

Mahendrakumar Madhavan Ph.D, P.E., F.SEI

Professor

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Research Group Name: [Structural Steel Research Group](#)



Overview

Mahendrakumar Madhavan is a Professor in the Department of Civil Engineering, Indian Institute of Technology (IIT) Hyderabad, India. Prof. Madhavan teaches at both undergraduate and postgraduate levels, provides industry training by conducting short courses and seminars, assists practicing structural engineers by offering consultancy services and leads the structural steel research group at IITH with the goal of enabling sustainable construction practices at home in India and around the globe. He obtained his Ph.D. from the University of Alabama at Birmingham, USA and a Masters Degree from The National University of Singapore, Singapore. Prior to joining IIT Hyderabad, Prof. Madhavan worked as a Structural Engineer at Alabama Power Company, Birmingham and is a Registered Professional Engineer (PE) in the State of Alabama USA. Prof. Madhavan is also the first person from India to be elected to Fellow of ASCE's Structural Engineering Institute (SEI)

Prof. Madhavan's principal research interests lie in the area of physical testing of structural members and systems, numerical modeling through the use of commercially available finite element packages and in the development of new design methods for steel intensive structures. He has published more than 40 peer-reviewed internationally reputed journals and holds membership in the "American Society of Civil Engineers (ASCE) Structural Engineering Institute (SEI) Technical Administrative Committee on Metals" and in "ASCE SEI Cold Formed Steel Members Committee". He is an Editorial board member of Journal of Structures and is an Associate Editor for ASCE Journal of Structural Engineering.

Research Interests

Affordable Housing using Light Gage Steel Structures; Geometric imperfection studies in Cold-formed Steel (CFS) members; Structural Design of CFS Wall Panels; CFRP retrofitting of Steel Structures; Connections in CFS sections; Behavior of high strength steel sections; Composite (steel-concrete) construction; Cyclone resistant structures; Analysis of parallel flange (PFB) structural steel sections

Education

- Ph.D., Civil Engineering, Univ. of Alabama at Birmingham (UAB), AL, USA 2001/2005
- M.Eng., Civil Engineering, National University of Singapore (NUS), Singapore 1998/2000
- B.E., Civil Engineering, Guindy Engineering College, Anna University (AU), India 1994/1998
- P.E., Registered Professional Engineer, State of Alabama, USA, 2010

Professional Activities

Associate Editor, ASCE Journal of Structural Engineering (*Youngest Faculty from India to currently serve in JSE Editorial Board*) <https://ascelibrary.org/page/jsendh/editorialboard>

Member of the ASCE Structural Engineering Institute (SEI) Cold Formed Steel Members Committee (*Only international member of the committee*).

<https://www.asce.org/templates/membership-communities-committee-detail.aspx?committeeid=000000885380>

Fellow of ASCE's Structural Engineering Institute (SEI) (*First Indian elected as Fellow of SEI*)

<https://collaborate.asce.org/integratedstructures/sei-fellows>

Member of Editorial Board of Journal of Structures (*Only Indian to serve in the board*)

<https://www.journals.elsevier.com/structures/editorial-board>

Member of the ASCE Structural Engineering Institute (SEI) Technical Administrative Committee on Metals (*Only Indian in the committee*)

<https://www.asce.org/templates/membership-communities-committee-detail.aspx?committeeid=000000885370>

Member of the drafting committee of IS 801 (Design for Cold-formed Steel Members).

Member of the revision committee of IS 800 (Design for Hot Rolled Steel Members).

Appointments

- October 2021 ~ to date
Professor
Indian Institute of Technology, Hyderabad, India
- March 2016 ~ September 2021
Associate Professor
Indian Institute of Technology, Hyderabad, India
- May 2012 ~ March 2016
Assistant Professor
Indian Institute of Technology, Hyderabad, India
- June 2005 ~ April 2012
Structural Engineer
Alabama Power Company, Birmingham, USA
- July 2001 ~ May 2005
Graduate Research Assistant
The University of Alabama, Birmingham, USA
- Jan 2001 ~ May 2001
Graduate Research Assistant
Pennsylvania State University, State College, USA

