

Design Capacity Determination Method from Specimen Testing Based on Design Reliability Analysis

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Summary

In structural design, sometimes analysis methods in available specifications cannot be used directly for new materials or new structural configurations. A common way is to test and check the behavior in question of the prototype units including complete or parts of structures, individual members or connections for design assessment. How to directly obtain the design capacity with an expected reliability level according to the related codes from test results is a critical issue. Currently, there isn't any explicit specification for the above issues in Chinese codes, and few references are available. In this paper, referring to Australian specifications for Cold-formed Steel Structures and the actual structural design requirements in China, a complete method for determining the design capacity of the test specimens based on both probability calculation and design reliability analysis was presented, also the preconditions and applications of this method were discussed.

