plate Composite (SC) Walls for Nuclear and Commercial Construction." <i>Proceedings of the 11th International Conference: Advanced in Steel-Concrete Composite Structures (ASCCS)</i> , At Beijing, China, Dec. 2015, doi: 10.13140/RG.2.1.4665.4804
C102.	Lai, Z., and Varma, A.H. (2015). "Design of Noncompact and Slender Rectangular CFT Members." <i>Proceedings of the 11th International Conferences" Advances in Steel-Concrete Composite Structures (ASCCS)</i> , at Tsinghua University, Beijing, China, Dec. 2015
C103.	Bruhl, J.C., and Varma, A.H. (2016). "Experimentally-Validated Analysis Methods for Steel-Plate Composite Walls Subjected to Blast and Impact Loads." <i>Proceedings of the Geotechnical and Structural Engineering Congress 2016</i> , pp. 25-34, doi: 10.1061/9780784479742.003
C104.	Kurt, E. and Varma, A.H. (2016) Options for the Anchorage of Composite SC Walls to a Concrete Basemat. <i>Geotechnical and Structural Engineering Congress 2016</i> : pp. 674-684. Doi: 10.1061/9780784479742.056
C105.	Bhardwaj, S.R., Sener, K.C., and Varma, A.H. (2015). "Investigation of Accident Thermal Effects on Seismic Performance". <i>Proceedings of the American Nuclear Society Winter Meeting</i> , 2015, Washington DC.
C106.	Lai, Z., Varma, A.H., Hua, Y., and Agarwal, A. (2016). "Analysis and Design of Noncompact and Slender Rectangular CFT Columns Subjected to Ambient and Elevated Temperature." <i>Proceedings of the Annual Stability Conference, Structural Stability Research Council</i> , Orlando, FL. April 12-15, 2016. Link to paper .
C107.	Bhardwaj, S.R., and Varma, A.H. (2016). "Effect of Imperfections on the Compression Behavior of SC Walls" <i>Proceedings of the Annual Stability Conference, Structural Stability Research Council</i> , Orlando, FL. April 12-15, 2016. https://www.aisc.org/WorkArea/showcontent.aspx?id=42004

C108. Lai, Z., and Varma, A.H. (2016). "State-of-the-Art Report on Connections for Composite Special Moment Frames (C-SMF)." <i>Proceedings of 8th International Workshop on Connections in Steel Structures</i> , Northeastern University, Boston, MA, May 2016, American Institute of Steel Construction, AISC, Chicago, IL
C109. Fischer, E., Varma, A.H., and Zhu, Q., (2016). "Behavior of Single-Bolted Lap-Splice Joints at Elevated Temperatures." <i>Proceedings of 8th International Workshop on Connections in Steel Structures</i> , Northeastern University, Boston, MA, May 2016, American Institute of Steel Construction, AISC, Chicago, IL
C110. Bhardwaj, S.R., Varma, A.H., and Al-Shawaf, T. (2016). "Outline of Specification for Composite Walls in Nuclear Facilities." <i>Proceedings of the International Conference on Nuclear Engineering, ICONE 24</i> , ASME, Charlotte, NC, June 2016
C111. Bhardwaj, S.R., Varma, A.H., and Malushte, S.R (2016). "Design of SC walls and Connections in Nuclear Facilities" <i>Proceedings of the International Conference on Nuclear Engineering, ICONE 24</i> , ASME, Charlotte, NC, June 2016
C112. Bhardwaj, S.R., and Varma, A.H. (2017). "Design of Wall Structures for In-Plane and Out-of-Plane Forces: An Exploratory Evaluation." <i>Structures Congress</i> , ASCE, https://doi.org/10.1061/9780784480427.046
C113. Fischer, E., and Varma, A.H. (2017). "Advanced Analysis of Steel-Frame Buildings for Full Story Fires." <i>Structures Congress</i> , https://doi.org/10.1061/9780784480410.043
C114. Kim, J.M., Bruhl, J., Seo, J., and Varma, A. (2017). "An Overview of Missile Impact Tests on Steel-Plate Composite (SC) Walls." <i>Structures Congress</i> . https://doi.org/10.1061/9780784480397.021
C115. Kim, J.M., Bruhl, J., Seo, J., and Varma, A. (2017). "Preliminary Investigation of Local Failure Modes in Steel-Plate Composite Walls Subjected to Missile Impact." <i>Structures Congress</i> . https://doi.org/10.1061/9780784480397.022
C116. Bhardwaj, S.R., and Varma, A.H. (2017). "SC Wall Compression Behavior: Interaction of Design and Construction Parameters." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, San Antonio, TX, Mar. 21-24, 14 pp. Link to paper on researchgate
C117. Lai, Z., Varma, A.H., and Agarwal, A. (2017). "Analysis of Rectangular CFT Columns Subjected to Elevated Temperature." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, San Antonio, TX, Mar. 21-24, 10 pp. Link to paper on researchgate .
C118. Chakraborty, A., Radha, K.S., Sener, K.C., and Varma, A.H. (2017). "Reliability Based Design Optimization of Primary Shield Structure Consisting of Steel-Plate Composite (SC) Walls Under Seismic Load." <i>Proceedings of the Pressure Vessels and Piping Conference</i> , Paper No. PVP2017-66133, V01AT01A014, 7 pp. https://doi.org/10.1115/PVP2017-66133
C119. Varma, A.H., Lai, Z., and Seo, J., (2017). "An Introduction to Composite Coupled Core Wall Systems for High-Rise Construction." <i>Proceedings of the Eighth International Conference on Composite Construction in Steel and Concrete VIII</i> , Jackson Hole, WY, July 29-Aug. 2, Edited by G.A. Rassti, J.F. Hajjar, and R.T. Leon. American Institute of Steel Construction, ISBN 978-1-56424-062-0, pp. 631-642.
C120. Lai, A., and Varma, A.H. (2017). "Pushing the Envelope of Composite Column Design Using High Strength Materials." <i>Proceedings of the Eighth International Conference on Composite Construction in Steel and Concrete VIII</i> , Jackson Hole, WY, July 29-Aug. 2, Edited by G.A. Rassti, J.F. Hajjar, and R.T. Leon. American Institute of Steel Construction, ISBN 978-1-56424-062-0, pp. 392-403.
C121. Datta, D., Varma, A.H., Seo, J., and Coleman, J. (2017). "Investigation of Interface Non-Linearity on Soil-Structure Interaction Analyses." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 11 pp., IASMIT, NCSU, Raleigh, NC. Link to paper .
C122. Datta, D., Varma, A.H., Tomar, V. (2017). "Interfacial Fracture in Steel-Concrete (SC) Elements (An Analytical Study)." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 10 pp., IASMIT, NCSU, Raleigh, NC. Link to paper .
C123. Kim, J., Lee, J., Lee, K., Kim, W., Chung, C., and Varma, A. (2017). "Resistance of SC Walls Subjected to Missile Impact: Part 2. Middle-Scale Tests." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 11 pp., IASMIT, NCSU, Raleigh, NC. Link to paper .
C124. Lee, K., Lee, J., Shin, J., Kim, K., Nam, D., and Varma, A., (2017). "Resistance of SC Walls Subjected to Missile Impact: Part 1. Preliminary Analysis." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 5 pp., IASMIT, NCSU, Raleigh, NC. Link to paper .
C125. Kim, J.M., Varma, A., Seo, J., Bruhl, J., Lee, K., and Kim, K., (2017). "Resistance of SC Walls Subjected to Missile Impact: Part 3. Small-Scale Tests." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 11 pp., IASMIT, NCSU, Raleigh, NC. Link to paper .
C126. Varma, A., Kim, J.M., Seo, J., and Bruhl, J. (2017). "Local Failure Modes of SC Walls Subjected to Impactive Loading." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 10 pp., IASMIT, NCSU, Raleigh, NC. Link to paper .
C127. Chicchi, R., Seo, J., Varma, A.H., Bradt, T., (2017). "Consideration of Breakout Failure Modes in Design of Attachments to Concrete Structures." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 6 pp., IASMIT, NCSU, Raleigh, NC. Link to paper .
C128. Seo, J., and Varma, A.H. (2017). "SC Wall-To-Slab Connections in Safety Related Nuclear Facilities." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 8 pp., North Carolina State Univ., Raleigh, NC, IASMIT, NCSU, Raleigh, NC. Link to paper .

C129. Varma, A.H., Sener, K.C., Bhardwaj, S. (2017). "Investigation of Accident Thermal Effects on Reinforced Concrete Beams." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 10 pp., IASMI RT, NCSU, Raleigh, NC. Link to paper.
C130. Sener, K.C., Varma, A.H., and Chu, M. (2017). "On the Performance of Steel-Concrete Composite (SC) Modular Structures For Seismic and Accident Thermal Conditions." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 10 pp., IASMI RT, NCSU, Raleigh, NC. Link to paper.
C131. Sener, K.C., Varma, A.H., and Bradt, T. (2017). "Cyclic Out-of-Plane Behavior of SC Composite Structures." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 10 pp., IASMI RT, NCSU, Raleigh, NC. Link to paper.
C132. Sener, K.C., Varma, A.H., Wang, S., Bhardwaj, S., and Gallocher, S. (2017). "Experimental Studies on Modular Steel-Concrete Construction Assembled with a Novel Fabrication Technology." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 10 pp., IASMI RT, NCSU, Raleigh, NC. Link to paper.
C133. Bhardwaj, S.R., Sener, K.C., and Varma, A.H. (2017). "Investigation of Accident Thermal Effects on Seismic Performance of Structural Walls." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 10 pp., IASMI RT, NCSU, Raleigh, NC. Link to paper.
C134. Malushte, S.R., Bhardwaj, S.R., and Varma, A.H. (2017). "Rigorous Mechanics-Based Stress Acceptance Criteria for SC Containment Structure." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 11 pp., IASMI RT, NCSU, Raleigh, NC. Link to paper.
C135. Bhardwaj, S.R., Varma, A.H., and Orbovic, N. (2017). "On the Interaction of In-Plane and Out-of-Plane Demands for Steel-Plate Composite (SC) Walls." <i>Transactions of SmiRT 24</i> , BEXCO, Busan, S. Korea, Aug. 20-25, 2017, 11 pp., IASMI RT, NCSU, Raleigh, NC. Link to paper.
C136. Varma, A., Kim, J.M., Seo, J., Lee, K., and Kim, K. (2017). "Summary of Missile Impact Tests on Steel Plate Composite (SC) Walls." <i>Proceedings of the 9th International Symposium on Steel Structures</i> , Nov. 1-4, 2017, pp. 416-417, Jeju, S. Korea
C137. Lai, Z., Varma, A., Seo, J., and Wang, A. (2017). "On the Flexural Behavior of Composite Plate Shear Walls (CPSW) for High-Rise Buildings." <i>Proceedings of the 9th International Symposium on Steel Structures</i> , Nov. 1-4, 2017, pp. 422-425, Jeju, S. Korea
C138. Varma, A., Seo, J., and Lai, Z. (2017). "On the Lateral Behavior of Concrete-Filled Composite Plate Shear Walls." <i>Proceedings of the 9th International Symposium on Steel Structures</i> , Nov. 1-4, 2017, pp. 426-427, Jeju, S. Korea
C139. Chicchi, R., and Varma, A. (2017). "Proposed Methodology for Assessment of Post-Earthquake Fire Resilience of Steel Buildings." <i>Proceedings of the 9th International Symposium on Steel Structures</i> , Nov. 1-4, 2017, pp. 506-509, Jeju, S. Korea
C140. Bhardwaj, S.R., Wang, A.Y., and Varma, A.H. (2018). "Slenderness Requirements for CF-CPSW: The effects of Concrete Casting." <i>Proceedings of the Eighth International Conference on Thin-Walled Structures</i> , ICTWS 2018, Lisbon, Portugal, July 24-27, Link to paper on researchgate
C141. Lai, Z., Varma, A. (2018). "Analysis and Behavior of High-Strength Rectangular CFT Columns." <i>Proceedings of the 12th International Conference on Advanced in Steel-Concrete Composite Structures</i> . ASCCS 2018. http://dx.doi.org/10.4995/ASCCS2018.2018.6957
C142. Datta, D., Coleman, J., and Varma, A.H. (2018). "Comparative Analyses of Contact Algorithms for Interface Modeling in Non-Linear Soil Structure Interaction." <i>Proceedings of the Eleventh U.S. National Conference on Earthquake Engineering</i> , June 25-29, LA, Link to paper on researchgate
C143. Bhardwaj, S.R., Sener, K.C., and Varma, A.H. (2018). "Experimental Evaluation of Structural Walls for Seismic and Thermal Forces." <i>Proceedings of the Eleventh U.S. National Conference on Earthquake Engineering</i> , June 25-29, LA, Link to Paper
C144. Bhardwaj, S.R., Wazalwar, P., Varma, A.H. and Tseng, T.C. (2018). "Interaction of Axial, In-Plane and Out-of-Plane Forces in Structural Walls." <i>Proceedings of the Eleventh U.S. National Conference on Earthquake Engineering</i> , June 25-29, LA, Link to paper on researchgate
C145. Lai, Z., and Varma, A.H. (2018). "High Strength C-SMFs: Seismic Design, Modeling, Analysis, and Performance Evaluation." <i>Proceedings of the Eleventh U.S. National Conference on Earthquake Engineering</i> , June 25-29, LA, Link to paper.
C146. Chicchi, R., and Varma, A.H. (2018). "An Approach for Post-Earthquake Fire Assessment of Steel MRF Buildings." <i>Proceedings of the Eleventh U.S. National Conference on Earthquake Engineering</i> , June 25-29, LA, Link to paper.
C147. Sener, K.C., Varma, A.H., and Chu, M. (2018). "Investigation into the Seismic and Accident Thermal Performance of Safety-Related Nuclear Facilities." <i>Proceedings of the Eleventh U.S. National Conference on Earthquake Engineering</i> , June 25-29, LA, Link to Paper.
C148. Martin, F.J.B., Lloyd, J.B., Connor, R., and Varma, A.H. (2018). "Fatigue Testing and Finite Element Modeling of Arm-to-Pole Connections in Steel Transmission Pole Structures." <i>Proceedings of the Electrical Transmission and Substation Structures</i> , ASCE, https://doi.org/10.1061/9780784481837.038
C149. Shafaei, S., Wang, A., Varma, A.H., and Morgen, B. (2018). "Stability of Steel Modules During Construction." <i>Proceedings of the Annual Stability Conference</i> , Baltimore, MD, April 10-13, Structural Stability Research Council, Link to paper.

