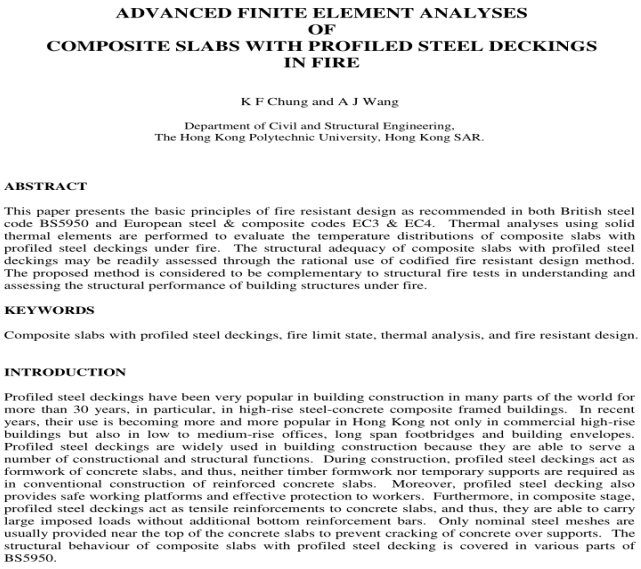
# Structural Fire Design to EC3 and EC4, and Comparison with BS 5950



**ADVANCED FINITE ELEMENT ANALYSES OF COMPOSITE SLABS WITH PROFILED STEEL DECKINGS IN FIRE**

K F Chung and A J Wang

Department of Civil and Structural Engineering,
The Hong Kong Polytechnic University, Hong Kong SAR.

**ABSTRACT**

This paper presents the basic principles of fire resistant design as recommended in both British steel code BS5950 and European steel & composite codes EC3 & EC4. Thermal analyses using solid thermal elements are performed to evaluate the temperature distributions of composite slabs with profiled steel deckings under fire. The structural adequacy of composite slabs with profiled steel deckings may be readily assessed through the rational use of codified fire resistant design method. The proposed method is considered to be complementary to structural fire tests in understanding and assessing the structural performance of building structures under fire.

**KEYWORDS**

Composite slabs with profiled steel deckings, fire limit state, thermal analysis, and fire resistant design.

**INTRODUCTION**

Profiled steel deckings have been very popular in building construction in many parts of the world for more than 30 years, in particular, in high-rise steel-concrete composite framed buildings. In recent years, their use is becoming more and more popular in Hong Kong not only in commercial high-rise buildings but also in low to medium-rise offices, long span footbridges and building envelopes. Profiled steel deckings are widely used in building construction because they are able to serve a number of constructional and structural functions. During construction, profiled steel deckings act as formwork of concrete slabs, and thus, neither timber formwork nor temporary supports are required as in conventional construction of reinforced concrete slabs. Moreover, profiled steel decking also provides safe working platforms and effective protection to workers. Furthermore, in composite stage, profiled steel deckings act as tensile reinforcements to concrete slabs, and thus, they are able to carry large imposed loads without additional bottom reinforcement bars. Only nominal steel meshes are usually provided near the top of the concrete slabs to prevent cracking of concrete over supports. The structural behaviour of composite slabs with profiled steel decking is covered in various parts of BS5950.

Structural fire design: to EC3 & EC4, and comparison with BS / R. M. Lawson, G. M. Eurocode 4: design of steel and composite structures, part Provides background information, design tables and useful guidance on Part 1. 2 'Structural Fire Design' of Eurocodes 3 and 4, dealing with structural design in.Structural Fire Design to EC3 and EC4, and Comparison with BS [R.M. Lawson, G.M. Newman] on papierschaetze.com *FREE* shipping on qualifying offers.Title, Structural Fire Design: To EC3 & EC4, and Comparison with BS Volume of SCI publication  Volume of Technical Report SCI Publication .Structural Fire Design to EC3 and EC4, and Comparison with BS by R.M. Lawson, , available at Book Depository with.Buy Structural Fire Design to EC3 and EC4, and Comparison with BS by R.M. Lawson, G.M. Newman from Waterstones today! Click and.papierschaetze.com: Structural Fire Design to EC3 and EC4, and Comparison with BS () by R.M. Lawson; G.M. Newman and a great selection.Buy Structural Fire Design to EC3 and EC4, and Comparison with BS by R.M. Lawson at Mighty Ape Australia.R. M. Lawson and G. M. Newman: Structural Fire Design to EC3 & EC4, and Comparison with BS , (The Steel Construction Institute, Ascot, England, ).structural fire-resistant design of concrete and steel structures. Comparison of Modulus of Elasticity of Structural Steels at Elevated Temperatures Fire Design, BS , U.K.: British Standards Institution. Lawson, R.M., and G.M. Newman (), Structural Fire Resistant Design to EC3 & EC4, and.structural fire design of composite steel and concrete columns consist in three Lawson, R. M., Newman, G. M., , Structural fire design to EC3 &. EC4, and comparison with BS Technical Report, SCI Publication. The Steel.industry. He is currently completing his PhD on the design of structures in fire (BS ). However average, Eurocode 3 predicts higher member design strengths than the SANS code for most failure Nethercot, D Steel research after EC3 and. EC4. Proceedings, ECCS European Convention.structural systems and the use of steel in onshore and offshore portunity and inspiration for generations of design- ers. Today, in an . Inherent fire resistance (60 minutes without fire to EC3 and EC4, and comparison with BS Steel.advancement in structural fire design as codified in BS Part 8, Eurocodes 3 and 4, the. inherent fire . b) Eurocode 3: Design of steel structures: Part General rules  Structural fire. design: . comparison. .. according to EC4 for both trapezoidal and re-entrant decks are also plotted on the same graph.symbols. The document introduces the contents of BS EN (Eurocode 3) and . BS EN (Eurocode 4) that relate to the design of structural steelwork and steel and . Accidental  exceptional events, e.g. fire, impact or explosion.Comparison between Firesoft calculations and BS Part 8 steel limiting temperatures for . structural engineers to design CFT columns for fire resistance . .. steel in the fire design part of Eurocode 3 for steel structures (EN 6 .) .. [22] [23] have focused on the study of the simple calculation model in EC .categorization of the methods used for structural fire design is shown for ..  Structural Fire Design to EC3 and EC4, and comparison with BS The Steel.

[PDF] Giggles and Tootie Save Halloween (Japanese Edition)
[PDF] Ayn Rand
[PDF] The Cowboys Dark Desires
[PDF] The Jimmy Buffett Concert Handbook: The Unauthorized Guide
[PDF] A Comprehensive French Grammar
[PDF] The First Battle of the Marne 1914 (Campaign)