عنوان مقاله:

Design of special truss moment frames with energy Dissipating devices

محل انتشار:

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خلاصه مقاله:

Structural engineers must find ways to design structure that will survive earthquake ground motion. In this particular case, this research project looked at steel buildings. The Special Truss Moment Frame (STMF) is a relative new type of steel structure system that is implemented in building to help dissipate energy induced by earthquake ground motion. The frames dissipate earthquake energy through ductile special segments located near the mid-span of truss girders. The inelastic behavior of the special segment, limits forces on all element outside the special segment, to the ultimate capacity of the middle (special) segment, thus enabling them to remain elastic buildings. An innovative concept using energy dissipating devices, such as buckling restrained braces (BRB), is proposed for special truss moment frames (STMF). The configuration of the proposed system consists of pins introduced at the ends of the top and bottom chord elements of the special segments. Subsequently energy dissipating devices are used in the form of diagonal braces inside the special segments. The proposed system leads to more predictable seismic response and would potentially allow lighter construction and significant cost savings, due to significantly reduced member forces (up to 50% compared with conventional design). Furthermore, damage to structural elements is largely mitigated, hence allowing damage avoidance design of STMFs

کلمات کلیدی:

BRB, Special Truss Moment Frame, Energy dissipating devices

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