

以 SAP2000 程式輔助田美大橋鋼橋結構構件損傷分析與修

復之探討

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摘 要

九二一集集大地震後因鋼橋施工期短且有諸多其他優點，已引起大眾對鋼結構之重視，依申請施設跨河建造物審核要點橋墩（中心）跨距不得小於 40m 為原則，致使國內橋樑設計採用鋼橋設計之趨勢亦日益增多，鋼橋具有相當多的特色及優點，特別在地震折曲帶上的臺灣地區，使用鋼橋對於防震及施工均較其它材料構造容易處理，也更能滿足安全、經濟、美觀及適用之設計目標，已廣為各界接受。然而近來極端氣候日益嚴重河川溪水暴漲頻率增多，連帶使鋼橋組裝期間風險提高，本文旨在探討田美大橋鋼橋施工組立期間遭逢蘇拉颱風帶來豐沛雨量將臨時支撐架沖毀，鋼橋在無支撐下呈現彎曲變形，藉由 SAP2000 分析檢核來探討橋樑損傷情形，並進行災後復建修復之依據。

（**關鍵字**：SAP2000 程式、跨河建造物審核要點、極端氣候）

Auxiliary the Tian Mei Bridge, Steel Bridge Structural Member Damage Analysis and Repair of SAP2000 Program

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ABSTRACT

In the wake of the Chi-Chi earthquake, steel constructed bridges have been in great importance to the general public, with its short construction time and many advantages. This has attracted public attention in configuring the facilities across the river; constructing material verifying that the pier's center has a span of no less than

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40m. This resulted in a growing trend of domestic bridge designs making use of the steel bridge design as it has a few features and advantages, like seismic bending during earthquakes. The use and construction of steel bridges for earthquakes is widely accepted and meets the security, economic, aesthetic and design goals of everyone. However, recently there is an increase in extreme weather, worsening the river stream and the frequency associated, which increased the risk during the assembly of the steel bridge. This paper primarily discusses the Tianmei Bridge steel bridge construction group, which was established after the aftermath of Typhoon Sura, which brought abundant rainfall and washed away the temporary support frames in the steel bridges which were unsupported, resulting in bending and deformation. Based on the post-disaster reconstruction, SAP2000 was tested to explore the extent of the damage to the bridge and its repair condition.

(Keywords: SAP2000、River crossing construction material audit points、Extreme weather)