I-거더 불연속 비틀림 브레이싱: 횡-비틂 좌굴 및 비틀림 자유진동
I-girder with Discrete Torsional Bracing: Lateral-torsional Buckling and Torsional Free Vibration

웬 간 투안[1] · 문지호[2] · 김현수[3] · 이학은[4]
Nguyen, Canh Tuan · Moon, Ji Ho · Kim, Hyun Soo · Lee, Hak Eun

요 지

Discrete torsional bracing systems are widely used in practice to increase the strength of I-girders bridges. This paper proposes equations for lateral-torsional buckling strength, torsional natural frequency and stiffness requirements of I-girders with discrete torsional bracings. Firstly, the equations to calculate the critical moment of the I-girder with discrete torsional bracings are introduced. The proposed equations are then compared with the results of finite element analyses and those from previous studies. The equations to calculate the torsional natural frequency are also presented in the same manner. From the results, it is found that proposed equations agree well with results of finite element analyses regardless of the number of bracing points. Finally, the reduced formula for the total torsional stiffness requirement is proposed for the design purpose.

Keywords: torsional bracing, lateral-tosional buckling, I-girder, natural frequency

1) 고려대학교 건축사회환경공학부 · 박사과정 · (E-mail: obladia@korea.ac.kr)
2) Univ. of Washington · 박사후과정
3) 고려대학교 건축사회환경공학부 · 석사과정
4) 정회원 · 고려대학교 건축사회환경공학부 · 교수(교신저자)