- Sep 1998 ~ Dec 2000
Research Scholar

The National University of Singapore, Singapore

Administrative Responsibilities

- Warden Boy's Hostel from May 2013 ~ Feb 2021
- Convener, Department Under Graduate Committee (DUGC) from June 2012 ~ 2016
- Convener, Clean India Course CI 101 from Dec 2014 ~ to date
- Department convener for Open Day Program at IITH 2015 and 2020

Committee members

- Member of Plantation Committee from 2018 ~ to date
- Member of Phase II Design Evaluation Committee from May 2014 ~ to date
- Member of Student Grievance Committee from May 2015 ~ Feb 2021
- Member of Campus Monitoring Committee from May 2013 ~ to date
- Member of Orientation Committee, 2013, 2014, 2015
- Member of the organizing committee for the farewell party to the graduating batch 2014

Workshop/Conferences organized - Knowledge dissemination activities

- Primary organizer of the International conference "Indian Structural Steel Conference 2020", Originally to be held from March 25-27 2020. Currently postponed due to Covid.
- Workshop on Retrofitting of Steel Structures, September 27-28, 2019
- Short Course and Workshop on Cold-Formed Steel Structures, March 22 and 23, 2019
- Affordable Housing for all using sustainable constructional materials, October 27th, 2018
- A Five Days Workshop cum Certificate Course on Structural Steel Design (ISPAT 2015), May 25-29, 2015, Indian Institute of Technology Hyderabad.
- Organizing Committee member, 4th International Congress on Computational Mechanics and Simulation (ICCMS 2012) Dec 9-12, 2012, Indian Institute of Technology Hyderabad.

Labs developed at IIT Hyderabad

- Developed the 3D Laser Scanning Lab
- Developed the Structural Mechanics Lab
- Co-developed Structural Engineering Lab
- Co-developed QA/QC Lab

Courses Taught

- CE 6110 Advanced Structural Mechanics
- CE 6232 Advanced Structural Steel Design
- CE 2100 Structural Analysis
- CE 2101 Structural Mechanics Lab
- CE 2020 Construction Materials
- ID 1041 Engineering Drawing

Membership of Professional Bodies

- Member of American Society of Civil Engineers (ASCE)
- Member of Structural Stability Research Council (SSRC)
- Member of Phi Beta Delta, Honor Society for International Scholars (2003)
- Member of Tau Beta Phi, Engineering Honor Society (2004)
- Member of Chi Epsilon Phi, Civil Engineering Honor Society (2003)

Journal Reviewer for

- Journal of Structural Engineering - American Society of Civil Engineers
- Journal of Bridge Engineering - American Society of Civil Engineers
- Journal of Composites for Construction- American Society of Civil Engineers
- Journal of Constructional Steel Research, Elsevier
- Journal of Structures - Institution of Structural Engineers, Elsevier
- International Journal of Thin-walled Structures, Elsevier
- Structures and Buildings - Institution of Civil Engineers, London, UK
- Advances in Structural Engineering: SAGE Journals
- Journal of The Institution of Engineers (India)
- Journal of Structural Engineering (Madras-SERC)

Academic Awards and Honors

International Travel Grant, Department of Science and Technology, Government of India	2017
Who's Who Among Students in American Universities and Colleges, UAB Office of the VP for Student Affairs	2005
Awarded a trip to attend the Transportation Research Board (TRB) Conf. at Washington DC, University Transportation Center for Alabama (UTCA)	2005
Thrice nominated for Academic Excellence Award, UAB International Students and Scholars Office	2003-2005
UAB Outstanding Achievement Award, UAB International Students and Scholars Office	2004
UAB International Student Scholarship, UAB Office of Student Financial Aid	2004
UAB Graduate Fellowship, UAB Graduate School	2004
Inducted into Tau Beta Phi, Engineering Honor Society, Tau Beta Phi, Engineering Honor Society	2004

Preparing Future Faculty, UAB Graduate School (Funded by NSF)	2003
Inducted into Phi Beta Delta, Honor Society for International Scholars, Phi Beta Delta, Honor Society	2003
Inducted into Chi Epsilon Phi, Civil Engineering Honor Society, Chi Epsilon Phi, Civil Engineering Honor Society	2003
NUS Postgraduate Research Scholarship, NUS Postgraduate School	1998

