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Design, Fabrication and Construction of Composite Bridge Decks

Projet, fabrication et construction des ponts à tablier mixte

Entwurf, Herstellung und Bau von Verbundfahrbahnplatten

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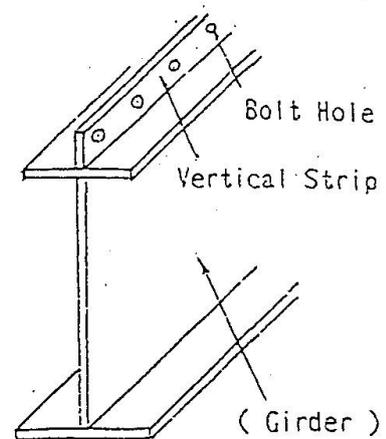
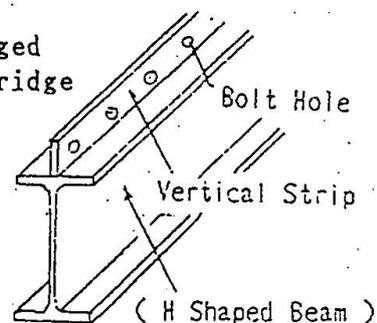
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For these several years, the writers have been engaged in developing new type concrete composite steeldeck bridge (hereinafter called as "CS Bridge").

CS Bridges have been used for road bridge since 1987 in Sapporo City, Japan.

1. Erection process of CS Bridge

- 1) Firstly, main steel girders (or H shaped beams) with the vertical strip are placed on abutments.
- 2) Steeldeck panels with headed stud connectors are placed between the main girders.
- 3) Steeldeck panels and the vertical strip are mutually connected by high strength bolts.
- 4) Prefabricated reinforcements are placed on the steeldeck.
- 5) Continuously, fresh concrete is placed over the steeldeck.
- 6) After curing concrete, the concrete composite steeldeck (hereinafter called as "CS deck") is covered over with waterproof layer and asphalt pavement.



2. Merits of CS Bridge

- 1) CS Bridge is erected with ease and in a short time.
- 2) CS deck has high flexural rigidity, as concrete slab and steeldeck are bonded with headed stud connectors.
- 3) CS Bridge has high bending rigidity, as CS deck and main girders are connected by high strength bolts.
- 4) Water and sewer pipes, etc. are able to be set between main girders.
- 5) CS Bridge is suitable to skew type bridge, as various kinds of skew type steeldeck panels are easily prefabricated.
- 6) CS Bridge is durable, as weather-resisting low-alloy steel is used for steeldeck panels and main girders.

