A STUDY ON PARTIAL FACTOR DESIGN METHOD FOR STEEL BRIDGES

Abstract : This study is a part of research to introduce partial factor design method to the design specifications for highway bridges. The introduction of new design method is planned to be conducted in the next revision of the specifications. In order to make basic data to establish the design method based on the format of partial factored design, the procedure for derivation of resistance factors is organized, and numerical values of the factors are suggested for several design criteria in this study. In the procedure, reliability indices are calculated for compressive and tensile stresses in flanges of typical steel girder bridges that were designed by the current specification based on allowable stress method, and relationship between target reliability index and resistance factor are examined. Then using derived resistance factors, design calculations are conducted based on partial factor design method in order to compare reliability indices and cross sections of girders with those of bridges that were designed by the current method.

Key words : partial factor design method, highway bridge, steel girder bridge, reliability analysis, reliability index, first order reliability method, Monte Carlo simulation , resistance factor