C150. Sharma, S., Bhardwaj, S.R., and Varma, A.H. (2019). "Investigation of Steel-Plate Composite (SC) Wall Behavior for Beyond Design Basis Fire Events." <i>Transactions of SmiRT 25</i> , Charlotte, NC, Aug. 4-9, IASMI RT, Raleigh, NC. Link to paper
C151. Datta, D., and Varma, A. (2019). "Soil-Structure Interaction Analyses for Modeling Nonlinear Response of Direct-Shear Type Tests." <i>Transactions of SmiRT 25</i> , Charlotte, NC, Aug. 4-9, IASMI RT, Raleigh, NC. Link to paper .
C152. Taha, A., Bhardwaj, S., Kennedy, B., and Varma, A. (2019). "Comparison Between Thermal Evaluations of Steel Structures Using the New and Old AISC N690 Code Methods." <i>Transactions of SmiRT 25</i> , Charlotte, NC, Aug. 4-9, IASMI RT, Raleigh, NC. Link to paper .
C153. Seo, J., Varma, A., and Zhang, K. (2019). "Pushout Behavior of SC Wall Shear Connector." <i>Transactions of SmiRT 25</i> , Charlotte, NC, Aug. 4-9, IASMI RT, Raleigh, NC. Link to paper .
C154. Sener, K.C., Wang, S., and Varma, A. (2019). "Numerical Analysis of Reinforced Concrete Beams Subjected to Accident Thermal Loading." <i>Transactions of SmiRT 25</i> , Charlotte, NC, Aug. 4-9, IASMI RT, Raleigh, NC. Link to paper .
C155. Seo, J., and Varma, A. (2019). "Non-contact Lap Splice Connection of SC Wall-HSC Floor Slab." <i>Transactions of SmiRT 25</i> , Charlotte, NC, Aug. 4-9, IASMI RT, Raleigh, NC. Link to paper .
C156. Sener, K.C., Varma, A. (2019). "Study on Modeling Out-of-Plane Behavior of SC Walls Using Shell Elements." <i>Transactions of SmiRT 25</i> , Charlotte, NC, Aug. 4-9, IASMI RT, Raleigh, NC. Link to paper .
C157. Anwar, H.S., Bhardwaj, S.R., and Varma, A.H. (2019). "On the Response of Squat Reinforced Concrete Walls for Combined Lateral and Accident Thermal Loading." <i>Transactions of SmiRT 25</i> , Charlotte, NC, Aug. 4-9, IASMI RT, Raleigh, NC. Link to paper .
C158. Shafaei, S., Varma, A.H., Broberg, M., and Seo, J. (2019). "An Introduction to Numerical Modeling of Composite Plate Shear Walls / Concrete Filled (C-PSW/CF)." <i>Proceedings of the Annual Stability Conference</i> , St. Louis, MO., April 2-5, Structural Stability Research Council, Link to paper .
C159. Sener, K., Witte, J., and Varma, A.H. (2019). "On the Influence of Load Width on Web Compression Buckling Strength." <i>Proceedings of the Annual Stability Conference</i> , St. Louis, MO., April 2-5, Structural Stability Research Council, Link to paper .
C160. Bhardwaj, S.R., Sharma, S., Anvari, A.T., and Varma, A.H. (2019). "On the Stability of Composite Plate Shear Walls Under Fire Loading." <i>Proceedings of the Annual Stability Conference</i> , St. Louis, MO., April 2-5, Structural Stability Research Council, Link to paper .
C161. Broberg, M., Shafaei, S., Seo, J., Varma, A.H., and Agarwal, S. (2019). "Introduction to Seismic Analysis of Coupled Composite Plate Shear Walls – Concrete Filled (CC-PSW/CF)." <i>Proceedings of the Annual Stability Conference</i> , St. Louis, MO., April 2-5, Structural Stability Research Council, Link to paper .
C162. Anvari, A.T., Bhardwaj, S.R., Wazalwar, P., and Varma, A.H. (2020). "Stability of SpeedCore Walls Under Fire Loading: Summary of Numerical Analyses." <i>Proceedings of the Annual Stability Conference</i> , Atlanta, GA, Apr21-24, canceled due to COVID-19 Pandemic, Structural Stability Research Council, Link to paper .
C163. Witte, J., Sener, K., Varma, A. (2020). "A Continuation On the Influence of Loaded Width on Web Compression Buckling." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, Link to paper
C164. Wazalwar, P., Bhardwaj, S.R., Anvari, A.T., and Varma, A.H. (2020). "Stability of Composite Axial Members Under Fire Loading." <i>Proceedings of the Annual Stability Conference</i> , Atlanta, GA, Apr21-24, canceled due to COVID-19 Pandemic, Structural Stability Research Council, Link to paper .
C165. Alghossoon, A., and Varma, A.H. (2020). "The Interaction of Section and Member Slenderness on the Behavior of High Strength Composite Filled Tube (CFT) Members." <i>Proceedings of the Annual Stability Conference</i> , Atlanta, GA, Apr21-24, canceled due to COVID-19 Pandemic, Structural Stability Research Council, Link to paper .
C166. Huang, D., Bradt, T., Tseng, T-C., Varma, A.H., Olek, J., Williams, C. and Nantung, T. (2020). "Influence of Bridge Fires on the Material Properties of Concrete and Steel" <i>Proceedings of the Transportation Research Board Meetings</i> , Paper #20-03899, TRB, Washington, DC.
C167. Lai, Z., and Varma, A.H., "On the Analysis and Behavior of High-Strength Circular CFT Columns." <i>Proceedings of the 9th International Conference on Advances in Steel Structures, ICASS 2018</i> , https://doi.org/10.18057/icass2018.p.071
C168. Alghossoon, A.M., and Varma, A.H. (2021). "Effects of Local Buckling on The Behavior of High Strength Steel Beams." <i>Proceedings of the Annual Stability Conference</i> , Online due to COVID-19 Pandemic, Structural Stability Research Council, AISC, Chicago, IL, https://files.ssrcweb.org/proceedings/2021/Alghossoon et al SSRC March 31 2021.pdf
C169. Harmon, J., and Varma, A.H. (2021). "Local Buckling of Steel Plates Supported Unilaterally by Concrete Infill of C-PSW/CF." <i>Proceedings of the Annual Stability Conference</i> , Online due to COVID-19 Pandemic, Structural Stability Research Council, AISC, Chicago, IL, https://files.ssrcweb.org/proceedings/2021/Harmon and Varma SSRC 2021 REV 3 31 2021.pdf
C170. Anvari, A. T., Varma, A.H., Wazalwar, P., Bhardwaj, S., (2021). "Stability of Concrete-Filled Composite Plate Shear Walls Exposed to Non-Uniform Fire Loading." <i>Proceedings of the Annual Stability Conference</i> , Online due to COVID-19 Pandemic, Structural Stability Research Council, AISC, Chicago, IL, https://files.ssrcweb.org/proceedings/2021/NC Taghipour%20Anvari et al SSRC2021.pdf

C171.	Cox, R.W., Kernicky, T., Khire, M., Whelan, M., Park, Y., Charkas, H., Varma, A., and Vedovi, J. (2022). "Digital Twins for Monitoring Construction Quality." <i>Transactions of the American Nuclear Society</i> , ISSN: 0003018X, Vol. 127, Iss. 1, pp. 262-265, DOI:10.13182/T127-39967
C172.	Sener, K., Montgomery, J., Varma, A. (2022). "Large Scale Soil-Structure Interaction Testing of Partially Buried Structures." <i>Transactions of SMIRT-26</i> , Berlin/Potsdam, Germany, July 10-15, IASMIT, NCSU, Raleigh, NC, https://www.lib.ncsu.edu/resolver/1840.20/40474
C173.	Shafaei, S., Broberg, M., Varma, A. (2022). "Lateral Seismic Load Behavior and Design of Coupled Composite Plate Shear Walls / Concrete Filled (CC-PSW/CFs)." <i>Proceedings of the 12th National Conference on Earthquake Engineering</i> NCEE 2022, EID: 2-s2.0-85138472679
C174.	Sener, K., Montgomery, J., and Varma, A. (2022). "Soil-Structure-Interaction Testing and Analysis of Partially Buried Structures for SMR Applications." <i>Proceedings of the 12th National Conference on Earthquake Engineering</i> NCEE 2022, EID: 2-s2.0-85138472862
C175.	Alasiri, M.R., Anvari, A.T., and Varma, A.H. (2023). "Experimental and Numerical Investigations on Floor-to-SpeedCore Wall Connections Under Fire Loading." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, Charlotte, North Carolina, April 11-14, 2023, 17 pp., AISC, Chicago, IL, https://files.ssrcweb.org/proceedings/2023/Alasiri_et_al_SSRC_2023.pdf
C176.	Alghossoon, A., Varma, A., and Alomoush, D. (2024). "Developing a concentrated plasticity model for high strength steel beams with local buckling and member slenderness considerations." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, San Antonio, Texas, Mar. 19-22, 2024, 12 pp., AISC, Chicago, IL, https://files.ssrcweb.org/proceedings/2024/Alghossoon_et_al_SSRC_2024.pdf
C177.	Alasiri, M., Anvari, A.T., Varma, A.H. (2024). "Experimental and Numerical Analysis of Floor-to-SpeedCore Wall Connections Subjected to Fire Conditions." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, San Antonio, Texas, Mar. 19-22, 2024, 12 pp., AISC, Chicago, IL, https://files.ssrcweb.org/proceedings/2024/Alasiri_et_al_SSRC_2024.pdf
C178.	Kanakamedala, D., Xiao, J., Seo, J., Varma, A.H., and Kang, K. (2024). "3D Scanning Technology Framework – from Bridge Inspection to Evaluation." <i>Proceedings of the Transportation Research Board (TRB) 103rd Annual Meeting</i> , https://doi.org/10.13140/RG.2.2.14606.47684
C179.	Alghossoon, A., Varma, A., and Omoush, D. (2025). "Developing axial-flexure (P-M) interaction Curve for high-strength steel members with local and global stability consideration." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, Louisville, Kentucky, April 1 – 4, 2025, 14 pp., AISC, Chicago, IL, https://files.ssrcweb.org/proceedings/2025/Alghossoon_et_al_SSRC_2025.pdf
C180.	Varma, A., Alghossoon, A. (2025). "Interaction Equations for Filled Composite Members: One Ring to Rule Them All..." <i>Proceedings of the 10th International Conference on Composite Construction in Steel and Concrete</i> , CCX, Semiahmoo Resort, Blaine, WA, July 27-30, 2025
C181.	Varma, A. (2025). "AVATARS & Application of Steel-Plate Composite (SC) Systems or SpeedCore." <i>Proceedings of the 10th International Conference on Composite Construction in Steel and Concrete</i> , CCX, Semiahmoo Resort, Blaine, WA, July 27-30, 2025
C182.	Sohn, Y., Varma, A.H., Cadinali, A., Smith, S.M. (2026). "Heat-straightening Repair of the Route 190 Bridge in Enfield, Connecticut: A Case Study." <i>Proceedings of the Annual Transportation Research Board</i> , Paper No. TRBAM-26-03612
C183.	Alghossoon, A., Omoush, D., and Varma, A. (2026). "Modern Stability Design Approach for Composite Members: Insights Shaping the AISC 360-22 and Future Directions." <i>Proceedings of the Annual Stability Conference</i> , Structural Stability Research Council, Atlanta, Georgia, April 21-24, https://files.ssrcweb.org/proceedings/2026/Alghossoon_et_al_SSRC_2026.pdf

6.5 Government, university, or industrial reports.

R1.	Lackowski, M., and A. Varma. (2007) <i>Synthesis Study: Heat Treatment and Its Effects on Rehabilitating Steel Bridges in Indiana</i> . Publication FHWA/IN/JTRP-2007/03, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana, 78 pp., http://dx.doi.org/10.5703/1288284313371
R2.	Varma, A.H., and Kowalkowski, K. (2004). <i>Effects of Multiple Damage – Heat Straightening Repair on the Fundamental Properties of Bridge Steels</i> . Michigan Department of Transportation and Michigan State University, Lansing, MI, Report No. RC-1456. 418 pp.
R3.	Buch, N., Varma, A.H., and Prabhu, M. (2007). <i>Laboratory Evaluation of Alignment Tolerances for Dowel Bars and Their Effect on Joint Opening Behavior</i> . Michigan Department of Transportation and Michigan State University, Lansing Michigan, Report No. RC-1487, 376 pp.
R4.	Varma, A. H., and J. Seo. (2009). <i>Verification of LFRD Bridge Design and Analysis Software for INDOT</i> . Publication FHWA/IN/JTRP-2009/27. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. http://dx.doi.org/10.5703/1288284314279
R5.	Bradt, T., Varma, A.H., Rankin, B., Marcu, S., Connor, R., and Harries, K. (2011). <i>Effects of Fire Damage on the Structural Properties of Steel Bridge Elements</i> . Report No. FHWA-PA-2011-009-PIT011, Pennsylvania Department of Transportation and University of Pittsburgh, PA, http://ntl.bts.gov/lib/38000/38400/38456/FHWA-PA-2011-009.pdf

