

Effects of Impact Loads from Train Wheel Passing Rail Joints on Fatigue at Deck System of Steel Box Girders

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Impact loads from train wheel passing rail joint tend to cause fatigue cracks in steel girders near rail joint. In order to evaluate the effects of impact load on fatigue at the deck system of a steel box girder, we carried out stress measurements of steel girders at an existing bridge. The result showed that the impact loads at rail joints generates two types of high frequency natural mode vibration ; around 40Hz, and around 350Hz. It also showed that those vibrations lead to increasing range and cycle of the stress at welding joints of the deck system.