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Reduced web and flange link sections to enhance the ductility of link-to-column connection of eccentrically braced frames

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Eccentrically braced frames (EBFs) are used as seismic force resisting system of building and other civil engineering structure for the last two decades. The seismic energy dissipation capacity of EBF is depend on the link beams as the energy is dissipated through inelastic deformation of links. However, researches show that very few link-to-column connection details have passed the testing criteria and rotation level requirements. Hence, link-to-column connection details remain unsolved problem for construction of EBFs to satisfy the performance requirements. Links with reduced web and flange sections was proposed for eccentrically braced frames to enhance the ductility of link-to-column connections. The hysteresis characteristics and plastic shear rotation capacity as well as the failure mode of proposed link was evaluated using experimental and analytical approaches considering percent of reduced area and link length as a main parameter. The result shows that the proposed link satisfies the plastic rotation limit recommended in AISC for shear and intermediate link types.

Biography

Daniel Y Abebe is a PhD candidate at Chosun University, Architectural Engineering Department. Currently he is working on his Doctoral dissertation and is also working as a Research Professor at Smart Green Construction Technology Research Center in Chosun University and as Instructor of steel structure. He has published more than 30 papers in reputed journals and conferences.

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