学术论文

冷弯型钢骨架墙体受剪承载力计算方法研究

郭鹏;**何保康**;**周天华**;**沈顺高**;

清华大学土木工程系;中国航空规划建设发展有限公司博士后工作站;西安建筑科技大学土木工程学院;长安大学建筑工程学院;

摘要：　为了获得冷弯型钢骨架墙体最大受剪承载力实用计算公式,提出了墙体在水平力作用下的两种可能破坏模式,即边立柱在抗拔连接件处的净截面破坏和墙体周边或墙板拼缝处大多数自攻螺钉连接破坏。根据墙体破坏模式提出了相应的最大受剪承载力计算模型,并结合试验数据和有限元结果,得到了单面覆石膏板墙体、单面覆OSB板墙体和单面覆带肋钢板墙体最大受剪承载力实用计算公式,公式计算结果同试验、有限元分析结果吻合较好。最后,给出了冷弯型钢骨架墙体受剪承载力实用计算公式应用算例,以供设计参考。

关键词： 冷弯型钢骨架墙体　受剪承载力　实用计算公式

A study on shear strength analysis for cold-formed steel framing walls

GUO Peng1,2,HE Baokang3,ZHOU Tianhua4,SHEN Shungao2(1.Department of Civil Engineering,Tsinghua University,Beijing 100084,China;2.Postdoctoral Workstation,China Aviation Planning and Construction Development Limited Company,Beijing 100120,China;3.School of Civil Engineering,Xi'an University of Architecture and Technology,Xi'an 710055,China;4.School of Civil Engineering,Chang'an University,Xi'an 710061,China)

Abstract: To obtain the practical calculation formulae for predicting the maximum shear resistance of the cold-formed steel framing wall,two possible failure modes of the walls under horizontal force are proposed,net section failure of end studs connecting hold-downs and the failure of most self-drilling screws around the wall or between wallboards.Based on the possible failure modes of the walls,the relevant calculation models of the maximum shear resistance of the cold-formed steel framing wall are developed.Practical design formulae are suggested using the calculation models and results from tests and finite element analysis,which can be used to predict the maximum shear resistance for three types of walls,single gypsum wallboard,single OSB(oriented strand board) and single steel rib panel.The calculation results of the formulae agree well with test data and finite element analysis results.Finally,an example of the practical calculation formulae of the maximum shear resistance of cold-formed steel framing walls is provided for design reference.

Keywords: shear resistance　practical calculation formula

通讯作者：

作者简介：

作者Email:

参考文献：

本刊中的类似文章

1．郭鹏;何保康;周天华;沈顺高;.冷弯型钢骨架墙体抗侧移刚度计算方法研究[J]. 建筑结构学报, 2010,31(01): 1-8

2．何保康;郭鹏;王彦敏;周天华;袁耀明;.高强冷弯型钢骨架墙体抗剪性能试验研究[J]. 建筑结构学报, 2008,29(02): 72-78+113

扩展功能

本文信息

- Supporting info
- PDF(0KB)
- [HTML全文]
- 参考文献[PDF]
- 参考文献

服务与反馈

- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- 引用本文
- Email Alert
- 文章反馈
- 浏览反馈信息

本文关键词相关文章

- 冷弯型钢骨架墙体
- 受剪承载力
- 实用计算公式

本文作者相关文章

- 郭鹏
- 何保康
- 周天华
- 沈顺高

PubMed

- Article by
- Article by
- Article by
- Article by