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Composite structural systems in bridges and buildings

The structural composite construction techniques find increasingly wide applications in bridges and buildings throughout the world focusing on the composite systems dealt by the author. Composite structures are created by combining two or more structural elements to act as a single combined structural unit, where each element behaves in structurally efficient manner. Various advantages are achieved by composite structures: Higher stiffness and strength, reduced depth and weight of structures, faster construction speed, and structurally more efficient, thus providing an economical solution for a wide range of industrial, residential and commercial buildings and bridges. The paper firstly overviewed the principle of composite construction, followed by an account of the research developments undertaken in the past by the author. Research findings on composite construction that include stiffened in-filled columns, tapered plate girders, CFRP strengthened steel tube beams, and an innovative lightweight composite panel system known as the Profiled Steel Sheeting Dry Board (PSSDB) System applied as flooring, walling and roofing units in buildings are covered. The paper also highlights applications of the PSSDB system in real projects.

Biography

Wan Hamidon Wan Badaruzzaman is currently the Chairman of the Smart and Sustainable Township Research Centre (SUTRA), Universiti Kebangsaan Malaysia. He is also a Professor in Structural Engineering at Universiti Kebangsaan Malaysia. His main research areas in terms of publication output are on composite structures especially on Profiled Steel Sheeting Dry Board (PSSDB), a lightweight structural composite system that has been applied as floor, wall and roof panels in buildings; in-filled cold formed steel tube structural elements strengthened with CFRP sheets and composite plate girders. He has published over 200 journal and conference articles.

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