[1]唐光暹,邓志恒,贾志超,等.桁架式SRC梁组合框架节点耗能性能及损伤分析[J].自然灾害学报,2010,06:86-92.

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桁架式SRC梁组合框架节点耗能性能及损伤分析

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Title: Energy dissipation and damage analysis of frame joints of steel reinforced concrete beam with encased steel truss

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关键词: 桁架式钢骨混凝土框架梁; 节点; 能量耗散; 损伤模型; 损伤分析

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摘要: 通过6个桁架式钢骨混凝土框架梁组合节点在反复荷载作用下的试验,对该新型桁架式钢骨混凝土框架梁-钢筋混凝土柱组合节点的破坏过程、滞回性能、耗能能力等进行了分析,建立了基于最大变形和累积耗能的非线性组合的节点地震损伤模型,探讨了桁架式钢骨混凝土框架梁组合节点累积损伤的发展过程和发育规律。通过由损伤模型计算得到的破损结果及各试件损伤对比分析,讨论了含钢率、轴压比及交叉腹杆对节点损伤发展的影响。结果表明:加载后期,轴压比大、含钢率高或交叉腹杆强的节点具有更大的损伤值。

Abstract: According to experimental research on 6 joints of steel reinforced concrete(SRC) frame beam with encased steel truss under low-cyclic reversed loading,the failure process,hysteretic behavior and energy dissipation capacity were analyzed.Damage model were developed based on nonlinear combination of maximum strain and

accumulative dissipation energy.Then the evolution of cumulative damage and the damage growth law were investigated.Finally by comparing the calculated damage models with the observed real damage of the joints,influences of three factors which are shape steel,cross web members and axial compression ratio on damage development of joints with SRC beam with encased steel truss were studied.The results indicate that joints with higher shape steel proportion,stronger cross web members and higher axial compression ratio makes joint behave better in energy dissipation and bearing capacity.

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