More information

For more information and to obtain copies of the latest commercial cost comparison study, please visit:

www.corusconstruction.com/coststudy

Value benefits of steel construction

Speed and predictability – Offsite prefabrication increases the speed, quality and safety of construction. The predictability of cost and programme are also improved. Time related savings when specifying a structural steelwork frame compared with reinforced concrete can be 2 – 3% of overall building costs.

Flexibility and adaptability – Long spanning structural steelwork systems create column free areas that offer greater flexibility of floor layout and enhance the lettability of the space. Light steel partition walls can be easily relocated, leading to adaptable buildings with the ability to meet future needs.

Sustainability – Steel is 100% recyclable without any loss of quality. Currently in the UK, when buildings using structural steelwork frames come to the end of their useful lives, 86% of the steel sections are recycled to create more steel products and 13% are reused in their existing form. The recycling rates for reinforcement bar are negligible by comparison.

Continuous development – The steel industry in the UK has a long history of development activity. Efficiency improvements in manufacturing and fabrication have been augmented by improved structural systems and knowledge development and dissemination in areas such as fire engineering, durability, vibration control and acoustic performance.

Technical support – A comprehensive network of advice and assistance on all aspects of steel construction is available from Corus, the British Constructional Steelwork Association Ltd. (BCSA) and the Steel Construction Institute (SCI).

corus
Telephone: 01724 405060
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BCSA
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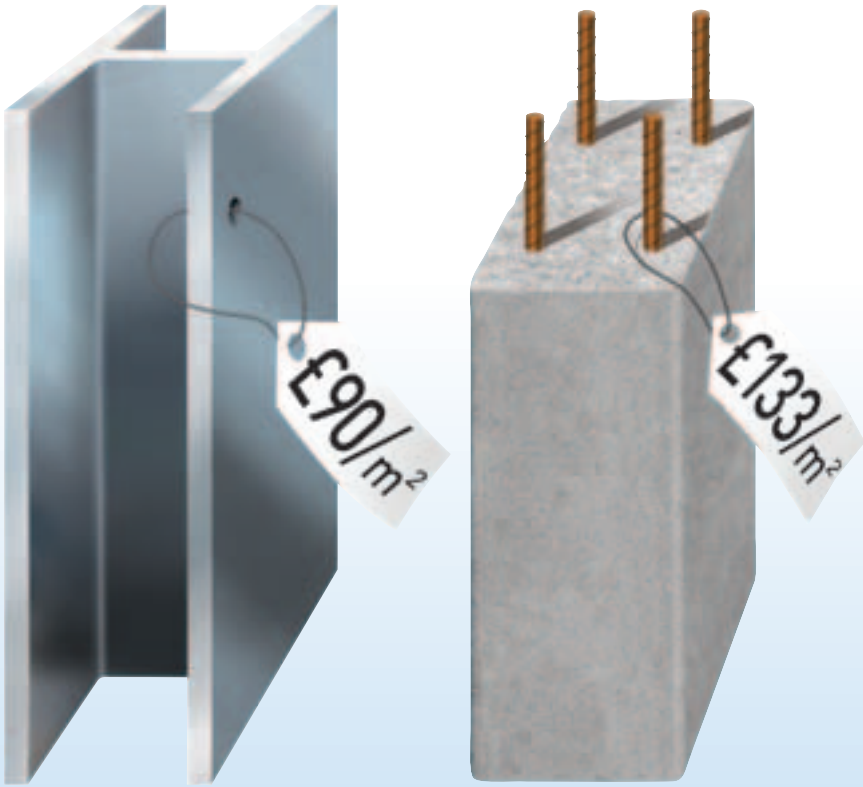
www.steelconstruction.org

Mind the competitive gap



Steel still the first choice

An updated cost comparison study for commercial buildings highlights that structural steel frame solutions continue to be faster and more cost effective than reinforced concrete alternatives.

The independent study, which includes costings, structural design and programming by Davis Langdon, Arup and MACE respectively, was first carried out in 1993. It considers two buildings typical of modern commercial construction. Building A is based on a developer's specification for a 2,600 square metre office in Manchester and Building B represents a prestige office of 18,000 square metres in central London. For both buildings a range of steel, composite and concrete based frame solutions are fully designed, costed and programmed. The effect of the structural frame solution on other major variable cost items such as foundations, cladding and services is also considered. Summary results are presented below.