R6.	Connor, R. J., A. H. Varma, S. Marcu, and R. J. Sherman. (2012). <i>Evaluation of Effects of Fire on the I-465 Mainline Bridges—Volume I</i> . Publication FHWA/IN/JTRP-2012/12. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. http://dx.doi.org/10.5703/1288284314975
R7.	Bradt, T. G., B. Rankin, R. Connor, and A. H. Varma. (2012). <i>Evaluation of Effects of Fire on the I-465 Mainline Bridges—Volume II</i> . Publication FHWA/IN/JTRP-2012/13. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. http://dx.doi.org/10.5703/1288284314976
R8.	Kurt, E., Varma, A.H., and Hong, S. (2012). <i>FEM Simulation for INDOT Temporary Concrete Anchored Barrier</i> . Publication FHWA/IN/JTRP-2012/21. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. http://dx.doi.org/10.5703/1288284314982
R9.	Sohn, Y., and Varma, A.H. (2013). <i>Effects of Realistic Heat Straightening Repairs on Steel Beam Bridges</i> . Publication FHWA/IN/JTRP-2013. Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. http://dx.doi.org/10.5703/1288284315184
R10.	Chakraborty, P., Sabharwall, P., Spears, R.E., Coleman, J., Sener, K., and Varma, A.H. (2015). <i>Modeling and Simulation of Used Nuclear Fuel During Transportation with Consideration of Hydride Effects and Cyclic Fatigue</i> . Report Number FCRD-UFD-2015-000273, INL/EXT-15-36697, Idaho National Lab, Idaho, https://doi.org/10.2172/1238210
R11.	Varma, A.H., Seo, J., and Coleman, J. (2015). <i>Application of Nonlinear Seismic Soil-Structure Interaction Analysis for Identification of Seismic Margins at Nuclear Power Plants</i> . Report Number INL/EXT/15-37382, https://doi.org/10.2172/1371515
R12.	Varma, A.H. (2015). <i>Modular Connection Technologies for Composite Walls in SMRs: Development and Experimental Verification</i> . Final Report, DOE Award Number DE-NE0000543, https://doi.org/10.2172/1247490
R13.	Varma, A.H. (2015). <i>Modular Connection Technologies for Composite Walls in SMRs: Development and Experimental Verification</i> . Final Report, DOE Award Number DE-NE0000543, https://doi.org/10.2172/1247490
R14.	Cha, H., Liu, B., Prakash, A., and Varma, A.H. (2016). <i>Efficient Load Rating and Quantification of Life-Cycle Damage of Indiana Bridges Due to Overweight Loads</i> . Publication FHWA/IN/JTRP-2016/06. Joint Transportation Research Program. Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. https://dx.doi.org/10.5703/1288284316329
R15.	Varma, A.H. (2018). "Improvement of Design Codes to Account for Accident Thermal Effects on Seismic Performance." Final Report, DOE Award Number DE-NE, https://doi.org/10.2172/1470109
R16.	Connor, R.J., Martin, F.J.B., Varma, A., Lai, Z., and Korkmaz, C. (2018). <i>Fracture-Critical System Analysis for Steel Bridges</i> . NCHRP Report, Issue Number 883, Transportation Research Board, ISSN: 2572-3766, ISBN 9780309390545, http://www.trb.org/Main/Blurbs/178001.aspx
R17.	Bruneau, M., Varma, A.H., Kizilerslan, E., Broberg, M., Shafaei, S., and Seo, J. (2019). <i>R-factors for Coupled Composite Plate Shear Walls / Concrete Filled (CC-PSW/CF)</i> . Final Report to the Charles Pankow Foundation and American Institute of Steel Construction, Project: CPF#05-17, https://www.pankowfoundation.org/grants?Grant=05-17
R18.	Agrawal, Shubham; Broberg, Morgan; and Varma, A. H. (2020). <i>Seismic Design Coefficients for SpeedCore or Composite Plate Shear Walls – Concrete Filled (C-PSW/CF)</i> . Bowen Lab. Research Reports. Paper 1. Lyles School of Civil Eng., Purdue University, http://dx.doi.org/10.5703/1288284317125
R19.	Anvari, A.T., Bhardwaj, S., Wazalwar, P., and Varma, A.H. (2020). <i>Structural Fire Engineering and Design of Filled Composite Plate Shear Walls (SpeedCore)</i> . Charles Pankow Foundation Report CPF #03-18, McLean, Virginia, 202pp.
R20.	Shafaei, S., Seo, J., and Varma, A.H. (2020). "Experimental Evaluation of Planar Composite Plate Shear Walls / Concrete Filled (SpeedCore)." <i>Final Report</i> , CPF Grant #06-16, Prepared for Charles Pankow Foundation and American Institute of Steel Construction. Link to PDF File in Dropbox
R21.	Ahmad, M., Shafaei, S., Bradt, T.G., and Varma, A.H. (2021). "Seismic Design and Behavior of Composite Coupling Beam-to-C-PSW/CF Connections." <i>Final Report</i> , CPF Grant #06-16, Prepared for Charles Pankow Foundation and American Institute of Steel Construction. Link to PDF File in Dropbox
R22.	Varma, A.H., Olek, J., Williams, C.S., Tseng, T., Huang, D. and Bradt, T. (2021). <i>Post-Fire Assessment of Prestressed Concrete Bridges in Indiana</i> . Joint Transportation Research Program, Publication No. FHWA/IN/JTRP-2021/05, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. https://doi.org/10.5703/1288284317290
R23.	Tseng, T.-C., & Varma, A. H. (2022). <i>Synthesis study: Repair and Durability of Fire-Damaged Prestressed Concrete Bridge Girders</i> . Joint Transportation Research Program, Publication No. FHWA/IN/JTRP-2022/15. Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. https://doi.org/10.5703/1288284317378
R24.	Harmon, Joshua R. and Varma, Amit H. (2022). <i>Blast Analysis of Steel-Plate Composite Slabs: SDOF and FEM Analyses</i> . Bowen Laboratory Research Reports. Paper 4. https://docs.lib.purdue.edu/bowen/4
R25.	Kanakamedala, D., Seo, J., Varma, A. H., Connor, R. J., & Tarasova, A. (2023). <i>Shear and Bearing Capacity of Corroded Steel Beam Bridges and the Effects on Load Rating</i> . Joint Transportation Research Program, Publication No. FHWA/IN/JTRP-2023/11. Indiana Department of Transportation and Purdue University, West Lafayette, Indiana. https://doi.org/10.5703/128828431763

R26.	Shafaei, S., Varma, A.H., Sharma, S. (2023). <i>Wind and Seismic Behavior and Design of C-PSW/CF-to-RC Foundation or Wall Connections</i> . Final Report, CPF Grant #06-16, Prepared for Charles Pankow Foundation and American Institute of Steel Construction, Link to PDF File in Dropbox
R27.	Varma, A.H., Shafaei, S., Sharma, S., and Pukha, A. (2023). <i>Bolted Wall-to-Wall Connections for SpeedCore Systems. Final Report</i> , CPF Grant #06-16, Prepared for Charles Pankow Foundation and American Institute of Steel Construction, Link to PDF File in Dropbox
R28.	Varma, A.H., Shafaei, S., Sharma, S., Pukha, A., and Shobhani, N. (2023). <i>Wind and Seismic Behavior of Bolted Wall-to-Wall Connections for the SpeedCore System</i> . Final Report, CPF Grant #06-16, Prepared for Charles Pankow Foundation and American Institute of Steel Construction, Link to PDF File in Dropbox
R29.	Tarasova, A., Kananamedala, D., Seo, J., Varma, A.H., and Connor, R.J. (2024). <i>New Repair Strategies for Life-Cycle Extension of Corroded Steel Girder Bridges</i> . Joint Transportation Research Program, Publication No. FHWA/IN/JTRP-2024/13. West Lafayette, IN: Purdue University. https://doi.org/10.5703/1288284317746
R30.	Connor, R.J., Korkmaz, C., Varma, A., Kiefer III, C.J., Ebert, A. (2024). <i>Evaluating the Potential Benefits of Implementing AASHTO Guide Specifications for the Analysis and Identification of Fracture Critical and System Redundant Members</i> . Joint Transportation Research Program, Publication No. FHWA/IN/JTRP-2023/11. West Lafayette, IN: Purdue University. https://doi.org/10.5703/1288284317746
R31.	Varma, A., Choe, L., Anvari, A., Vora, B., and Jain, N. (2024). <i>Introduction to Performance-Based Structural Fire Design (PBSFD) for Authority Having Jurisdiction (AHJ) Officials</i> . Final Report, CPF Grant #05-22, Prepared for the Charles Pankow Foundation and MKA Foundation, Link to PDF file in Dropbox
R32.	Alasiri, M., Anvari, A., Jain, N., and Varma, A. (2024). <i>Composite Floor-to-SpeedCore Wall Systems: Performance-based Fire Resistance and Design</i> . Final Report, CPF Grant #03-20, Prepared for the Charles Pankow Foundation and American Institute of Steel Construction, Link to PDF File in Dropbox
R33.	Kang, K., Xiao, J., Hu, J., Kanakamedala, D. S. C., Seo, J., & Varma, A. (2025). <i>Feasibility of 3D scanning technology for bridge inspection and management</i> (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2025/16). West Lafayette, IN: Purdue University. https://doi.org/10.5703/1288284317880

6.6 Invited colloquium / seminar series presentations

1	Varma, A.H. (2006). "Fundamental Behavior of Steel-Concrete Composite Structures Under Fire Loading," <i>Building and Fire Research Seminar</i> , Invited Presentation, Building and Fire Research Laboratory, NIST, Gaithersburg, Maryland.
2	Varma, A.H. (2008). "Fire Behavior and Design of Composite Structures: Recent Research and New Developments." Invited Presentation, <i>Virginia Tech</i> , Blacksburg, VA.
3	Hong, S., Varma, A.H., and Agarwal, A. (2008). "Predicting the Standard Fire Behavior of Composite CFT Columns Using Fundamental Section Behavior." <i>Symposium on Advances in State of the Art in Fire Testing</i> , ASTM E05 Committee on Standard Fire Testing. Invited presentation and publication in Special Technical Publication (STP) resulting from the Symposium.
4	Varma, A.H., (2009). "Scaling in Experimental Investigations." <i>Presentation to the Nuclear Regulatory Commission (NRC)</i> , Public Meeting http://pbadupws.nrc.gov/docs/ML0918/ML091800241.pdf
5	Varma, A.H., and Malushte, S.R. (2009). "Modular Composite Walls Subjected to Combined Thermal and Mechanical Loading." <i>Presentation to the Nuclear Regulatory Commission (NRC)</i> , Public Meeting. http://pbadupws.nrc.gov/docs/ML0918/ML091800255.pdf
6	Malushte, S.R., and Varma, A.H. (2011). "Background and Development of AISC N690 Draft Code Specifications for SC Walls for Safety-Related Nuclear Facilities." <i>Presentation to the Nuclear Regulatory Commission (NRC)</i> , Public Meeting. http://pbadupws.nrc.gov/docs/ML1125/ML112500005.pdf
7	Varma A.H. (2012). "Specification for Steel-Concrete Composite Structures for Safety Related Nuclear Facilities: Development and Current Progress." <i>NRC Regulators Information Conference (RIC)-2012</i> , Special Panel on Challenges and Lessons Learned in the Design and Analysis of Civil Structures for New Reactors. http://www.nrc.gov/public-involve/conference-symposia/ric/past/2012/docs/abstracts/sessionabstract-8.html
8	Varma, A.H. (2013). "Research Progress in Composite or Steel Construction." <i>Presentation to the Xi'an University of Architecture and Technology</i> , Xi'an, Shaanxi, China, September 12, 2013.
9	Varma, A.H. (2013). "Heat Straightening: Research and Applications" <i>Presentation to the Chang'an University</i> , China, September 13, 2013.
10	Varma, A.H. (2013). "Research Progress in Composite or Steel Construction." <i>Presentation to Tongji University</i> , Shanghai, China, September 17, 2013.
11	Varma, A.H. (2014). "Draft Provisions on Modular Composite Construction Under Consideration by AISC N690, Appendix N9." <i>Presentation to the Nuclear Regulatory Commission (NRC)</i> , Public Meeting. http://meetings.nrc.gov/pmns/mtg?do=details&Code=20132234 http://pbadupws.nrc.gov/docs/ML1334/ML13340A018.pdf
12	Varma, A.H. (2014). "Research Progress in Steel-Concrete Composite Structures." <i>Presentation to Fuzhou University</i> , Fujian Province, China, June 2014.
13	Varma, A.H.* (2015). "Composite Shear Walls for Nuclear Facilities." <i>Pacific Rim Forum, PEER Berkeley</i> , June 2015, <i>Invited Presentation</i>

14	Varma, A.H.* (2015). "Modularity and Innovation Using Steel Plate Composite (SC) Walls for Nuclear and Commercial Construction." <i>Keynote Lecture, 11th International Conference on Advances in Steel and Concrete Composite Structures</i> , Tsinghua University, Beijing, Dec. 3-5
15	Varma, A.H. (2015). "Modularization and Innovation Using Steel Plate Composite (SC) Walls." <i>Keynote Lecture, China National Conference on Steel Concrete Composite Structures</i> , Chongqing University, October 2015
16	Varma, A.H. (2015). "Design of Steel Plate Composite Walls for Missile Impactive and Impulsive Loading." <i>ISSS Conference, Jeju Island, S. Korea, Nov. 2015</i>
17	Varma, A.H. (2016). "Modeling and Design of Steel-Concrete Composite Structural Systems." <i>Global Initiative for Academic Networks, GIAN Workshop</i> , May 2016, IIT-Hyderabad, India.
18	Varma, A.H. (2016). "Modularization, Innovation, and Resilience Using Steel-Plate Composite Walls for Nuclear Facilities." <i>Keynote Lecture, TINCE Conference</i> , Paris, France, Aug. 2016
19	Varma, A.H. (2017). "AISC Specification N690-12s1: Appendix N9 – Design of Steel Plate Composite (SC) Walls." <i>Presentation to Korea Institute of Nuclear Safety, KINS</i> , S. Korea.
20	Varma, A.H. (2017). "Summary of Missile Impact Tests on Steel-Plate Composite (SC) Walls." <i>ISSS Conference, Jeju Island, S. Korea, Nov. 2017.</i>
21	Varma, A.H. (2018). "Steel-Concrete Composite Construction: The Best of Both Worlds." <i>Invited Seminar</i> , Dept. of Civil and Env. Eng., Johns Hopkins University, Baltimore, Maryland, Nov. 29, 2018
22	Varma, A.H. (2018). "Steel-Concrete Composite Construction: The Best of Both Worlds." <i>Invited Seminar</i> , Tongji University, Shanghai, China, Dec. 9, 2018
23	Varma, A.H. (2019). "Steel-Concrete Composite Construction: The Best of Both Worlds." <i>Keynote Presentation, VII International Steel Construction Conference, ICCA, Colombian Institute of Steel Construction</i> , June 17-22
24	Varma, A.H. (2019). "Composite Steel Plate Shear Walls Research." <i>Los Angeles Tall Buildings Structural Design Council, Annual Conference</i> , May 3
25	Varma, A.H. (2019). "Deformed Rebar Anchorage in Concrete Construction." <i>Tongji University</i> , and <i>SNERDI</i> , Oct. 2019.
26	Varma, A.H. (2019). "Design of Steel-Plate Composite Walls for Safety-Related Nuclear Facilities." <i>Office of Nuclear Regulation (ONR), United Kingdom, Bootle, Invited Seminar</i>
27	Varma, A.H. (2020). "Steeling the Future." <i>Keynote Presentation, AISC Steel Flash Conference</i> , Oct. 21, 2020
28	Varma, A.H., (2021). "SpeedCore and Steel-Concrete Composite Construction: The Best of Both Worlds." <i>T.R. Higgins Lecture, Keynote Presentation, AISC NASCC</i>, April 2021 Varma's T.R. Higgins Lecture tour covered: (a) University of California, Davis (b) Structural Engineers Association of Phoenix (c) University of Minnesota, Minneapolis (d) Oregon State University (e) Structural Engineers Association of Chicago (f) Structural Engineers Association of Massachusetts (g) Structural Engineers Association of Denver (h) Structural Engineers Association of Pittsburgh (i) Structural Engineers Association of Michigan (j) Structural Engineers Association of San Diego
29	Varma, A.H. (2021). "SpeedCore" <i>Swedish National Steel Construction Conference, Keynote Presentation</i> , Oct. 2021
30	Varma, A.H. (2021). "Fire Design of SpeedCore" <i>Keynote Presentation, ISSS Conference, Jeju Island, S. Korea, Nov. 2021</i>
31	Varma A.H. and Klemencic, R. (2022). "Design and Construction of the Rainier Square Redevelopment Project." <i>2022 Paul Zia Distinguished Lecture</i> , North Carolina State University, Raleigh, NC
32	Varma, A.H., (2024). "SC Structures for SMRs." <i>Korea Electric Power Industry Codes (KEPIC) Week, Jeju Island, 2024, Nov. 1 – 4, KHNP</i>
33	Varma, A.H. (2025). "Recent Developments in Steel-Plate Composite (SC) Construction in the US." <i>Yokohama Steel, Yokohama, Japan. May 28, 2025</i>
34	Varma, A.H. (2025). "AISC N690-24: Revisions and Improvement to SC Nuclear Design." <i>Korea Electric Power Industry Codes (KEPIC) Week, Jeju Island, 2025, Sept. 2-6, KHNP</i>

7. GRADUATED STUDENTS, THESES / DISSERTATIONS, CURRENT EMPLOYMENT

Prof. Varma has graduated 29 M.S. thesis students and 39 Ph.D. students. Prof. Varma's students have co-authored several research articles (journal papers and conference proceedings) with him over the years. They have also presented their research at national and international conferences. Several of Dr. Varma's students have gone into research, academia, practice, and consulting. Several of his former students have reached leadership / influential positions as their careers advanced.