Publications

46. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2022). "Design of Cold-Formed Steel Built-Up Closed Section Columns using Direct Strength Method", Thin-Walled Structures, DOI : 10.1016/j.tws.2021.108746. *Impact Factor: 4.063*.
45. Vijayakumar Natesan, Bharath Shanmugasundaram, Monish Sekar, and **Mahendrakumar Madhavan**. (2021). "Effectiveness of CFS Web Cleat Bolted Connections between Beam-to-Column". Structures, DOI: 10.1016/j.istruc.2021.06.067
44. Sivaganesh Selvaraj, **Mahendrakumar Madhavan** and Lau. H. H. (2021). "Sheathing-Fastener Connection Strength-Based Design Method for Sheathed CFS Point-symmetric Wall Frame Studs". Structures. DOI: 10.1016/j.istruc.2021.04.052
43. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2021). "Direct Strength Approach for Local Buckling of Cold-formed Steel Built-up Beams with Slender Unstiffened Flange Elements". Practice Periodical on Structural Design and Construction (ASCE). Technical Note. DOI:10.1061/(ASCE)SC.1943-5576.0000599.
42. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2021). "Design of Cold-formed Steel Back-to-Back Connected Built-up Beams". Journal of Constructional Steel Research. DOI: 10.1016/j.jcsr.2021.106623 . *Impact Factor: 2.650*
41. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2021). "Direct Stiffness-Strength Method Design for Sheathed Cold-formed Steel Structural Members - Recommendations for the AISI S100", Thin-Walled Structures, DOI : 10.1016/j.tws.2020.107282. *Impact Factor: 4.063*.
40. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2021). "Design of Cold-Formed Steel Built-Up Columns Subjected to Local-global Interactive Buckling using Direct Strength Method", Thin-Walled Structures, DOI : 10.1016/j.tws.2020.107305. *Impact Factor: 4.063*.
39. Bharath Shanmugasundaram, Vijayakumar Natesan and **Mahendrakumar Madhavan**. (2020). "Effect of Staggered Bolted Connections on CFS Channel

Sections”. Journal of Constructional Steel Research. DOI: 10.1016/j.jcsr.2020.106215. *Impact Factor: 2.650*

38. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2020). "Criteria for Selection of Sheathing Boards in Cold-formed Steel Wall panels subjected to Bending: Construction Applications and Performance-based evaluation". Practice Periodical on Structural Design and Construction (ASCE), , DOI: 10.1061/(ASCE)SC.1943-5576.0000527.
37. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2020). "Recommendations for Design of Sheathing Bracing Systems for Slender CFS Structural Members”. Journal of Constructional Steel Research. DOI: 10.1016/j.jcsr.2020.106116. *Impact Factor: 2.650*
36. Vijayakumar Natesan, Bharath Shanmugasundaram and **Mahendrakumar Madhavan**. (2020). "Comparative Experimental Studies on the Web Cleat Bolted CFS Beam-to-Column Connection”. Journal of Constructional Steel Research. doi.org/10.1016/j.jcsr.2020.106080. *Impact Factor: 2.650*
35. Vijayakumar Natesan and **Mahendrakumar Madhavan**. (2020). “Experimental Study on Ultimate Strength of Bolted L Shaped Sleeve Joints”. Journal of Constructional Steel Research. 10.1016/j.jcsr.2020.106022. *Impact Factor: 2.650*
34. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2020). “Influence of sheathing-fastener connection stiffnesses on the Design Strength of Cold formed Steel Wall Panels". Journal of Structural Engineering (ASCE), Accepted for publication DOI:10.1061/(ASCE)ST.1943-541X.0002709, *Impact Factor: 2.021*
33. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019). "Structural behaviour and Design of Plywood Sheathed Cold-Formed Steel Wall Systems subjected to out-of-plane loading". Journal of Constructional Steel Research, DOI:10.1016/j.jcsr.2019.105888. *Impact Factor: 2.509*
32. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019). "Retrofitting of Steel Beams using Low-modulus Carbon Fiber Reinforced Polymer Laminates". Journal of Constructional Steel Research, DOI:10.1016/j.jcsr.2019.105825. *Impact Factor: 2.509*
31. Senthilkumar Govindan and **Mahendrakumar Madhavan**. (2019). "Experimental and analytical study of lightweight floor system built-up with cold-formed profile steel sheet and hot-rolled steel plate (CFPSS-HRSP)," Structures, DOI: 10.1016/j.istruc.2019.08.00. *Impact Factor: 1.646*
30. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019). Flexural Behaviour and Design of CFS Wall Panels Sheathed with Particle Cement Board. Journal of Constructional Steel Research. DOI:10.1016/j.jcsr.2019.10572. *Impact Factor: 2.509*

