REDUCED BEAM SECTION MOMENT CONNECTIONS WITHOUT CONTINUITY PLATES
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One of the new moment connections developed for seismic resistant steel frames after the 1994 Northridge earthquake is the Reduced Beam Section (RBS) moment connection, also known as the “dogbone” connection. The RBS connection has shown good performance in laboratory testing and is being used in building construction. The Uniform Building Code (UBC 1997) specifies the conditions for which an exception can be made regarding the requirement for continuity plates for steel moment connections. In an effort to demonstrate the effectiveness of the RBS connection without continuity plates in the column area, a series of four full-scale quasi-static cyclic tests were carried out in 1999, at the University of Utah. The beams were W30x132 A572 Grade 50 steel; two of the strong column/weak beam assemblies used W14x283 A572 Grade 50 steel columns and the other two assemblies used W18x211 A572 Grade 50 steel columns. The beams were welded to the columns using complete penetration AWS prequalified weld joints, and fillet welds. Under the above conditions, the assemblies satisfy the “no continuity plate” requirement of the UBC. In addition, calculations using the American Institute of Steel Construction (AISC) Guideline 13, showed that continuity plates were not required for these moment connections; however, AISC requires testing of such connections in high seismic regions. The tests showed that the RBS connections with no continuity plates performed very well.