7.1 MS Thesis Completed

	Name	Degree	Year	Co-chair	Title	Current Status
1	Antonio Cordero-Domenech	M.S.	07/02	Ronald Harichandran	Development of a Modified Fiber Element for DRAIN-2DX	Senior Cost Estimator, RIB US Cost
2	Eric Wheeler	M.S.	08/07		Evaluation and Verification of Bridge LRFD Software	Structural Engineer, Thornton-Tomasetti
3	Peter Booth	M.S.	12/08		Behavior of Steel Plate Reinforced Concrete Modular Walls Subjected to Combined Thermal and Mechanical Loads	Structural Engineer, US Army Corps of Engineers
4	Jungil Seo	M.S.	08/09		Evaluation of Composite Steel I-Girder Bridge Design Software Using NCHRP Process 12-50	Research Asst. Prof. Purdue University
5	Emily Wellman	M.S.	07/10		Experimental Evaluation of Composite Floor Assemblies Under Fire Loading	Bridge Engineer Osborn Engineering
6	Tom Bradt	M.S.	07/11		Effects of Fire Damage on the Structural Properties of Steel Bridge Elements	Research Engineer, Purdue University
7	Nam Ngyuen	M.S.	11/11	Mark Bowman	Shear Yielding Strength of Gusset Plates in Lap Splice Joints	Senior Engineer, Thornton-Tomasetti
8	Qiaqia Zhu	M.S.	12/14		Fire Behavior of Bolted Connections	Design Engineer KPFF Consulting
9	Dhrubajyoti Dutta	M.S.	5/16	Vikas Tomar (AE)	Microstructural Fracture Modeling of Ductile-Brittle Bimaterial Interfaces	Ph.D. Student, Purdue University
10	April Wang	M.S.	5/18		Design of High Rise Buildings with Composite SC Walls	Practitioner
11	Hassan Anwar	M.S.	5/18		Reinforced Concrete Squat Walls Under Combined Seismic and Accident Thermal Loading	Ph.D. Student, Purdue
12	Sijia Wang	M.S.	5/19		Fire Behavior of Reinforced Concrete Deck for Bridges	KPFF
13	Jacob Witte	M.S.	5/19		Local Web Buckling in Steel Beams Subjected to Concentrated Distributed Forces	
14	Shubham Agarwal	M.S.	2/20		Seismic Design Coefficients for Composite-Plate Shear Wall / Concrete Filled	WPM
15	Atta Ur Rehman	M.S.	1/21	Jungil Seo	Tension Strength of Embed Plates With Welded Deformed Bars Governed by Concrete Breakout	PhD. Purdue
16	Preshit Wazalwar	M.S.	7/20		Fire Resistance and Design of Composite Columns and Walls	Saiful Bouquet
17	Cecelia Germann	M.S.	5/23		Pushout and Pullout Testing of Steel-Concrete Composite Structure	Thornton Tomasetti
18	Amanda Lefebvre	M.S.	5/23		Blast Resistant Design of Steel-Plate Composite L-Joint Connection	WJE
19	Himanshu Khandelwal	M.S.	7/23		Predicting Fracture and Loss in Ductility due to Flaws in the CJP Weld	Modjeski and Masters Inc.
20	Grant Davis	M.S.	12/23		Ultimate Strength and Rotation Capacity of Steel-Plate Composite (SC) Beams in One-Way Bending	USAF
21	Anna Pukha	M.S.	12/23		On the Design of Bolted Splices for Composite Plate Shear Wall – Concrete Filled	Walter P. Moore
22	Anna Tarasova	M.S.	12/23	Jungil Seo	Innovative Repair Methods for Corrosion-Damaged Steel Bridges	HNTB
23	Nimisha Jain	M.S.	6/24		Fire Design by Advanced Analysis of Archetype Steel-Composite Structure	Thornton Tomasetti
24	Nikhil Mittal	M.S.	6/24	Jungil Seo	Numerical Analysis of In-Plane Shear	Modjeski and

					Behavior of SC Wall Under Combined Loading	Masters Inc.
25	Owen Spangler	M.S.	5/25		Design of Blast Resistant Steel Plate Composite Systems (SC): Establishing a UFC Equivalency Framework	SGH
26	Sean Dankoski	M.S.	5/25		Design and Behavior of Steel-Plate Composite (SC) Modular Slab-to-Wall Connections	WJE
27	Akshi Karmoor	M.S.	7/25	Jungil Seo	Steel Modules of Steel-Plate Composite Slabs with Diaphragm Plates- Behavior, Analysis and Design	Holtec International
28	Sydney Davis	M.S.	5/26	Joshua Harmon	Evaluation of the Missile Impact Response of Steel-Plate Composite (SC) Walls Using an Artificial Neural Network	USAF
29	Kayla Turner	M.S.	5/26	Joshua Harmon	Single-Sided Welded Connections for Steel-Plate Composite (SC) Members	Offers pending

7.2 Ph.D. Dissertation Completed

	Name	Degree	Year	Co-chair	Title	Current Status
1	Zhihui Huang	Ph.D.	2005		Seismic Behavior, Analysis, and Design of High Strength CFT Moment Resisting Frames	Structural Engineer, Structus Inc.
2	Milind L. Prabhu	Ph.D.	2007	Neeraj Buch	Experimental and Analytical Investigations of the Mechanistic Effects of Dowel Misalignments in Jointed Concrete Pavements	Structural Engineer Chevron Inc.
3	Keith J. Kowalkowski	Ph.D.	2005		Effects of Multiple Damage-Heat Straightening Repair Cycles on the Structural Properties and Serviceability of Steel Beam Bridges	Associate Professor, Lawrence Technological University
4	Sangdo Hong	Ph.D.	2007		Fundamental Behavior and Stability of CFT Columns Under Fire Loading	Bridge Engineer, Virginia Department of Transportation
5	Devin Huber	Ph.D.	2008		Development and Validation of Long-Span Floor Systems for Multi-story Residential Structures.	Director of Research AISC
6	Anil Agarwal	Ph.D.	2011		Stability Behavior of Steel Building Structures in Fire Conditions	Associate Professor, IIT – Hyderabad
7	Lisa Choe	Ph.D.	2011		Structural Mechanics and Behavior of Steel Members Under Fire Loading	Sr. Prin. Research Engineer, PARI, LLC
8	Young-Moo Sohn	Ph.D.	2012		Effects of Realistic Heat Straightening Repair on Damaged Steel Beam Bridges	Associate Professor, Central Connecticut State University
9	Kai Zhang	Ph.D.	2014		Slenderness Limits and Compression Behavior of Composite SC Walls for Safety-Related Nuclear Facilities	Senior Structural Engineer, Bechtel
10	Jungil Seo	Ph.D.	2014		Behavior and Design of SC Wall-to-Wall Connections in Safety-Related Nuclear Facilities	Sr. Princ. Research Engineer, Purdue University
11	Kadir Sener	Ph.D.	2014		Out-of-Plane Shear Behavior and Strength of Composite SC Walls for Safety-Related Nuclear Facilities	Assistant Professor Auburn University
12	Hun Cha	Ph.D.	2014	Arun Prakash	Life Cycle Damage Modeling of Indiana Bridges Due to Overweight Trucks	Regulator, Korea Institute of Nuclear Safety
13	Kristi Selden	Ph.D.	2014		Fire Behavior and Design of Composite Beams and Floors	University Relations AISC
14	Zhichao Lai	Ph.D.	2014		Behavior and Design of Noncompact and Slender CFT Members	Professor, Fuzhou University, China 1000 Youth Plan
15	Jakob Bruhl	Ph.D.	2015		Blast Performance and Design of Steel-Plate Composite Walls	Associate Professor, US Military Academy, West Point

16	Yuxin Yang	Ph.D.	2015	Michael Kreger	Shear Strength and Behavior of RC Structures with T-Headed Bars in Safety Related Nuclear Facilities	Assistant Professor, Fuzhou Univ. Fujian, China
17	Erica Fischer	Ph.D.	2015		Fire Behavior of Simple (Shear) Connections in Steel-Frame Buildings	Associate Professor, Oregon State University
18	Efe Kurt	Ph.D.	2016		Seismic Behavior and Design of SC Walls and Anchorage Connections	Post-Doctoral RA, Idaho National Lab
19	Peter Booth	Ph.D.	2016		Lateral Load Behavior and Capacity of Structures Composed of Steel-Plate Composite (SC) Walls	Structural Engineer, US Army Corps of Engineers
20	Rachel Chicchi	Ph.D.	2017		Multi-Hazard Resilience of Steel MRF Buildings	Assistant Professor Univ. of Cincinnati
21	Saahas Bhardwaj	Ph.D.	2018		Combined In-Plane and Out-of-Plane Shear Behavior and Design of Composite Walls	Purdue Applied Research Institute, LLC
22	Cem Korkmaz	Ph.D.	2018	Rob Connor	Collapse Analysis of Fracture Critical Tub Girder Steel Bridges	Post-Doctoral RA, Purdue University
23	Joo Min Kim	Ph.D.	2018		Behavior and Design of SC Walls Subjected to Missile Impact	KAERI S. Korea, Samsung
24	Dhrubajyoti Datta	Ph.D.	2019		Effect of Nonlinear Soil-Structure Interaction on the Seismic Response of Critical Infrastructure	Walter P. Moore, Houston, USA
25	Carlos Madera	Ph.D.	2020		Design Approach for RC Panels (Shells) for Industrial Facilities Using ACI Codes	Professor EICG, Univalle, Colombia
26	Soheil Shafaei	Ph.D.	2020		Seismic and Wind Behavior and Design of Planar Composite-Plate Shear Walls / Concrete Filled	Assistant Professor, Utah State University
27	Abdullah Alghossoon	Ph.D.	2021		Analysis and Design of High-Strength Steel and Composite Members	Professor, Hashemite University, Jordan
28	Tzu-Chun Tseng	Ph.D.	2021		Post-Fire Assessment of Prestressed Concrete Bridges	Sr. Structural Engineer, KPFF
29	Ataollah T. Anvari	Ph.D.	2022		Behavior and Design of Composite Plate Shear Walls / Concrete Filled (C-PSW/CF) Under Fire Loading	Sr. Structural Engineer, WJE
30	Morgan Broberg	Ph.D.	2022		Seismic Behavior and Design of Coupled and Uncoupled C-PSW/CF Systems	Assistant Professor, University of Arkansas
31	Mubashshir Ahmad	Ph.D.	2023		Design and Behavior of Composite Coupling Beam-to-Composite Plate Shear Wall Connections	Sr. Structural Engineer WJE
32	Muhannad Alasiri	Ph.D.	2023		Fire Resistant Design of Floor-to-SC Wall Connections	Assistant Professor University of Kingdom of Saudi Arabia
33	Joshua Harmon	Ph.D.	2023		Blast Resistant Design of Two-Way Steel-Concrete Composite (SC) Panels	Research Engineer Purdue Applied Research Institute, LLC
34	Ata Ur Rehman	Ph.D.	2024	Jungil Seo	Effect of Construction Flaws in Steel-Plate Composite (SC) Structures	Assistant Professor, National University of Science and Technology, Pakistan
35	Deven Kanakamedala	Ph.D.	2024	Jungil Seo	Inspection and Assessment of Corroded Steel Girders	Bridge Engineer, Modjeski and Masters, Inc.
36	Margaret Perlman	Ph.D.	2025		Direct Shear in Blast-Resistant Steel-Plate Composite (SC) Structures	Thornton Tomasetti
37	Omair Bin Saleem	Ph.D.	2025	Jungil Seo	Dynamic Behavior, Analysis and Design of Steel and Concrete Composite Structural Elements	Assistant Professor, National University of Science and Technology, Pakistan
38	Shivam Sharma	Ph.D.	2025	Jungil Seo	Design and Behavior of SpeedCore Splices and Wall-to-Base Connections	Visiting Professor, Purdue University
39	Mirnes Mustafic	Ph.D.	2025	Jungil Seo	Out-of-Plane Behavior and Capacity of Steel-Plate Composite with Diaphragm Plates	Structural Engineer, Exponent Inc.

7.3 Post-Docs and Research Engineers

Most of the post-doctoral research associates working with Prof. Varma are former students who obtained their Ph.D. from Purdue University. Prof. Varma mentors these post-doctoral associates and advises them about: (i) writing research proposals, (ii) managing grants, (iii) working with graduate students, (iv) writing research papers and responding to review comments, (v) applying for faculty positions, (vi) preparing for phone and site interviews, (vii) negotiating offers and requesting startup funds.