29. Vijayakumar Natesan and **Mahendrakumar Madhavan**. (2019)."Performance of CFS Beam-to-Beam Bolted Connection Using Clip Angle and Flange Strip: Experimental Investigation," Journal of Structural Engineering (ASCE), DOI : 10.1061/(ASCE)ST.1943-541X.0002390. *Impact Factor: 2.021*
28. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019)."Behaviour of Gypsum Sheathed Point symmetric Cold formed Steel members: Assessment of AISI design method," Structures, DOI: 10.1016/j.istruc.2019.06.005. *Impact Factor: 1.646*
27. Vijayakumar Natesan and **Mahendrakumar Madhavan**. (2019)."Structural performance on bolted sleeved connections between two CFS channel sections subjected to combined bending and shear," Structures, DOI : 10.1016/j.istruc.2019.06.026. *Impact Factor: 1.646*
26. Senthilkumar Govindan and **Mahendrakumar Madhavan**. (2019)."Study on cold-formed and hot rolled steel composite panel system," Structures, DOI: 10.1016/j.istruc.2019.06.013. *Impact Factor: 1.646*
25. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019)."Structural Design of Cold-formed Steel face-to-face Connected Built-up beams using Direct Strength Method, "Journal of Constructional Steel Research, DOI: 10.1016/j.jcsr.2019.05.053. *Impact Factor: 2.509*
24. Vijayakumar Natesan and **Mahendrakumar Madhavan**. (2019)."Experimental study on beam-to-column clip angle bolted connection, "Thin-Walled Structures, DOI : 10.1016/j.tws.2019.04.048. *Impact Factor: 2.881*
23. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019)."Design of Steel Beams Strengthened with Low-modulus CFRP laminates," Journal of Composites for Construction (ASCE), DOI:10.1061/(ASCE)CC.1943-5614.0000983. *Impact Factor: 2.6*
22. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019)."Sheathing Braced Design of Cold-formed Steel Structural Members Subjected to Torsional Buckling," Structures, DOI:10.1016/j.istruc.2019.04.015. *Impact Factor: 1.646*
21. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019)."Investigation on sheathing-fastener connection failures in cold-formed steel wall panels," Structures, DOI: 10.1016/j.istruc.2019.03.007. *Impact Factor: 1.646*
20. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019). "Effect of Sheathing Bracing in Point symmetric Cold-formed Steel Flexural Members," Journal of Constructional Steel Research, DOI:10.1016/j.jcsr.2019.02.037. *Impact Factor: 2.509*
19. Vijayakumar Natesan and **Mahendrakumar Madhavan**. (2019). "Experimental investigation on clip angle bolted connection between two cold-formed steel channels,"

Structures and Buildings, Institution of Civil Engineers, DOI: 10.1680/jstbu.18.00134.
Impact Factor: 0.674

18. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019). "Sheathing bracing requirements for Cold-formed steel wall panels: Experimental Investigation," Structures, DOI: 10.1016/j.istruc.2019.01.005. *Impact Factor: 1.646*
17. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019). "Strengthening of Laterally Restrained Steel Beams Subjected to Flexural loading using Low modulus CFRP: Experimental Assessment ," Journal of Performance of Constructed Facilities (ASCE), DOI: 10.1061/(ASCE)CF.1943-5509.0001293. *Impact Factor: 1.2*
16. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2018). "Investigation on Sheathing Effect and Failure Modes of Gypsum Sheathed Cold-formed Steel Wall Panels Subjected to Bending," Structures, DOI: 10.1016/j.istruc.2018.09.013. *Impact Factor: 1.646*
15. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2018). "Improvements in AISI Design Methods for Gypsum Sheathed Cold-formed Steel Wall Panels Subjected to Bending," Journal of Structural Engineering (ASCE), DOI: 10.1061/(ASCE)ST.1943-541X.0002223. *Impact Factor: 2.021*
14. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2018). "Retrofitting of Structural Steel Channel Sections using Cold-Formed Steel Encasing Channels," Journal of Performance of Constructed Facilities (ASCE), DOI: 10.1061/(ASCE)CF.1943-5509.0001187. *Impact Factor: 1.2*
13. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2018). "Studies on Cold-formed steel stud panels with gypsum sheathing subjected to out-of-plane bending," Journal of Structural Engineering (ASCE), DOI : 10.1061/(ASCE)ST.1943-541X.0002069. *Impact Factor: 2.021*
12. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2018). "Geometric Imperfection Measurements and Validations on Cold-Formed Steel Channels using 3D Non-contact Laser Scanner," Journal of Structural Engineering (ASCE), (Vol 144, No. 3) DOI: 10.1061/(ASCE)ST.1943-541X.0001993. *Impact Factor: 2.021*
11. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2017). "Strengthening of unsymmetrical open channel built-up beams using CFRP". Thin-Walled Structures, 2017, 119,615-628, DOI: 10.1016/j.tws.2017.07.018. *Impact Factor: 2.881*
10. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2017). CFRP strengthened steel beams: Improvement in failure modes and performance analysis. Structures, Nov 1 (Vol. 12, pp. 120-131). Elsevier. DOI: 10.1016/j.istruc.2017.08.008. *Impact Factor: 1.646*

09. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2016). "Enhancing the structural performance of steel channel sections by CFRP strengthening". Thin-Walled Structures. Nov 30;108:109-21. DOI: 10.1016/j.tws.2016.08.005. *Impact Factor: 2.881*
08. Sivaganesh Selvaraj, **Mahendrakumar Madhavan**, Saurab Dongre U. (2016) "Experimental Studies on Strength and Stiffness Enhancement in CFRP-Strengthened Structural Steel Channel Sections under Flexure". ASCE Journal of Composites for Construction. Dec 1;20(6):04016042. DOI: 10.1061/(ASCE)CC.1943-5614.0000700. *Impact Factor: 2.6*
07. Reddy S, Vutkuru, J, **Mahendrakumar Madhavan** and Kumar V, (2015). "Notch Stress Intensity Factor for Center Cracked Plates with Crack Stop Hole Strengthened using CFRP: A Numerical Study", Thin-Walled Structures, DOI: 10.1016/j.tws.2015.09.018. *Impact Factor: 2.881*
06. **Mahendrakumar Madhavan**, Sanap V, Verma R and Selvaraj S. (2015). "Flexural Strengthening of Structural Steel Angle Sections Using CFRP: Experimental Investigation", ASCE Journal of Composites for Construction, DOI: 10.1061/(ASCE)CC.1943-5614.0000578. *Impact Factor: 2.6*
05. Khedkar S, Chintapenta V, **Mahendrakumar Madhavan** and Ramji M. (2014). "Progressive failure analysis of CFRP laminate with interacting holes under compressive loading", Journal of Composite Materials,. DOI: 10.1177/0021998314561810. *Impact Factor: 1.613*
04. **Mahendrakumar Madhavan**, Davidson JS, (2009). "Theoretical Evaluation of Flange Local Buckling for Horizontally Curved Girders", ASCE Journal of Bridge Engineering Vol. 14, No. 6, pp 424-435. DOI: 10.1061/(ASCE)1084-0702(2009)14:6(424). *Impact Factor: 1.476*
03. **Mahendrakumar Madhavan**, Davidson JS, (2007). "Elastic buckling of I-beam flanges subjected to a linearly varying stress distribution", Journal of Constructional Steel Research, Vol. 63, No. 10, pp 1373-1383. DOI: 10.1016/j.jcsr.2006.12.003. *Impact Factor: 2.509*
02. **Mahendrakumar Madhavan**, Davidson JS, (2005). "Elastic Buckling of Plates Subjected to Linearly Varying Edge Load", Thin-Walled Structures, Vol. 43, No. 8, pp 1264-1276, 2005. DOI: 10.1016/j.jcsr.2006.12.003. *Impact Factor: 2.881*
01. Shanmugam NE., **Mahendrakumar Madhavan**, and Thevendran V, (2003). "Ultimate Load Behaviour of Horizontally Curved Plate Girders," Journal of Constructional Steel Research Vol. 59, No. 4, 509-529. DOI: 10.1016/S0143-974X(02)00043-3. *Impact Factor: 2.509*

