

# Special Truss Moment Frame Design Guide

Special Truss Moment Frame (STMF) with Short  
BRBs

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Special Truss Moment Frame (STMF) Testing: SP 1-2  
Moment Frame and Braces as Lateral Force  
Resisting Systems What is a Special Moment Frame?  
| Soft Story Retrofit

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How to Install a Special Moment Frame in Soft-Story  
Building Retrofits2\_Seismic Design in  
Steel\_Concepts and Examples\_Part 2 Why Choose  
Multi-Story Special Moment Frame Testimonial -  
Testing Examples /u0026 Installation Examples  
What Is A Structural Moment Frame - Building And  
Engineering Seismic Design of Ductile Special  
Concentrically Braced Frames Structural Analysis  
and Design - Understanding bracing and bending  
moments in buildings Assessment of a 12-Story  
Code-Compliant Reinforced Concrete Special  
Moment Frame

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Steel Truss Frame Modeling and Design using  
Staad.Pro CONNECT Edition Version Cutting  
Common Rafters

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Why do buildings fall in earthquakes? - Vicki V. May  
Load Bearing Wall Framing Basics - Structural  
Engineering and Home Building Part One SidePlate

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~~Bolted SMF Test H1 Close-up SidePlate Welded Field Work San Francisco Soft-Story Retrofit Solution- Understanding the SF Ordinance and Retrofit Solutions Simpson Strong-Tie - Joist /u0026 Beam Hangers What is an i-beam? | Design Squad braced and rigid frame Basics of Truss Structures ~~ASK THE ENGINEER- WHAT IS A MOMENT CONNECTION?~~ Special Truss Moment Frame (STMF) Testing: SP 1-2-1 Strong Structures with Triangles | Design Squad 7\_ Seismic Design in Steel\_ Concepts and Examples\_ Part 7 Underlying Concepts to the Seismic Provisions Framing a Roof with Larry Haun Lateral Force-Resisting Systems - braced frame, shear wall, and moment-resisting frame Steel Roof Truss || Dead Load || Live Load || Wind Load Calculations ~~Special Truss Moment Frame Design~~ The special truss moment frames (STMF) consist of steel columns and open-web truss girders rigidly connected to form effective seismic load-resisting systems (Itani and Goel, 1991). The truss girder has a special segment designed to behave inelastically under earthquake loads while the other members outside the special segment remain elastic.~~

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This paper presents the results of a study in which a recently developed performance-based plastic design (PBSD) methodology was used to design the special truss moment frame (STMF) system rather than conventional elastic method. This newly developed performance-based method has been successfully applied to moment frames and also extended to eccentrically braced frames, buckling-restrained braced frames, and concentrically braced frames.

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This study investigated the progressive collapse resisting capacity of the special truss moment frames (STMF) structures. To this end analysis model structures with vierendeel special segment were designed per the AISC (American Institute of Steel Construction) Seismic Provisions.

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The standard moment frame design requires 100% visual inspection and ultrasonic testing which is eliminated when using the Tru-Frame® system. Since all the Tru-Frame® connections are either "Tension Control" bolts or single pass fillet welds they can be visually inspected any time after completion without need for additional testing.

~~The Spectrus Group™ - What Is Tru-Frame®?~~

Moment Frames. Design requirements for steel special moment frames are contained in a series of standards. ASCE/SEI 7-05, Minimum Design Loads for Buildings and Other Structures (ASCE 2006), referred hereafter as ASCE 7, sets the basic loading criteria for steel special moment frames together with associated lateral drift limits.

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The Manual, for the most part, focuses on the design of the lateral system for the same simple, regular rectangular bay frame with each of the major braced- and moment-frame lateral system types, in both  $R = 3$  and high-seismic applications. Detailed design examples are provided to highlight

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~~AISC Seismic Design Manual: Moment Frames | New Horizons ...~~

provides detailed design requirements relating to materials, framing members, connections and construction quality assurance. It requires that moment connections used in special or intermediate steel moment frames be demonstrated, by testing, to be able to provide the necessary ductility. Two means of demonstration are acceptable.

~~What Makes a Special Moment Frame SPECIAL?~~

Special Truss Moment Frame • Buckling and yielding in special section • Design to be elastic outside special section • Deforms similar to EBF • Special panels to be symmetric X or Vierendeel  
Instructional Material Complementing FEMA 1051, Design Examples Steel Structures - 55

~~Structural Steel Design~~

A truss is essentially a triangulated system of straight interconnected structural elements. The most common use of trusses is in buildings, where support to roofs, the floors and internal loading such as services and suspended ceilings, are readily provided. The main reasons for using trusses are:  
Long-span, curved roof trusses

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An alternative, innovative detailing and design of special truss moment frames (STMF) with a type of energy dissipating device, namely the buckling restrained brace (BRB) is proposed. The design methodology is based on the performance-based plastic design procedure proposed by Chao and Goel . This energy-based methodology is demonstrated to be very accurate, by means of series of nonlinear time-history analyses.

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Special truss moment frame (STMF) is a relatively new type of steel framing system that was developed for use in high seismic areas. The frames dissipate earthquake energy through ductile special segments located near the mid-span of the truss girders (Fig. 1a). STMFs generally have good structural redundancy

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Lateral Force-Resisting Systems - braced frame, shear wall, and moment-resisting frame Steel Roof

Truss || Dead Load || Live Load || Wind Load

Calculations ~~Special Truss Moment Frame Design~~

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