	Name	Degree & Date	Prior Affiliation	Position Title / Dates	Project Title	Current Status
1	Sergei Filatyev	Ph.D. 2003	U. of Michigan,	Post-Doctoral 2006-2007	Stability of Steel Structures Under Fire	Lead Data Scientist at Cox Automotive Inc.
2	Sangdo Hong	Ph.D. 2007	Purdue University	Post-Doctoral 2007-08	Stability of Steel Structures Under Fire	Virginia Department of Transportation
3	Hoseok Chi	Ph.D. 2009	Purdue University	Post-Doctoral 2009-10	Experimental Evaluation Of AP1000 SC Structures	Korea Institute of Nuclear Safety (KINS)
4	Youngmoo Sohn	Ph.D. 2012	Purdue University	Post-Doctoral 2012-2014	Experimental Evaluation of SC Structures for Nuclear Power Plants	Associate Professor Central Connecticut State University
5	S. Ramesh	Ph.D. 2013	Purdue University	Post-Doctoral 2013-2017	Shear Strength of RC Beams with T-Headed Shear Reinforcement	Research Engineer, National Institute of Standards & Testing
6	Zhichao Lai	Ph.D. 2014	Purdue University	Post-Doctoral 2014 – 2017	Fracture Critical Bridge Analysis: Tub Girders and Steel Girder Bridges	Professor, Fuzhou University, China 1000 Plan Award – 2018
7	Kadir Sener	Ph.D. 2014	Purdue University	Post-Doctoral 2014-2020	Effects of Accident Thermal Conditions on Seismic Behavior and Design of Power Plants	Assistant Professor Auburn University
8	Saahas Bhardwaj	Ph.D. 2018	Purdue University	Research Engineer 2018 – 2021	Performance-based Structural Fire Engineering of Composite Walls	Purdue Applied Research Institute, LLC
9	Tzu-Chun Tseng	Ph.D. 2021	Purdue University	Post-doctoral Researcher 2021 – 2023	Beyond Design Performance of SCCV – Testing and Analysis	KPFF, Seattle
10	Ataollah T. Anvari	Ph.D. 2022	Purdue University	Post-doctoral Researcher 2022 – 2023	Performance-based Structural Fire Design for Authorities Having Jurisdiction	WJE, Chicago
11	Jungil Seo	Ph.D. 2014	Purdue University	Sr. Principal Research Scientist 2014 - present	Behavior and Design of Modular Connections for SC Walls	Research Assistant Professor, Purdue University
12	Tom Bradt	M.S. 2011	Purdue University	Sr. Research Engineer 2012-present	Large-scale Experimental Evaluations and Innovative Testing	Full-time employee at Purdue University. Research Engineer
13	Soheil Shafaei	Ph.D. 2020	Purdue University	Sr. Research Scientist 2020 – 2024	SpeedCore Design, Analysis, and Testing for Seismic and Wind Loading	Assistant Professor, Utah State University
14	Lisa Choe	Ph.D. 2011	Purdue University	Sr. Research Scientist 2022 - present	Blast Resistant Design, Analysis, and Testing of Structural Systems	Purdue Applied Research Institute, LLC
15	Sanj Malushte	Ph.D. 1988	Virginia Tech	Sr. Director of Technology 2022 – present	Infrastructure Research and Innovative Solutions	Purdue Applied Research Institute, LLC
16	Josh Harmon	Ph.D. 2023	Purdue University	Research Scientist 2022 – present	Blast Resistant Design, Analysis, and Testing of Structural Components and Systems	Purdue Applied Research Institute, LLC
17	Morgan Broberg	Ph.D. 2022	Purdue University	Research Scientist 2022 – 2025	Blast Resistant Design, Analysis, and Testing of Structural Systems	Assistant Professor, University of Arkansas
18	Tom Welch	B.S. 2022	Purdue University	Research Engineer 2022 - present	Structural Testing Engineer	Purdue Applied Research Institute, LLC

19	Saahas Bhardwaj	Ph.D. 2018	University of Alabama	Research Engineer 2024-present	Behavior, Analysis, Testing, and Design of Nuclear Structures	Purdue Applied Research Institute, LLC
20	Shivam Sharma	Ph.D. 2025	Purdue University	Visiting Asst. Prof. 2025 - present	Fire Behavior, Testing and Design of FastFloor Systems	
21	Aditya Jhunjunwala	Ph.D. 2025	Univ. of California, Davis	Visiting Asst. Prof. 2025 - present	High Strength Steel Columns: Testing and Design	

8. GRANT RESEARCH ACTIVITY

Prof. Varma has received about \$40 million of total research funding, of which he is directly responsible for about \$33 million. He has received funding from a variety of sources including federal agencies, state agencies, structural steel industry, concrete research foundations, and power industry.

The federal agencies include: (i) the National Science Foundation (NSF), (ii) the National Institute of Standards and Technology (NIST) through the U.S. Department of Commerce, (iii) the U.S. Department of Energy (DOE), (iv) the National Academy of Sciences through the National Cooperative Highway Research Program (NCHRP), (v) Los Alamos National Laboratory (LANL).

The state agencies include the: (i) Michigan Department of Transportation (MDOT), (ii) Indiana Department of Transportation (INDOT), and (iii) Pennsylvania Department of Transportation (PennDOT).

The steel industry sources include: (i) the American Institute of Steel Construction (AISC), (ii) the American Iron and Steel Institute (AISI), (iii) Consolidated Systems, Inc. (iv) HDR Inc., (v) Steel Institute of New York, and (vi) Hardesty and Hanover, Inc. The concrete research foundations include the Charles Pankow Foundation.

The power industry sources include: (i) Bechtel Power, (ii) Westinghouse Electric Company, (iii) GE Hitachi, (iv) Holtec International, (v) X-Energy, (vi) TerraPower, (vi) URS (now AECOM), (vii) Mitsubishi Heavy Industries from Japan, (viii) Korea Hydro Nuclear Power, (ix) Korea Electric Power Company from S. Korea.

Prof. Varma has received research funding from federal regulatory agencies including: (i) US Nuclear Regulatory Commission (NRC), (ii) the Canadian Nuclear Safety Commission (CNSC), and (iii) Federal Energy Regulatory Commission (FERC)

Grant Activity

P1. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Michigan State University - Intramural Research Grants Program Fire Behavior and Design of Composite Structures Jan 2002 – July 2003 \$43,500 Principal Investigator (100% responsibility) NA
P2. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Michigan Department of Transportation / The Effects of Multiple Heat Straightening on Structural Properties of Steel Bridge Beams Impacted by High Loads May 2002 - Nov. 2004 \$175,000 Principal Investigator (100% responsibility) NA
P3. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	National Science Foundation / Experimental and Analytical Investigations of the Fire Behavior of CFT Beam-Columns May 2003 - May 2006 \$114,000 Principal Investigator (100% responsibility) NA
P4. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	American Institute of Steel Construction / Development of Innovative Long Span Floor Systems for Multi Story Residential Steel Construction August 2003 - August 2007 \$120,000 Principal Investigator (100% responsibility) NA
P5. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Michigan Department of Transportation / Evaluation of Alignment Tolerances for Dowel Bars and their Effects on Joint Opening Behavior Jan. 2004 - Dec. 2006 \$232,000 Co-Principal Investigator (50% responsibility) Prof. Neeraj Buch, Michigan State University

P6. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Bechtel Power / Analysis of Modular Composite Sandwich Panel Walls for Nuclear Facilities Aug. 2005 - Dec. 2005 \$4,000 Principal Investigator (100% responsibility) NA
P7. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Purdue Research Foundation / Realistic Fire Behavior of Structural Columns Aug. 2005 - Aug. 2006 \$14,000 Principal Investigator (100% responsibility) NA
P8. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators: Agency / Title of Grant:	Indiana Department of Transportation / Synthesis study: Heat Treatment of Steel and its Applications for Rehabilitating Steel Bridges Jan. 2006 - July 2007 \$35,000 Principal Investigator (100% responsibility) NA
P9. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Indiana Department of Transportation / Evaluation and Verification of Bridge LRFD Design Software Jan. 2006 - July 2008 \$150,000 Principal Investigator (100% responsibility) NA
P10. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Bechtel Power / Behavior and Design of Modular Steel Plated Composite Walls for Nuclear Facilities May 2006 - May 2007 \$43,500 Principal Investigator (100% responsibility) NA
P11. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	National Science Foundation / Realistic Fire Behavior and Stability of Steel Building Structures and Sub-systems August 2006 - August 2009 \$149,000 Principal Investigator (85% responsibility) Prof. Jay Gore, Purdue University, School of Mechanical Engineering
P12. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	National Institute of Standards and Technology through the U.S. Department of Commerce / Realistic Fire Behavior and Stability of Steel Building Structures and Sub-systems August 2006 - August 2009 \$149,000 Principal Investigator (85% responsibility) Prof. Jay Gore, Purdue University, School of Mechanical Engineering
P13. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Indiana Department of Transportation / Effects of Realistic Heat Straightening Repair on the Properties and Serviceability of Damaged Steel Bridges Jan. 2007 - August 2009 \$172,500 Principal Investigator (100% responsibility) NA
P14. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Purdue Research Foundation (PRF) / Realistic Fire Behavior of Building Structures Jan. 2008 - Dec. 2008 \$15,500 Principal Investigator (100% responsibility) NA

P15. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	American Institute of Steel Construction (AISC) / Unrestricted Gift for Continuing Research of the Fire Behavior of Steel Structures Jan. 2008 - no limit \$45,000 Principal Investigator (100% responsibility) NA
P16. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	American Iron and Steel Institute (AISI) / Unrestricted Gift for Continuing Research of the Fire Behavior of Steel Structures Jan. 2008 - no limit \$45,000 Principal Investigator (100% responsibility) NA
P17. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	National Science Foundation (NSF) / Collaborative Research: Behavior and Design of Composite Floor Systems Under Fire Loading Aug. 2008 - Aug. 2011 \$300,000 Principal Investigator (60% responsibility) Prof. Venkatesh Kodur, Michigan State University
P18. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	National Science Foundation (NSF) / Collaborative Research: Structural Mechanics of Steel Columns and Beam-Columns Under Fire Loading Jan. 2009 - Dec. 2011 \$140,000 Principal Investigator (50% responsibility) Prof. Andrea Surovek, South Dakota School of Mines and Technology
P19. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Consolidated Systems Inc. and W&W Steel Co./ Experimental Evaluation of a Patented Innovative Composite Beam and Floor System July 2008 - Mar. 2009 \$90,000 Principal Investigator (100% responsibility) NA
P20. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Indiana Department of Transportation/ Feasibility Evaluation of Standardization of Bridge Elements in Indiana May 2009 - April 2010 \$55,000 Principal Investigator (100% responsibility) NA
P21. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	U.S. Department of Energy through the Westinghouse Electric Company/Large-Scale Experimental Evaluation of SC Shield Building For AP1000 May 2009 - December 2010 \$2,490,547 Principal Investigator (100% responsibility) NA
P22. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	U.S. Department of Energy through the Westinghouse Electric Company/ Combined Operating and Licensing Agreement (COLA) Design Evaluation for AP1000 Containment Internal Structures Oct 2010 - December 2011 \$500,000 Principal Investigator (100% responsibility) NA
P23. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Indiana Dept. of Transportation/ Fire Damage Evaluation of I465 Bridge in Indianapolis Oct 2009 - April 2011 \$100,000 co-Principal Investigator (50% responsibility) Prof. Robert Connor, Purdue University

P24. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Pennsylvania Dept. of Transportation through the University of Pittsburgh / Evaluation of Fire Damaged Steel Bridges Jan. 2010 - April 2011 \$50,000 Principal Investigator (50% responsibility) Prof. Robert Connor, Purdue University
P25. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	URS / Mitsubishi Heavy Industries Ltd. (prime sponsor)/ Benchmarking Analysis of SC Walls and Connections for US-APWR CIS Aug. 2011 - Aug. 2013 \$400,000 Principal Investigator (100% responsibility) NA
P26. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Indiana Department of Transportation / Efficient Load Rating and Life-Cycle Costing of Indiana Bridges for Overweight Loads Jan. 2012 - Dec. 2013 \$173,059 co-Principal Investigator (50% responsibility) Prof. Arun Prakash, Purdue University
P27. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	URS / Mitsubishi Heavy Industries Ltd. (prime sponsor) / Experimental Evaluation of SC Composite Walls and Connections for the US-APWR CIS May 2012 - Dec. 2013 \$1,311,000 Principal Investigator (100% responsibility) NA
P28. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	U.S. Department of Energy / Design of SC Walls and Slabs for Impulsive Loading Aug. 2012 - Dec. 2014 \$120,000 Principal Investigator (100% responsibility) NA
P29. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	U.S. Department of Energy / Modular Connection Technologies for Composite Walls in SMRs: Development and Experimental Verification Aug. 2012 - Dec. 2015 \$792,572 Principal Investigator (100% responsibility) NA
P30. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	HDR Inc./ Behavior of Strengthened Built-Up Steel Columns Aug. 2012 - Dec. 2015 \$85,371 co-Principal Investigator (41% responsibility) Prof. Rob Connor (41%), Prof. Judy Liu (18%), Purdue University
P31. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Bechtel Power Corp. / Unrestricted Gift to Advance Research of SC Walls for Safety-Related Nuclear Facilities May 2009 - unending \$9,000 Principal Investigator NA
P32. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Canadian Nuclear Safety Commission (CNSC) / Testing and Development of Regulatory Requirements for Steel Plate Concrete - SC Structures May. 2013 - May 2016 \$299,000 co-Principal Investigator (53% responsibility) Prof. Andrew Whittaker (47%, University of Buffalo)

P33. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Westinghouse Electric Company / Shear Strength of RC Structures with T-headed Shear Bars in Safety-Related Nuclear Facilities May. 2013 - May 2014 \$390,000 Principal Investigator (50% responsibility) Prof. Michael Kreger, Purdue University
P34. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	National Institute for Standards and Technology / IPA for Selvarajah Ramesh (Post-Doc Working at NIST Fire Lab) Dec. 2013 - Dec. 2017 \$313,047 Principal Investigator (100% responsibility)
P35. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Hardesty and Hanover / Analytical Evaluation of the Orthotropic Deck of the Johnson Street Bridge Sept. 2013 - Aug. 2014 \$76,389 co-Principal Investigator (30% responsibility) Prof. Rob Connor (70%, Purdue University)
P36. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	National Academy of Sciences / NCHRP 12-87A - Fracture Critical Analysis June. 2014 - Aug. 2016 \$260,000 co-Principal Investigator (40% responsibility) Prof. Rob Connor (60%, Purdue University)
P37. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	American Iron Steel Construction + National Steel Bridge Alliance / Fracture of Steel Tub Girder Bridges April. 2014 - unending \$40,000 co-Principal Investigator (50% responsibility) Prof. Rob Connor (50%, Purdue University)
P38. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Westinghouse Electric Company / AP1000 Wire Embed Testing Program April. 2014 – May 2017 \$312,435 Principal Investigator (100% responsibility)
P39. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	US Department of Energy / Improvement of Design Codes to Account for Accidental Thermal Effects on Seismic Performance September 2014 - September 2017 \$800,000 Principal Investigator (75% responsibility) Prof. Andrew Whittaker (University at Buffalo)
P40. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	US Nuclear Regulatory Commission / Steel Plate Composite (SC) Walls: Behavior, Analysis, and Design for Missile Impact September 2014 - September 2017 \$391,000 Principal Investigator (100% responsibility)
P41. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	American Institute of Steel Construction / Unrestricted grant for Design of SC Slabs and Connections September 2014 - no end date \$60,000 Principal Investigator (100% responsibility)

P42. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Idaho National Laboratory / Nonlinear SSI: Numerical and Experimental Exploration of Interfacial Nonlinearities June 2016 – June 2017 \$60,000 Principal Investigator (45% responsibility) Dr. Jungil Seo (55%, Post-Doc working with Prof. Varma)
P43. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Modular Walling Systems / Unrestricted Gift: Research on SC Walls and Slabs June 2016 – no limit \$28,000 Principal Investigator (100% responsibility)
P44. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Korea Hydro Nuclear Power / Dankook University: Collaborative Experimental Investigation of Composite SC Walls Subjected to Missile Impact July 2016 – Dec. 2018 \$232,824 Principal Investigator (60% responsibility) Dr. Jungil Seo (40%, Post-Doc working with Prof. Varma)
P45. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Charles Pankow Foundation / Seismic and Wind Behavior and Design of Coupled CF-CPSW Core Walls for Steel Buildings August 2016 – August 2021 \$1,018,000 Principal Investigator (85% responsibility) Prof. Michel Bruneau (15%, Univ. at Buffalo)
P46. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Westinghouse Electric Company / Evaluation of an RC Shield Building August 2016 – May 2017 \$235,000 Principal Investigator (100% responsibility)
P47. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Westinghouse Electric Company / Design of Lap-Splice Connections and Bent Shear Stud Pullout Tests August 2016 – May 2017 \$235,000 Principal Investigator (100% responsibility)
P48. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Charles Pankow Foundation / R-factors for Composite Plate Shear Walls August 2017 – August 2018 \$74,750 Principal Investigator (60% responsibility) Dr. Jungil Seo (40%, Post-Doc working with Prof. Varma)
P49. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Indiana Department of Transportation / Post-Fire Assessment, Evaluation, and Inspection of Prestressed Concrete Bridge Girders Jan. 2018 – Dec. 2020 \$360,000 Principal Investigator (40% responsibility) Prof. Jan Olek (25%), Prof. Christopher Williams (35%)
P50. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Charles Pankow Foundation - American Institute of Steel Construction / Performance-Based Structural Fire Engineering of Concrete Filled Composite Plate Shear Wall (CF-CPSW) Buildings July 2018 – Dec. 2019 \$160,000 Principal Investigator (100% responsibility)