International Conference proceedings

32. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019), “Structural Behavior of Cold-formed Steel Built-up Beams”, Proceedings of the 12th Pacific Structural Steel Conference (PSSC 2019), Tokyo, Japan 9-11 November 2019
31. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019), “Cold-Formed Steel Wall Panels: Sheathing Braced Design Concepts for Flexural Loading”, Proceedings of the 9th International Conference on Steel and Aluminium Structures’ – ICSAS19, 2019, Bradford, England
30. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019), “New Design Method for the Structural Steel Beams Strengthened With Low Modulus CFRP”, Proceedings of the 9th International Conference on Steel and Aluminium Structures’ – ICSAS19, 2019, Bradford, England
29. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019), “Sheathing Restraints on CFS Structural Members – Experimental Investigation”, Proceedings of the 9th International Conference on Steel and Aluminium Structures’ – ICSAS19, 2019, Bradford, England
28. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2019). "Design of steel beams strengthened using low-modulus carbon fiber reinforced polymers, Proceedings of the Civil Engineering Conference in the Asian Region (CECAR 8), Tokyo, Japan, 16-19 April
27. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2018). “Cold-Formed Steel Built of columns: Experimental Investigation”, Proceedings of the ninth International Conference on Advances in Steel Structures (ICASS), Paper ID - 168, Hong Kong, 5 to 7 December 2018, DOI: 10.18057/ICASS2018.P.168, Vol. 1, 553-560
26. Sivaganesh Selvaraj, **Mahendrakumar Madhavan** and Gaurav Chobe. (2018). “Design approach for steel channels retrofitted with Cold formed steel”, Proceedings of the International Conference on Engineering Research and Practice for Steel Construction, Hong Kong, 5 to 7 September 2018, 691-701
25. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**. (2018). “Design methods for metallic beams strengthened with low modulus carbon fiber reinforced polymers”, Proceedings of the International Conference on Engineering Research and Practice for Steel Construction, Hong Kong, 5 to 7 September 2018, 411-423
24. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**, “Behavior of Cold-Formed Steel Built-Up Beams: Experimental Investigation”, Proceedings of the Eighth International Conference on Thin-Walled Structures, Paper ID – 175, Lisbon, Portugal, 24 to 27 July 2018

23. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**, “Effect of Gypsum Sheathings on Cold-Formed Steel Panels: Flexural Test Results”, Proceedings of the Eighth International Conference on Thin-Walled Structures, Paper ID – 60, Lisbon, Portugal, 24 to 27 July 2018
22. Sivaganesh Selvaraj, **Mahendrakumar Madhavan** and Karthick Paramesh Rajamannar K (2017). “Retrofitting of open channel built-up beams using CFRP”. Proceedings of International Conference on Composite Materials and Structures, India, 1086-1095
21. Sivaganesh Selvaraj, **Mahendrakumar Madhavan**, Chobe G. (2017). “Design of retrofitting steel channels using cold formed steel channels - Numerical study”. Proceedings of International Conference on Composite Materials and Structures, India, 1096-1103
20. Vijayakumar Natesan, **Mahendrakumar Madhavan**. (2017). “Experimental Investigation on Bolted Sleeve Connection between Two CFS Channels”. Proceedings of International Conference on Composite Materials and Structures, India, 1104-1113
19. Senthilkumar Govindan **Mahendrakumar Madhavan**. (2017). “The flexural strength behavior of profiled steel sheet with hot rolled plate panel system with bolted connection”. Proceedings of International Conference on Composite Materials and Structures, India
18. Vijayakumar Natesan and **Mahendrakumar Madhavan**. (2017), Rotational behavior of cold formed steel beams connected through clip angles. Proceedings of the 8th European Conference on Steel and Composite Structures, ce/papers, 1: 1580–1589 Copenhagen, Denmark, 2017
17. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**, 2017. Geometric imperfection measurements on cold-formed steel channels: An approach using 3D non-contact laser scanner. Proceedings of the 8th European Conference on Steel and Composite Structures, ce/papers, 1(2-3), pp.1657-1666 Copenhagen, Denmark, 2017
16. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**, 2017. Behaviour of gypsum sheathed cold-formed steel stud walls under lateral loadings. Proceedings of the 8th European Conference on Steel and Composite Structures, ce/papers, 1(2-3), pp.1707-1715 Copenhagen, Denmark, 2017
15. Govindan, SK. and **Mahendrakumar Madhavan**. (2017), The flexural strength behavior of profiled steel sheet – with hot rolled plate panel system with bolted connection. Proceedings of the 8th European Conference on Steel and Composite Structures, ce/papers, 1: 1786–1795 Copenhagen, Denmark, 2017
14. Sivaganesh Selvaraj, **Mahendrakumar Madhavan**, Gopalan, AGV., Jayabalan, AK. and Arumugam, PK., 2017. Behaviour of CFS strengthened hot-rolled structural steel

beams under flexure. Proceedings of the 8th European Conference on Steel and Composite Structures, ce/papers, 1(2-3), pp.4595-4604 Copenhagen, Denmark, 2017

13. Sivaganesh Selvaraj, **Mahendrakumar Madhavan**, Dongre, SU., Venkatesan. J. Improving the flexural stiffness and lateral torsional buckling behavior of the structural steel channel sections by CFRP strengthening. Proceedings of 7th International conference on steel and aluminum structures, paper no 144, Hong Kong, China, 2016
12. Reddy S and **Mahendrakumar Madhavan**, “Numerical Studies on Halting Crack Growth Using Crack Stop Hole and Asymmetrically Bonded CFRP Patch”, Proceedings of the Eighth International Conference on Advances in Steel Structures, Lisbon, Portugal, 22-24 July 2015
11. Vutkuru J, Reddy S and **Mahendrakumar Madhavan**, “A Numerical Study on Strengthening of Crack Stop Hole”, Proceedings of the Seventh International Conference on Thin-Walled Structures, paper no 1104, Busan, Korea, 28 September – 2 October 2014
10. **Mahendrakumar Madhavan** and Sanap V, “An Experimental Study on Flexural Strengthening of Structural Steel Angle Sections using Carbon Fiber-Reinforced Polymer Composites”, Proceedings of the Seventh International Conference on Thin-Walled Structures, paper no 0510, Busan, Korea, 28 September – 2 October 2014
09. Sivaganesh Selvaraj and **Mahendrakumar Madhavan**, “Study of Cold Formed Steel Partially Closed Built-Up Sections with Geometric Imperfection Combinations”, Proceedings of the Seventh International Conference on Thin-Walled Structures, paper no 0707, Busan, Korea, 28 September – 2 October 2014
08. **Mahendrakumar Madhavan** and Davidson JS, “Flange Compactness Definition for Horizontally Curved I-Girders”, Proceedings of the Pacific Structural Steel Conference (PSSC 2013), Singapore, 8-11 October 2013
07. Davidson JS and **Mahendrakumar Madhavan**, “Definition of Flange Compactness for I-Beams that are subjected to Combined Primary Bending and Torsion or Lateral Flexure”, 2006 ASCE Structures Congress, May 2006, St. Louis Missouri
06. **Mahendrakumar Madhavan** and Davidson JS. “Elastic Buckling of Centerline-Stiffened Plates Subjected to a Linearly Varying Stress Distribution”, North American Steel Construction / Structural Stability Research Council (SSRC), Proceedings of the Annual Stability Conference, Montreal, Canada, April 2005
05. Davidson JS and **Mahendrakumar Madhavan**, “Lateral Stability of Braced Curved I-Girder Systems”, North American Steel Construction / Structural Stability Research Council (SSRC), Proceedings of the Annual Stability Conference, Montreal, Canada, April 2005

04. **Mahendrakumar Madhavan** and Davidson JS, “Elastic Buckling of Plates Subjected to Uniaxial Eccentric Compression” Proceedings of the Fourth International Conference on Thin-Walled Structures, 22-24, Loughborough UK, June 2004
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Shanmugam NE, and **Mahendrakumar Madhavan**, Structural Analysis, Institution of Civil Engineers (ICE) Manual of Bridge Engineering, Third Edition. Accepted for publication.