Building A

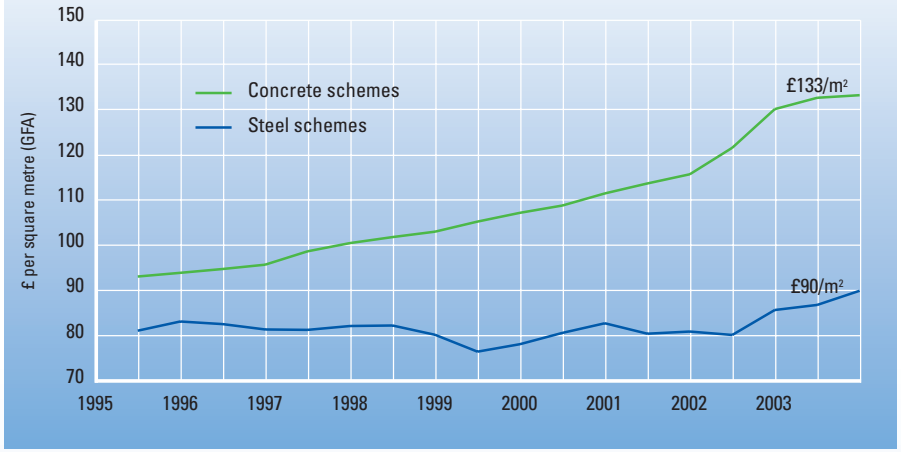
	Composite steel beam and slab	Slimdek® (steel shallow floor solution)	Long span steel cellular beams	Reinforced concrete flat slab	Insitu concrete frame with precast floors
Frame & floor cost (£/m² GFA)	71	90	91	118	101
Frame construction time (weeks)	7	6	6	8	8
Overall building cost (£/m² GFA)	916	925	947	979	962
Overall construction time (weeks)	42	40	41	43	43

Building B

	Composite steel beam and slab	Slimdek® (steel shallow floor solution)	Long span steel cellular beams	Reinforced concrete flat slab	Reinforced concrete post tensioned slab
Frame & floor cost (£/m² GFA)	83	100	105	144	170
Frame construction time (weeks)	13	13	13	18	19
Overall building cost (£/m² GFA)	1530	1525	1543	1635	1638
Overall construction time (weeks)	67	67	66	76	77

The latest study is based on designs and prices at the fourth quarter of 2003. The graph opposite highlights that the cost gap between steel and concrete based framing solutions has widened in recent years. It uses the average of the 2003 frame and floor costs as a basis and tracks actual costs back to 1995 using recognised Department of Trade and Industry construction cost indices. In 1995 the average cost advantage for the steel schemes was around 10%, at the end of 2003 this had increased to 32%. When inflation is considered, the cost of the steel schemes has reduced by 14% in real terms. Over the same period the real cost of the concrete options has increased by 16%. The reduction in cost of the steel options is testimony to the competitiveness of the industry which has driven efficiency gains and continuous development for structural steelwork as well as associated products such as steel floor decking and fire protection.

Comparison of steel and concrete frame and floor costs
Average of all schemes in study



Steel price rises

Since the beginning of 2004 the increase in global demand for steel has led to significant price increases for all steel products, reinforcement bar as well as structural sections. The impact of these increases on building costs is worth considering in the context of the steel v concrete frame decision.

For the steel schemes in this study the weight of all steel products, that is, sections, steel floor deck and reinforcement bar is 50 –70kg/m² depending upon the particular design solution. For the concrete schemes the weight of reinforcement bar is 25 – 45kg/m². In the first half of 2004 steel section prices have increased by around 35%, reinforcement bar price increases have been 50% over the same period. The net effect on frame and floor costs of these raw material price rises would be an increase of £5 - £8/m² in the steel schemes and £3 - £6/m² in the concrete schemes. The competitive situation is therefore largely unchanged.

Steel availability

The sharp increase in global demand for steel products has resulted in a supply and demand imbalance in some world markets. In the UK, Corus has taken positive steps to ensure supply to its existing customer base is maintained.