P51. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Westinghouse Electric Company / Pushout Tests to Classify and Evaluate Shear Connectors in Composite Walls July 2018 – Dec. 2018 \$145,000 Principal Investigator (50% responsibility) Jungil Seo (50% responsibility)
P52. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Moltex Energy Limited / Moltex – Rigid-Elastic Composite Civilworks Jan. 2019 – July 2020 \$110,000 Principal Investigator (50% responsibility) Prof. Jungil Seo (50%)
P53. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Veolia Water Company / Experimental and Numerical Evaluation of Reinforced Concrete Pier and Pass-Through Connection of KCL-3 Structure July 2018 – December 2024 \$700,000 Principal Investigator (50% responsibility) Prof. Jungil Seo (50%)
P54. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Korea Electric Power Company / Korea Hydro Nuclear Power: Behavior and Design of Steel Plate Composite (SC) Wall-to-Reinforced Concrete (RC) Wall Mechanical Connections = March 2019 – July 2020 \$640,000 Principal Investigator (60% responsibility) Dr. Jungil Seo (40%, Post-Doc working with Prof. Varma)
P55. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Korea Electric Power Company / Korea Hydro Nuclear Power: Design of Deformed Rebar Anchors for Concrete Attachments Voluntary support from Hilti Inc. August 2019 – July 2020 \$66,000 Principal Investigator (60% responsibility) Dr. Jungil Seo (40%, Post-Doc working with Prof. Varma)
P56. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Indiana Department of Transportation / Shear and Bearing Capacity of Corroded Steel Beam Bridges and Effects on Load Rating August 2020 – May 2023 \$225,000 Principal Investigator (50% responsibility) Prof. Jungil Seo, Prof. Rob Connor
P57. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Charles Pankow Foundation+ American Institute of Steel Construction + MKA Foundation + Steel Institute of New York / Composite Floor-to-SpeedCore wall Systems: Performance-based Fire Resistance and Design January 2021 – December 2023 \$216,000 Principal Investigator (75% responsibility) Prof. Jungil Seo (25% responsibility)
P58. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Electric Power Research Institute / Assessment, Design and Analysis Guidance of SC Walls for Advanced Reactors and SMRs February 2021 – April 2024 \$240,000 Principal Investigator (75% responsibility) Prof. Jungil Seo (25% responsibility)
P59. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	GE Hitachi / Prototype testing for BWRX-300 Jan. 2022 – July 2024 \$1,900,000 Principal Investigator (75% responsibility) Prof. Jungil Seo (25% responsibility)

P60. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Electric Power Research Institute / Digital Twin for Construction Demonstration of BWRX-300 Jan. 2022 – July 2024 \$310,000 (contract negotiations ongoing) Principal Investigator (75% responsibility) Prof. Jungil Seo (25% responsibility)
P61. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Indiana Department of Transportation / New Repair Strategies for Life-Cycle Extension of Corroded Steel Beam Bridges September 2021 – Feb. 2024 \$262,669 Principal Investigator (70% responsibility) Prof. Jungil Seo, Prof. Rob Connor
P62. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Indiana Department of Transportation / Synthesis Study: Repair and Durability of Fire Damaged Prestressed Concrete Bridge Girders July 2021 – Jan. 2022 \$60,000 Principal Investigator (100% responsibility)
P63. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Bechtel National / Blast Resistant Design for Buried Structures: Phase 1 – Static Testing of SC Walls and Connections Feb. 2022 – June 2024 \$7,200,000 Principal Investigator (100% responsibility) Sanj Malushte, Wayne Chen,
P64. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Lawrence Livermore National Laboratory / Enhanced Nuclear Safety Using Modular Steel-Plate Composite (SC) Design / Construction Aug. 2022 – Aug. 2024 \$247,000 Principal Investigator (50% responsibility) Jungil Seo
P65. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Charles Pankow Foundation / Introduction to Performance-based Structural Fire Design (PBSFD) for Authority Having Jurisdiction (AHJ) Officials Sept. 2022 – Dec. 2023 \$120,000 Principal Investigator (100% responsibility)
P66. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Bechtel National / Blast Resistant Design for Buried Structure: Phase 2 – Dynamic Blast Tests of Structural Components and Systems June. 2023 – June 2024 \$2,544,864 Principal Investigator (100% responsibility) Sanj Malushte, Steve Son, Meliton Flores
P67. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Los Alamos National Laboratory / SC Composite Qualification Study – Phase 1 Sept. 2022 – June 2023 \$250,000 Principal Investigator (70% responsibility) Sanj Malushte (30% responsibility)
P68. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Federal Energy Regulatory Commission / Geotechnical and Structural Document Review for LNG Facilities 09/2023 – 09/2028 \$1,252,440 Co-Principal Investigator (50%) Sanj Malushte (50% responsibility)

P69. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	American Institute of Steel Construction / SpeedConnection: Steel Coupling Beams and Connections for SpeedCore Seismic Design Dec. 2023 – Dec. 2025 \$375,000 Principal Investigator (70% responsibility) Soheil Shafaei (30% responsibility)
P70. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Los Alamos National Laboratory / SC Composite Qualification Study – Phase 2 Oct. 2024 – September 2025 \$792,000 Principal Investigator (70% responsibility) Sanj Malushte (30% responsibility)
P71. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Holtec International / Concrete Reinforced Steel Modules for SMR 300® Aug. 2024 – June 2025 \$280,000 Principal Investigator (70% responsibility) Sanj Malushte (30% responsibility)
P72. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	GE Vernova / Damping Ratio for Diaphragm Plate – Steel Composite (SC) Modules Mar. 2025 – Dec. 2025 \$243,122 Principal Investigator (100% responsibility) Jungil Seo
P73. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	X-Energy, LLC / PARI PIIL X-Energy RB Trade Study and Consultation Aug. 2025 – Feb. 2026 \$281,865.98 Principal Investigator (70% responsibility) Sanj Malushte (30% responsibility)
P74. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Los Alamos National Lab / SC Composition Qualification Study Phase 3 Oct. 2025 – Sept. 2026 \$600,000 Principal Investigator (100% responsibility)
P75. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Holtec International / Holtec SMR 300® - Design, Analysis, and Licensing Support for Concrete Strengthened Steel Modules Mar. 2025 – Mar. 2026 \$700,000 Principal Investigator (100% responsibility)
P76. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Korea Hydro Nuclear Power / Development of design, manufacturing, and construction technology for application of nuclear facility SC structure modules Aug. 2025 – Aug. 2027 \$978,199 Principal Investigator (100% responsibility) Jungil Seo
P77. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Holtec International / PARI PIIL CSSM for SMR-300: Design, Analysis, and Testing Dec. 2025 – Dec. 2026 \$295,253 Co-Principal Investigator (50% responsibility) Saahas Bhardwaj (50% responsibility)
P78. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	TerraPower LLC / Natrium Steel Composite Module Feasibility Study Oct. 2025 – Dec. 2026 \$49,880 Principal Investigator (50% responsibility) Sanj Malushte (50% responsibility)

P79. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Orano USA LLC / Orano IKE Nuclear Fuel Enrichment Facility Design Criteria April 2024 – Mar. 2026 \$79,887 Co-Principal Investigator (50% responsibility) Sanj Malushte (50% responsibility)
P80. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Holtec International / Holtec SMR 300® - PO Line 3.3 - Design, Analysis, and Licensing Support for Concrete Strengthened Steel Modules April 2026 – Dec. 2026 \$500,000 Principal Investigator (100% responsibility)
P81. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Nuclear Industry Consortium / Steel Construction Modernization in Nuclear (SCMN) Program Jan. 2026 – Dec. 2027 \$1,885,000 (Cash) + \$1,750,000 (In-Kind) Principal Investigator (50% responsibility) Sanj Malushte, Rinaldo Hunt (50% responsibility)
P82. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Charles Pankow Foundation and American Institute of Steel Construction → Northeastern Univ. / FastFloor: Behavior of Modular Steel Plate Floor Assemblies Oct. 2026 – June 2027 \$52,500 + \$247,500 Principal Investigator (100% responsibility)
P83. Agency / Title of Grant: Duration of Funding (Dates): Total Amount of Award: Your Role and Responsibility: Co-Investigators:	Batelle Energy Alliance or Idaho National Lab / NRIC Nuclear Quality Assurance Improvement Initiatives: Potential Improvements to ACI 349 Requirements March 2026 – Sept. 2026 \$125,000 Principal Investigator (100% responsibility)

9. IMPACT OF RESEARCH ACTIVITIES

Prof. Varma has dedicated his academic and professional life to the development of innovative steel-concrete composite structures for the built infrastructure including commercial and residential buildings, industrial structures such as nuclear power plants, and protective structures. He has conducted fundamental research including large-scale experimental investigations and numerical analyses to evaluate and improve the structural behavior of steel-concrete composite members, connections and overall structural systems subjected to various extreme loading conditions including seismic, fire, blast, and impact loading. His research products are the basis of (and directly cited in) several AISC codes / specifications (AISC 360, AISC 341, AISC N690) for the design of steel-concrete composite structures for building structures and safety-related nuclear facilities. These codes / specifications govern the design and construction of all steel building structures and safety-related nuclear facilities in the US and are also used / referenced extensively around the world by engineers, consultants, regulators, and building officials.

9.1 Composite Columns and Frames

Prof. Varma received his Ph.D. in Civil Engineering from Lehigh University in 2001. His Ph.D. research on steel-concrete composite columns was a seminal evaluation of the effects of high strength materials on the seismic performance of such members. His journal papers ([J4], [J5], [J6], [J7]), just on this topic of high strength composite members, have been cited more than 800 times (google scholar), and have retained value and relevance as high strength materials have become more readily accessible in the US and abroad. Prof. Varma has continued his research on the topic of composite members throughout his career. Over the past decade, Prof. Varma has conducted fundamental research on composite columns that has led to their classification into compact, noncompact and slender sections; evaluation of their behavior as columns and beam-columns, while accounting for various complexities including material and geometric nonlinearities, slenderness effects, fracture etc. Prof. Varma and his students have published papers in top journals summarizing these findings ([J30], [J36], [J46], [J58]). These papers are the basis of the relevant provisions in the recent AISC Specification (360-10, 360-16), Chapter I, and are cited in the commentary. Prof. Varma's research products and the associated changes in the Specification have enabled the use of noncompact and slender composite members in the US. Prof. Varma and his students have recently published several new journal articles ([J68], [J72], [J76], [J94], [J102], [J133], [J137], [J132]) on high strength steel and composite members and their use in seismic systems. Based on this research, the upcoming AISC Specification (360-22) has included a new Appendix 2 focused on the design of composite members made from high strength materials. This is the first time that the US steel specification has permitted the use of high strength materials for design. Prof. Varma and his former student (Prof. Lai) have received the ASCE Alfred Noble Prize for their publication [J76] and contributions on this topic.

Prof. Varma's expertise in composite members has long been recognized by colleagues and peers, and he was invited to join AISC Task Committee 5 in 2005. He has been a member of the committee for almost 12 years and has made substantial contributions to the AISC Specification (360-22) and Seismic Provisions (341-22) over the years. Prof. Varma's research is the basis of the composite member design specifications in AISC 360-22, Chapter I, and the seismic provisions for composite systems in AISC 341-22. Several of his papers are cited directly in the commentary as the basis of these provisions. Additionally, Prof. Varma was the chair of the Structural Engineering Institute / American Concrete Institute (SEI/ACI) joint committee on composite construction from 2010-2017. As the chair, he organized several sessions on composite structures at the annual Structures Congress, and directed a committee special project that involved developing a state-of-the-art report on connections for composite moment resisting frames [J82, B3].

Prof. Varma and his graduate student (Dr. Lai) were engaged by the US Army Corps of Engineers to assist with the analysis and design of noncompact / slender concrete filled steel tube (CFT) members used as piers in floodwall structures for rehabilitating the west closure complex damaged by Hurricane Katrina in New Orleans. This high-profile project was a significant application of the research done by Varma and Lai, and led to further investigations summarized in a recent journal article [J69].

During the early part of his career, Prof. Varma received the AISC Milek Faculty Fellowship for developing long-span composite floor systems for residential construction. Prof. Varma's research led to the development of several unique and innovative composite floor systems including the cellular and non-cellular deep deck systems and a self-shored flooring system. These composite floor systems were made available to the industry through AISC publications, presentations and showcases.

9.2 Fire Resistant Design of Steel & Composite Structures

Prof. Varma started his career as an Assistant Professor in 2001, a year that was marked by the occurrence of 9/11 and the collapse of the world trade center towers. Since then, Prof. Varma has dedicated himself to conducting fundamental research on the behavior and analysis of steel and composite structures under fire loading, and the development of design provisions for improving their fire resistance and collapse resistance. This has truly been a labor of love. One of the biggest limitations (in the US) was the paucity of experimental data and results on the fundamental behavior of steel structural members, connections, and assemblies under fire loading. This paucity was due to the difficulty, complexity, risks, and expense associated with conducting fire tests in structural engineering laboratories that are ill-suited and ill-equipped for conducting open flame or gas furnace fire tests. Prof. Varma met this challenge head-on and developed an innovative and completely unique method of conducting realistic fire tests on structural members and assemblies without a traditional gas furnace. This ground-breaking work was funded by several grants from the National Science Foundation (NSF) and National Institute of Standards and Technology (NIST). Prof. Varma chose not to patent his testing approach and equipment design. He published and shared this

testing approach openly, which has led to significant interest in replicating it (with modifications) at several structural engineering laboratories around the world.