Mahendrakumar Madhavan and Sivaganesh Selvaraj.(2022). Direct Stiffness-Strength Method Design for Cold-formed Steel Structural Members with Sheathing Bracing, Analysis and Design of Plated Structures, 2nd Edition, Elsevier.

Books

Mahendrakumar Madhavan and Davidson JS, Stability of Curved I-girder Bridge During Construction. LAP Lambert Academic Publishing, 2011.

Invited Talk

Delivered a Public Seminar on Behavior and Design of Cold-formed Steel Wall Panels at Nanyang Technological University, Singapore, 12th November 2019

Special lecture on Thin-walled Structures at College of Engineering, Guindy, Anna University, Chennai, 2nd April 2014

Delivered lectures during the training program on IS 800:2007 Limit State Design of Steel Structures organized by INSDAG with NITTTR Chandigarh, Chandigarh, 30-31th October 2014

Delivered lectures during the training program on IS 800:2007 Limit State Design of Steel Structures organized by INSDAG with NITTTR Kolkata, Kolkata, 10-11th December 2014

Delivered guest lecture on Recent Trends in Steel Structures organized by National Institute of Technology (NIT) Trichy, 13th March 2015

Delivered guest lecture on Bridge structures & steel design organized by Goa Engineering College, Farmagudi, 30th April 2015

Delivered lectures on a One-day workshop on Retrofitting of Steel Structures using Carbon Fiber Reinforced Polymer (CFRP) Polymers organized by GCE, Salem, 8th February 2017

Delivered guest lectures on Cold-formed steel wall panels under flexure organized by CEG, Anna University, Chennai, 19th December 2019

Delivered lectures during the training program on Limit State Design of Steel Structures organized by INSDAG at Panaji, Goa, 12-13th June 2013

Delivered a Keynote speech at National Conference on Advances in Civil Engineering for sustainable Environment organized by Easwari Engineering College titled Recent Development in Cold-formed Steel Wall Panels on June 1st 2020

Delivered a Webinar organized by Ramco Cements titled Structurally Durable Wall panels with Calcium Silicate Boards on August 6th 2020

Delivered a Webinar organized by Mepco Schlenk Engineering College titled Cold-formed Steel Wall panels: Structural Assessment and Failure modes based design as a part of AICTE sponsored Short Term Training Program on August 18th 2020

Research Reports

Mahendrakumar Madhavan, “Evaluation of Light Gage steel framed structures (LGSF) with cladding and insulation system,” project completion report submitted to the *Building Materials Technology Promotion Council (BMTPC)*, January 2019.

Mahendrakumar Madhavan, “Study on Effect of Imperfection Based on Manufacturing Tolerances in Cold Formed Structural Steel Members,” project completion report submitted to the *Science Engineering and Research Board (SERB)*, December 2018.

Mahendrakumar Madhavan, “Studies on Parallel Flange Beams,” project completion report submitted to the *Jindal Steel and Power Limited (JSPL)*, November 2018.

Mahendrakumar Madhavan, “Fatigue Behavior of CFRP Patched I sections,” project completion report submitted to the *Science Engineering and Research Board (SERB)*, December 2016.

Davidson JS, Abdalla RS, and **Mahendrakumar Madhavan**, “Stability of Curved Bridges during Construction,” report published by the *University Transportation Center for Alabama (UTCA)*, UTCA Report 03228, December 2004.

Davidson JS, Abdalla RS, and **Mahendrakumar Madhavan**, “Design and Construction of Modern Curved Bridges,” report published by the *University Transportation Center for Alabama (UTCA)*, UTCA Report 01223, December 2002.