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Reviewer Invitation for STRUCTURES-D-23-04293

1 message

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Reply-To: STRUCTURES <support@elsevier.com>
To: Omar Qarani Aziz <omerqarani@gmail.com>

Ms. Ref. No.: STRUCTURES-D-23-04293
Title: Effects of structure size on post-earthquake fire resistance of CCBCC joints at non-uniform elevated temperatures
Authors: Jixiang Xu; Shengtao Sang; Jianping Han
Structures

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I look forward to hearing from you in the near future.

Yours sincerely,

Lei Wang
Associate Editor
Structures

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ABSTRACT:
Building structures are significantly threatened by fires that are caused by earthquakes. The cruciform beam-column joints may suffer damage from earthquakes, leading to a decline in their ability to resist fire. In light of this, the goal of this study is to investigate the effects of structure size on the post-earthquake fire resistance of cruciform hybrid beam-column joints under gradient temperatures. The established model was validated using existing experiments. Using the transient response analysis method, the temperature field distribution of the cruciform hybrid beam-column joints was subsequently determined. A total of 20 computational models were then employed to conduct parameter analysis, including the width-to-thickness ratio (γ) of steel tube column, the slenderness ratio (λ) of steel tube concrete column, the width-to-thickness ratio (α) of beam flange, the height-to-thickness ratio (β) of beam web and the damage variable (˜). The results have revealed that
the fire resistance of cruciform hybrid beam-column joints is mostly affected by the damage variable. Parameters β, α, λ and γ also have a significant impact on the fire resistance of these joints. An empirical theory model for predicting bearing capacity of cruciform hybrid beam-column joints is proposed. Given the numerical investigation, crucial data and theoretical guidance for the design of such joints are provided to guarantee project quality.

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