Prof. Varma and his students used this innovative approach to conduct experimental investigations and evaluate the fundamental behavior of steel and composite members subjected to standard and / or realistic fire loading. For example, the fire behavior of: (i) steel and composite columns ([J16], [J18], [J21], [J51], [J92]), (ii) composite floor assemblies [J17], (iii) composite beams [J48], and (iv) steel connections ([J60], [J74]) was evaluated experimentally. Prof. Varma and his students also developed and benchmarked detailed numerical (3D nonlinear finite element) models for predicting the observed experimental behavior of: (i) steel and composite columns ([J14], [J19], [J26], [J27], [J54], [J92]), (ii) composite floor assemblies [J20], (iii) composite beams ([J38], [J52], [J57]), and (iv) steel connections ([J38], [J61], [J74]). They used these benchmarked modeling approaches to investigate the fire behavior, resistance, and overall collapse of 3D steel and composite building structures ([J24], [J25], [J61], [J86], [J95], [J108], [J119]). They have recently extended this work to evaluate the multi-hazard behavior and design of steel building structures under post-earthquake fire loading ([J71], [J80], [J105]). Prof. Varma and his students' ground-breaking work on the fire-resistant design of steel and composite structures was the basis of (and directly cited) in the AISC Specification 360-22, Appendix 4 – Fire Design. Prof. Varma and his students' research articles have contributed to the development of performance based fire-resistant design provisions for steel structures, and thus improved the fire safety of the built infrastructure.

Prof. Varma's peers and colleagues have long recognized his contributions in the area of fire-resistant design of steel and composite structures. He has contributed regularly to the AISC Task Committee 8 on fire design and was appointed in 2016 as the chair of this national American Iron and Steel Institute (AISI) / AISC Task Committee on the fire design of steel structures. As the chair of this national committee, Prof. Varma has co-authored articles in the trade magazine, *Modern Steel Construction*, participated in meetings with practitioners authoring standards for the corresponding American Society of Civil Engineers (ASCE) technical committee, and served on blue-ribbon panels reviewing committee reports. The committee has recently drafted the next version of the Appendix 4 on Fire Design in the AISC 360 (2022) specification.

Recognizing his expertise in structural fire engineering, Prof. Varma received multiple grants from the Charles Pankow Foundation, Steel Institute of New York, and AISC to develop performance-based fire-resistant design methods for composite (steel-concrete, SC) walls and floor-to-wall connections. The first project focusing on SC walls was recently completed including large-scale testing, numerical analysis, and development of design methods [R19, J124], which have been included in the next version of AISC 360-22 specification, Appendix 4 on fire design. The second project on fire resistant design of floor slab-to-wall connections is also complete. The results from the experimental investigations have been published in [J151] and the complete report with all results has been published in [R32].

9.3 Steel-Plate Composite (SC) Walls for Nuclear Facilities

Recognizing his extensive contributions in the field of steel-concrete composite structures, Prof. Varma was recruited in 2008 by the nuclear power industry to lead the research, testing, analysis, and development of design specifications for steel-plate composite (SC) structures being used in the third generation of nuclear power plants. The nuclear industry had selected these steel-plate composite (SC) structures for their innovation, modularity, speed and ease of construction, and their missile (aircraft) impact resistance, which was mandated for nuclear structures after the 9/11 event. Over the past fifteen years, Prof. Varma and his research team of several graduate students, post-doctoral research associates, and research engineers have conducted extensive research on the behavior, analysis and design of nuclear structures (consisting of composite SC walls) subjected to design basis and beyond-design basis loading conditions including seismic, accident thermal, blast, and impact.

This research has been funded by the US and international nuclear industry, US Department of Energy, and the US and international regulatory organizations. The research includes large-scale experimental investigations, development and benchmarking of numerical (nonlinear finite element) models, analytical parametric studies, and development of design specifications and guidelines. Prof. Varma and his team have conducted extensive large-scale experimental investigations and numerical analyses to evaluate the fundamental behavior of composite SC walls subjected to: (i) axial compression ([J23], [J97]), (ii) out-of-plane shear ([J29], [J59], [J90], [J104]), (iii) out-of-plane flexure [J37], (iv) in-plane shear ([J53], [J66], [J96]), (v) combined in-plane and out-of-plane forces ([J22], [J81], [J87], [J91]), and (vi) combined thermal and mechanical loading ([J42], [J43], [J83]). They have also conducted research to evaluate the effects of local buckling, interfacial slip and partial composite action [J23], and to develop minimum requirements and section detailing provisions ([J62], [J93]) for composite SC walls.

Prof. Varma and his students have developed and benchmarked numerical (3D nonlinear finite element) models for predicting the seismic response of an entire containment internal structure consisting of SC walls ([J41], [J42]), and used these models to evaluate the effects of accident thermal plus seismic loading ([J43], [J89]). They have experimentally and numerically evaluated the behavior and design of: (i) SC wall-to-basemat connections ([J63], [J65]), (ii) wall-to-wall T and L connections ([J70], [J85], [J85]), and (iii) SC to RC wall splice connections ([J63], [J109], [J118]). Prof. Varma and his students have also conducted large-scale experimental investigations and numerical analyses to evaluate behavior and design of SC walls subjected to blast loading ([J64], [J77], [J103]) and missile impact loading ([J33], [J40], [J101], [J100], [J101], [J122]).

Prof. Varma has recently initiated research and development of steel-plate composite containment vessels (SCCV) for nuclear power plants. Containment vessels are designed to serve as the last line of defense and contain accident pressure and radiation in the event of a severe nuclear accident. Only three types of containment vessels (steel, reinforced concrete, and post-

tensioned concreted) have ever been designed, approved by the regulators, and constructed around the world. Prof. Varma and his team are developing design provisions for a new and innovative containment vessel (SCCV) to address some the structural limitations and economic inefficiencies of traditional designs. Prof. Varma's research and development effort are being supported by the US Department of Energy through the Nuclear Reactor Innovation in Construction (NRIC) program award to GE-Hitachi. GE-Hitachi plans to use SCCV for their BWRX-300 small modular reactor design, and is working with team members Purdue, EPRI (Electric Power Research Institute), Black and Veatch, Univ. of North Carolina at Charlotte, and Modular Walling Systems to complete Phase 1 of the project.

Prof. Varma was invited by the ASME Section III, Div. 2 on concrete containment and the working group on Modernization to become a member and submit a code case for SCCV for balloting and approval. This ASME code case is currently being balloted, and being reviewed by GE-Hitachi, US NRC, Holtec International, and various ASME-ACI sub-groups and the joint committee. If approved, this ASME Code Case will represent a significant evolution in the design and construction of nuclear power plants around the world. Prof. Varma was recently appointed Chair of a new Task Group on steel-plate composite containment vessel for ASME, and the Chair of the Modernization Working Group.

9.4 Applications in the US and Impact of Work

The research done by Prof. Varma and his team has directly impacted the design approval and licensing of the AP1000® and US-APWR® nuclear power plant designs in the US and abroad including the UK and China. The licensing of the AP1000®, multi-billion-dollar nuclear power plant design, in the US was a direct consequence of the work done by Prof. Varma's research team in Bowen Lab in collaboration with industry practitioners (Mr. Tod Baker and Mr. Keith Coogler from Westinghouse; Dr. Sanj Malushte from Bechtel; and Dr. Bob Kennedy from RPK Consulting). Prof. Varma presented and defended this research numerous times to the US Nuclear Regulatory Commission (NRC), and the Advisory Committee of Reactor Safeguards (ACRS), which is the final advisory committee to the nuclear commissioners approving and licensing the design. Prof. Varma's research was thoroughly reviewed, examined, and audited by the US NRC and its team of consultants, which included several renowned professors and engineers (Drs. Joe Braverman and Rick Morante from Brookhaven National Lab; Mr. Brian Thomas and Dr. Jose Pires from NRC; and Professors Jerry Hajjar, Jim Jirsa, and Frank Vecchio). The tireless efforts of Prof. Varma and his research team led to the licensing of the AP1000® nuclear power plant, and its ongoing construction in Vogtle, GA, which has created numerous jobs and strongly influenced the economy.

They were recruited by Japan's Mitsubishi heavy industries (MHI) and URS (now AECOM) to lead the testing and analysis of the US-APWR® nuclear power plant design consisting of composite SC walls. Once again, Prof. Varma and his team conducted all the large-scale tests, numerical analyses, and worked collaboratively with practitioners from URS (Mr. Derek Winkler, Mr. Branko Galunic, Mr. Matt Van Liew) and MHI (Dr. Hiroyuki Fuyama, Mr. Kentaro Mori, and Mr. Ryu Fujimoto) to present and defend the results to the US NRC reviewers and their consultants (Drs. Joe Braverman and Rick Morante from Brookhaven National Lab; Mr. Brian Thomas and Dr. Jose Pires from NRC). The work done at Bowen Lab was thoroughly reviewed and audited by the NRC technical and quality engineers. Several Japanese engineers and URS managers were stationed at Bowen Lab for an extensive period while this project was ongoing.

Over the past few years, Prof. Varma has been working actively with Westinghouse engineers (Mr. Stuart Kellner, Dr. Kai Zhang) to help with the optimization of the SC walls used extensively in AP1000® for future applications. To this end, they have conducted additional SC-to-RC walls lap-splice connection tests, pushout tests to evaluate new types of SC wall tie systems, and anchorage to RC wall tests. This work is currently ongoing, and Prof. Varma's team is providing invaluable support to the industry.

Prof. Varma has also provided consulting support to several small modular reactor (SMR) designers interested in using SC walls for their structural design. These included mPower (with Bechtel and Babcock and Wilcox), Moltex, and the VTR based on the Prism design (GE-Hitachi). He is currently working actively with the GE Hitachi BWRX-300 design and is part of the team that has received funding (\$6M) from the US Department of Energy as part of the NRIC Advanced Construction Technology Initiative to conduct prototype fabrication and testing and support the construction demonstration. Over the past couple of years, Prof. Varma has been working with various industry partners to develop an ASME code case for the use of SC walls for nuclear containment vessel (CV) applications, which is the holy grail of nuclear power plant design. The research and testing funded by the NRIC project is supporting the development of the new ASME code case for SCCV, a completely new type of containment structure for nuclear applications. If approved, this ASME Code Case will represent a significant evolution in the design and construction of nuclear power plants around the world. Prof. Varma and his team are currently also working with Holtec International on their SMR-300® design, which also includes a proprietary SCCV and concrete strengthened steel modules (CSSM) for the entire power plant. They are c

9.5 International Applications and Impact

Prof. Varma and his research team also worked collaboratively with Westinghouse engineers to support the UK review and licensing of the AP1000® design including the associated testing and numerical analyses. The review team included engineers from AMEC (Dr. Stewart Gallocher) and UK Office of Nuclear Regulations (Dr. Andrew Coatesworth). Prof. Varma has conducted a research project for the Canadian Nuclear Safety Commission (CNSC) collaboratively with researchers from the Univ. of Buffalo (Dr. Andrew Whittaker) and CNSC (Dr. Nebojsa Orbovic). The project focused on the effects of out-of-plane

loading on the in-plane behavior of steel-plate composite walls. The project was completed successfully resulting in publications ([J81], [J87]) and design guidelines for CNSC review of modular designs with composite walls.

Prof. Varma and his team have conducted various research and consulting projects for the Korea Electric Power Company (KEPCO) and Korea Hydro Nuclear Power (KHNP). He has completed a multi-year collaborative research project between Purdue University, US NRC (Dr. Jose Pires, Dr. Hernando Candra) and KHNP (Dr. Kapsun Kim and Dr. Jinwon Shin) focusing on the design of SC walls for missile impact. These teams have conducted small-scale and large-scale missile impact tests in the US (Purdue) and S. Korea (Dr. Kyungkoo Lee at Dankook Univ.). These tests were used to benchmark numerical models and conduct the benchmarked models were used to conduct analytical parametric studies. The experimental and numerical results were used to develop new design methods for preventing local perforation of SC walls in safety-related nuclear facilities [J101]. The Korean regulators and US code developing committees are currently reviewing this research for inclusion.

Prof. Varma and his team have completed another collaborative research project with KEPCO engineers (Dr. Keum Ho Han and Mr. Sung Mun Kim) to develop design methods for connections between steel-plate composite SC and reinforced concrete RC walls in safety-related nuclear structures, and experimental verification of the connection performance. The results of this project have been used to develop a technical report to be reviewed by the Korean regulator (Korea Institute of Nuclear Safety), and journal articles to disseminate the research findings [J118].

Prof. Varma and Dr. Jungil Seo have recently started a project with funding from Korea Hydro Nuclear Power (KHNP) to experimentally evaluate the effective damping ratio for SC structures used in SMR applications. This international project includes collaborators from UK and KEPCO, and the outcomes are being reviewed by the regulatory body (Korean Institute of Nuclear Safety, KINS).

9.6 Steel-Plate Composite Wall Codification Activities and Impact

Prof. Varma has been recognized as the world leader and pioneer in the field of steel-plate composite (SC) structures for safety-related nuclear facilities. He was recruited to become a member of AISC Task Committee 11 on nuclear steel structures, and appointed the vice chair of the ad-hoc sub-committee (2007-2016) on modular composite construction. Prof. Varma's extensive research products, and his tireless work for the sub-committee led to the development and acceptance of the first consensus code / specification for the design of modular composite structures in the US, namely, the AISC N690-12s1 (2015). This consensus standard is a hallmark of US ingenuity and world leadership in the design of unique, innovative structures of the future. Other codes around the world are borrowing heavily from this US standard and Prof. Varma's research, which is cited extensively in this specification, is internationally recognized as defining the pinnacle of the field. The US NRC has completed its review and issued a new regulatory guide (RG1.243) for this specification. A contractor report was previously published by researchers at Brookhaven National Lab (BNL) reviewing this AISC N690 specification.

Prof. Varma has been invited to various countries to present his research and its translation into the AISC N690-12s1 code. Inspired by the level of interest and excitement about the topic, Prof. Varma was commissioned along with his Ph.D. student (Saahas Bhardwaj) to develop and author AISC Design Guide 32 (published Aug. 2017, [B2]) to further explain the background and basis, and to illustrate the use of this new specification (AISC N690s1) for the design of composite SC walls and their connections. Prof. Varma has developed a course based on this design guide and taught it to Korean engineers from KEPIC and KHNP in the Summer of 2018. He has taught this course to UK regulators and engineers in Fall 2019.

Prof. Varma (2017) received the AISC Special Achievement Award in recognition of his contributions and impact to the profession in terms of facilitating the structural design and licensing of the next generation of nuclear power plants in the US and around the world. Recently, Prof. Varma received the 2021 Stephen D. Bechtel Jr. Energy Award from ASCE's Energy Division for his "seminal contributions seminal contributions as a preeminent researcher, leading code/standard developer, educator, and invaluable consultant to the nuclear industry..."

9.7 Reinforced Concrete (RC) Design for Nuclear Facilities

Prof. Varma is also the vice chair of the American Concrete Institute (ACI) Committee 349 on design of reinforced concrete structures for nuclear facilities. He is a lead for the task group working on the revisions to ACI 349.1R (committee report) on thermal effects. As the leader of the task group working on thermal effects, Prof. Varma and his team have conducted experimental research on the effects of thermal loading on out-of-plane shear behavior of RC walls [J83], and the in-plane shear behavior of RC walls. This research was funded by the Department of Energy as part of the Nuclear Energy University Program (NEUP).

