Analysis of the steel structural reliability under the big data condition

Fang Yongfeng[1], Tao Wenliang[2]

[1]*School of Mechanical Engineering, Guizhou Unviersity of Science Engineering, Bijie, China*
[2]*School of Information Engineering, Guizhou Minzu University, Guiyang, China*
[1] *fangyf_9707@126.com*

ABSTRACT

In this paper, the reliability of steel roof under the big data loads is analyzed. Firstly, the roof of steel structure is analyzed. The relationship between roof span and stress composed of hollow steel joist beam is obtained, and the parameters of the structure of the open web steel joists that is made by the wide flange steel is given. Secondly, according to the random distribution parameters of steel roof and the big data loads, the limit state function of steel roof structural calculation is given. The function is an implicit function. Monte Carlo method is used to calculate reliability index of the steel structural roof with considering the dead loads and the big data loads. Finally, the reasonable suggestions for the reliability and safe operation of the steel structural roof are given from the reliability of the calculated of the steel structural roof.

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