Prof. Varma's research also assisted with the construction of the AP1000® power plants in China. In particular, the plant at Haiyang had some construction non-conformance issues with the reinforced concrete (RC) shield building, and fuel loading and commissioning could not be completed without Prof. Varma's review and assessment. Prof. Varma's team worked collaboratively with the team of engineers (Dr. Ahmed Mustafa and Mr. Sam Young) on an impossible schedule to conduct experimental investigation and numerical evaluation of the non-conformance and its influence on the out-of-plane shear strength of reinforced concrete members. After this thorough but timely investigation and resolution by Prof. Varma, the project at Haiyang was completed on time and commissioned in 2018. A similar project on the use of shear ties with headed bars instead of stirrups was also conducted by Prof. Varma's research team to assist with regulatory review of the reinforced concrete shield

building in China. Prof. Varma's conducted large scale tests to demonstrate that RC designs with headed tie bars have equivalent or better behavior than designs with hooked stirrups. This research convinced the regulators and enabled the industry to expedite RC construction using headed bars for shear ties.

Prof. Varma is also leading the ACI 349 initiative and research on the development of design provisions for breakout failure of fully developed rebars used as anchors in nuclear construction. This research issue was identified by Prof. Varma working collaboratively with industry practitioners part of ACI 349 (Dr. Bernd Laskewitz and Mr. John Silva of Hilti). The initiative has developed into a full-fledged, international, collaborative research project with funding and teams from the ACI 349 committee (Ms. Adeola Adediran, Mr. John Silva, Dr. Shen Wang), China (Mr. Meng Chu of SNERDI and Dr. Bin Zhao of Tongji Univ.), researchers from Purdue (Prof. Varma, Dr. Jungil Seo), and S. Korea (Mr. Sung Mun Kim of KEPSCO). The results from all these experimental investigations are being used to develop a simple design method in ACI 349 that will be of significant benefit to the industry [J99]. This work is complete and had a significant impact on the ACI 349 code and the nuclear industry-at-large with respect to the use of full-developed rebars used for anchorage.

Prof. Varma has been consulted by the practitioners in the nuclear industry to assist with the use of high strength rebar and concrete within the context of ACI 349. He has assisted by evaluating experimental results from around the world, developing and benchmarking numerical models for conducting nonlinear analysis, and helping engineers with understanding the advantages and limitations of using high strength rebar and concrete in nuclear construction.

As part of ACI 349, Prof. Varma organized special sessions at the Spring 2017 convention on the state-of-practice for the use of the 3D finite element method and its results for the design of reinforced concrete nuclear structures. Practitioners from different companies within the US and abroad (China, UK, S. Korea etc.) presented their current design approaches, which led to significant discussion and exchange of information at the sessions and within the ACI 349 committee. Prof. Varma is currently working on a report for the ACI 349 committee to showcase the different approaches that were presented and discuss their advantages and shortcomings. This will be of significant help for the committee when preparing for the next version of the ACI 349 code.

9.8 Steel-Plate Composite Walls for High-Rise Commercial Building Construction

Recognizing his extensive contributions leading to the deployment of composite SC walls in nuclear structures, Prof. Varma was recruited in 2016 by experts in the commercial building industry to lead the research, testing, analysis, and development of design specifications for the use modular composite SC walls in high-rise building construction, where they are referred as concrete filled-composite plate shear walls (CF-CPSW). There is significant interest in the use of coupled composite (CF-CPSW) walls for the core structure of mid-rise to high-rise building structures, particularly in regions prone to high wind or high seismic loading. This interest stems from their modularity, ease and speed of construction, and their stiffness, strength and ductility for extreme loading conditions. The coupled composite (CF-CPSW) core wall system has been recognized as the most important innovation in the steel building industry (<https://www.enr.com/articles/42852-steel-core-system-could-transform-office-tower-construction>), and Prof. Varma has led the research along with Prof. Michel Bruneau (Univ. at Buffalo) and Mr. Ron Klemencic (Magnusson Klemencic Associates) for their codification into future AISC specifications and seismic provisions through appropriate task committees.

Prof. Varma and his students have conducted large-scale experimental investigations and numerical analyses to evaluate the seismic (in-plane flexure and shear) behavior of composite walls for commercial building applications ([J32], [J45], [J50], [J66], [J97]). These research findings are the basis of the current seismic design provisions in AISC 341-16, Chapter H7, focusing on individual (uncoupled) CF-CPSW for commercial construction. Using some of these design provisions, Magnusson Klemencic Associates (MKA, Inc.) has designed one of the tallest buildings in Seattle, the upcoming 58-story signature structure in Rainier Square, which uses coupled composite (CF-CPSW) walls as the core system providing seismic and wind resistance (<https://www.enr.com/articles/43671-rainier-square-towers-composite-steel-frame-called-a-game-changer>). Prof. Varma has worked closely with engineers from MKA, Inc. and Mr. Ron Klemencic on three research projects funded by the Charles Pankow Foundation and AISC. Two of these projects are collaborative with Prof. Michel Bruneau from the University at Buffalo. These projects have led to the development of large-scale experimental results [J110, J135, J138], benchmarked numerical models [J111, J113], design specifications [J112, J123, J129, B4], and seismic design provisions [J114, J115] for coupled composite (CF-CPSW) walls for commercial and high-rise buildings ([R17], [R18]).

Prof. Varma and Prof. Bruneau working together with a team of industry experts and their respective students have developed seismic design provisions for coupled-composite plate shear wall systems. These extensive provisions developed based on their FEMA P695 studies research project, experimental investigations, and supporting research have been balloted positively by Building Seismic Safety Council (BSSC) Issue Team 4, the Provisions Update Committee (PUC), and the seismic sub-committee of ASCE 7. Consequently, the NEHRP 2020 provisions and the subsequent ASCE 7-22 standard permits the use of coupled composite plate shear walls / concrete filled for the design of structural systems in high seismic regions. They provide the highest R factor of 8 for this system recognizing its excellent ductility achieved using capacity-based system design principles developed by the research team [J115]. Additionally, Section 14.3.5 of the NEHRP 2020 and the subsequent Section H8 of AISC 341-22 include detailed recommendations for capacity-based seismic design of the system and seismic detailing requirements for all the composite structural elements (walls, coupling beams) and their connections.

Besides his contributions to the seismic design, Prof. Varma and his research team have made significant contributions to the wind design [J123] and fire resistant design [J124, R19] of SpeedCore systems. Based on his sustained contributions, AISC 360-22 Chapter I includes specifications for the design of composite plate shear walls (SpeedCore) for non-seismic applications, and App. 4 of AISC 360-22 includes provisions for estimating the standard fire resistance rating (FRR) of SpeedCore walls in hours and for estimating the strength of walls as a function of elevated temperature from fire loading, which can be used for performance-based structural fire design of SpeedCore walls.

In recognition of their tireless contributions and research activities leading to the development and design provisions for composite plate shear walls, also referred as SpeedCore, the team of Mr. Ron Klemencic, Prof. Michel Bruneau, and Prof. Amit Varma have been awarded the AISC Special Achievement Award for 2020. Prof. Varma is probably the only person to receive this award twice (once in 2017 for his work on nuclear structures, and in 2020 for his work on buildings)

In recognition of his career long research contributions to the innovation, development, and industry guidance for steel-concrete composite structures and their use in large infrastructure projects including nuclear power plants and high-rise buildings, Prof. Varma was awarded the 2021 AISC T. R. Higgins Lectureship Award. The title of Prof. Varma's talk is, "SpeedCore and Steel-Concrete Composite Construction: The Best of Both Worlds." He presented his lecture as the Keynote lecture in the 2022 North American Steel Construction Conference (NASCC), which is typically attended by 5000+ delegates. Prof. Varma's lecture was on tour in 2022-23. He was invited and gave the Keynote lecture and invited talks at 15+ top-tier Universities and at national and international professional society meetings. Prof. Varma and Mr. Klemencic were invited to present the 2022 Paul Zia distinguished lecture at North Carolina State University in the presence of 400+ live attendees and 1000s online.

ASCE has announced the Charles Pankow Innovation Award for 2026 to the team of practitioners, academics (including Prof. Varma), industry foundations, and trade organizations that led the development, acceptance, and deployment of SpeedCore for high-rise buildings.

9.9 Composite Construction for Blast Resistant Design

Prof. Varma has recently been working with US stakeholders (industry, federal labs, and federal agencies) to develop steel-plate composite construction for blast and impact resistant design in commercial and defense-related applications. While a lot of this work is not available in the public domain, it is having a significant influence on the future of US construction related to critical assets and defense applications. Prof. Varma and his team are conducting large-scale static and dynamic experimental investigations, numerical studies, and developing design codes and standards like the UFC (United Facilities Criteria) to facilitate the use of these innovation construction technologies in blast resistant applications. His contributions in this area have been recognized recently with the Bechtel Innovation Award of 2023.

Prof. Varma was appointed as the Executive Director for the Purdue Infrastructure & Innovation Laboratory (PIIL). He has employed a team of accomplished subject matter experts, research engineers, and graduate students to work on various national security and defense related projects / contracts funded by federal labs like Los Alamos National Laboratory and Defense-industry contractors like Bechtel and Northrup Grumman working for the US Air Force. Prof. Varma has received significant funding (\$10M+) and the work in terms of research, testing, analysis, and design is currently ongoing. Since a lot of this work is classified, there are no public domain publications resulting from the same. The team has authored several technical reports and presentations to the sponsors including the US Air Force reviewers etc. that are all CUI and not available in the public domain due to the nature of the content.

10. IMPACT OF TEACHING ACTIVITIES

Prof. Varma has taught several undergraduate and graduate courses at Purdue University. These include courses on introductory structural mechanics (CE 270), structural analysis (CE371), steel design (CE 470), senior design (CE 498), structural stability (CE 579), finite elements in elasticity (CE 595), plastic design (CE592), and seismic behavior and design of steel structures (CE 697R). His teaching approach emphasizes learning of fundamental concepts, independent thinking, engineering judgment, cooperative learning, and class participation. In all these courses, Prof. Varma includes discussions of current research, development of design specifications and manuals, and engineering projects from around the world.

10.1 Undergraduate courses

Prof. Varma has taught two undergraduate courses, CE 270: Introductory Structural Mechanics, and CE470: Structural Steel Design, multiple times. CE270 is the first course in structural engineering that CE sophomores / juniors take, and CE 470 is the penultimate course in structural engineering that CE Seniors take. Thus, CE students are first introduced to structural engineering by Prof. Varma and then trained in structural design by Prof. Varma at the end of their journey. This is a huge responsibility, and Prof. Varma does an outstanding job, first teaching and inspiring students towards studying structural engineering, and then completing their journey in the end by training them in the art of structural design, innovation, and practice.

Over the years, Prof. Varma has evolved his teaching methods in keeping with advancements in technology. He uses all the technological tools available and accessible to students to provide a state-of-the-art learning experience. His CE270 classes are usually recorded, and available to the students along with the transcribed notes, presentations etc. His recorded courses have

been used by students in the University (with permission) to revisit and review materials even after the course ended. A few of his recorded lectures on general topics are also available to the students via youtube.com, and he has amassed a bit of international following for the depth and clarity of presentation.

A few years back (around 2011), the biggest disruption in the classroom was the use of cell phones during class hours. Prof. Varma dealt with this disruption in an innovative way, by making it his strongest ally in the classroom. He shared his cell phone number along with the syllabus, and asked students to text questions or discussion points to him in class or anytime during the course. While somewhat intimidating to begin with, this experiment was extremely successful with students asking a lot of questions during class (due to the anonymity afforded by the cell phone), and after hours while working on their assignments, labs, homework, and particularly when preparing for exams. Students really appreciate the availability afforded by Prof. Varma being just a quick text away, especially when they have something simple or quick to ask, or just an urgent situation that requires immediate contact.

Over the years, Prof. Varma has received both the Harold Munson teaching award (2012) and the Roy E. and Myrna G. Wansik teaching awards (2017) from the Lyles School of Civil Engineering. These highly coveted and competitive awards are decided based on student votes, course reviews, and instructor evaluations.

10.2 Graduate courses

Prof. Varma has enhanced the graduate courses on structural stability and design by emphasizing: (i) analytical and numerical approaches, (ii) inelastic stability analysis of members and frames, and (iii) 2nd order nonlinear analysis and design of frames using the latest AISC specifications. The course project required students to review research articles, and validate their numerical approaches using published results. Students learned the basis of the stability design provisions and developed numerical analysis skills.

Prof. Varma has developed and taught a new course on the seismic behavior, design, and performance evaluation of lateral force resisting systems (LFRS) for steel building structures. This course emphasized the findings of recent research, and the development of current AISC seismic provisions pertaining to the seismic behavior and design of: (i) moment resisting frames, (ii) concentric and eccentric braced frames, (iii) buckling-restrained braced frames, (iv) steel plate shear walls, and (v) composite moment resisting frames. Prof. Varma also taught the seismic performance evaluation of LFRS using ASCE 41 recommendations and analytical approaches. The course project required the student teams to: (i) design a LFRS of their choice, (ii) evaluate its seismic performance, and (iii) present their findings to the entire class. As indicated by the course evaluations, the graduate students highly appreciated this course.

Prof. Varma has developed and taught a new course (CE597R) on the fire behavior and design of steel building structures. This course has been taught for the first time at Purdue University, and is extremely rare to be taught at higher education institutions due to lack of expertise in the topic. Prof. Varma's course focused on: (i) understanding fire as an event, scenario, and structural loading, (ii) fire design philosophies and approaches, (iii) building fire design according to prescriptive codes and their limitations, (iv) fundamental behavior of steel and concrete materials and structural elements under realistic fire loading, (v) performance-based analysis and design of steel building structures under realistic fire loading including cooling.

10.3 Online MS Courses

As a member of the inaugural committee, Prof. Varma assisted with the development, launch, and promotion of the online MS degree program, related courses, certificate programs, and interdisciplinary tracks. Prof. Varma has developed and offered the following courses in an asynchronous online format multiple times: (a) CE 591 – Advanced Steel Design, (b) CE 579 – Structural Stability and Design, and (c) CE697R – Seismic Design of Steel Structures. All these courses are part of: (i) the online MS degree program in structural engineering, (ii) interdisciplinary track on infrastructure, resilience, and sustainability, and (iii) advanced steel specialist certificate program.

10.4 Research Mentoring of Undergraduate Students

Prof. Varma absolutely loves having undergraduate students in his research group, and working with them on his research projects. He participates in the SURF (summer undergraduate research fellowship) program almost every year, and recruits students from his undergraduate classes to work on his projects. He also participates in the PURE (Purdue Undergraduate Research Experience) program started in 2016. Prof. Varma also participates in a cadet / midshipman summer research program sponsored by the US Military Academies, and gets a couple of cadets each summer to work on research projects in Bowen Lab. Besides all these programs, Prof. Varma frequently hires undergraduate research assistants to work on large-scale experiments and analysis projects with his research team in Bowen Lab. In any given academic year, he has at least 2-3 undergraduate assistants working with him in Bowen Lab.