



“Work will begin on a standard that will guide designers efficiently through design codes, standards and available methods for application on the HS2 project”

## Working to ensure that waste and inefficiency is removed from HS2's planning, design and construction processes

In 2010, Infrastructure UK (a unit within HM Treasury) assessed the costs of constructing infrastructure in the UK, using other western European countries for comparison. “There were many reasons why costs were higher in the UK and recommendations to address this included looking at how design codes and standards were written and applied,” recalls Bill Grose, Arup Director and chartered civil engineer, who researched and wrote the resulting *IUK Cost Review*.

As a result, the Industry Standards Group was formed and in 2012 it produced a report called *Specifying Successful Standards*, which looked at how efficiency and competitiveness could be brought back into UK infrastructure design codes and standards. “Much of the inefficiency was not caused by the codes, standards and specifications – but how they were interpreted,” Grose emphasizes.

### High Speed Two

The proposed new railway linking London with Birmingham and the north, High Speed Two (HS2), has adopted many *IUK Cost Review* recommendations, as well as implementing an Efficiency Challenge Programme, to which Grose contributes (he is currently seconded to HS2). “The programme is tasked with reducing capital costs by bringing efficiency measures into planning, design and construction,” he

explains. “A key initiative is to manage and improve infrastructure design codes and standards to ensure efficient design and construction.”

We've been commissioned by HS2 Ltd (the government-owned company responsible for the project) to look at how standards can help to maximize efficiency. Our initial research has been divided into three areas: civil engineering, buildings and railway systems. Input has come from designers, consultants and contractors from industry and professional bodies such as the Institution of Civil Engineers, the Institution of Mechanical Engineers, the Royal Institute of British Architects, the Rail Industry Association and others.

We're working with our expert committees to revise or remedy codes considered obsolete, inefficient or duplicate. Work will then begin on a publicly available specification (PAS) that will guide designers efficiently through the various design codes, standards and available methods for use on the HS2 project.

### Efficiency gains

“Designers recognize the benefits of a simplified process, because they'll be able to spend more time designing rather than demonstrating compliance,” adds Grose. “And contractors see the benefits in simplifying construction,

standardizing details for improved production and avoiding unnecessarily complex construction details.”

Development of the PAS will happen in three stages. The first will establish expert teams and prioritize where particular effort is required. The second will detail codes and standards that will be cited, as well as significant gaps that must be addressed. The third will be to produce the PAS, build consensus and publish it.

“Ultimately, we'd like to remove the catch-all clause in design contracts that says 'designers must comply with all relevant codes and standards' and say something more helpful,” stresses Grose. “In extreme cases, these catch-all clauses can encourage unnecessary aversion to risk. Designers then spend too long demonstrating compliance and not long enough designing. Simplifying the approach to design codes and standards will help to reduce costs and ensure efficiency.”

Initial indications from Phase 1 work are highly positive, confirming potential for better use of standards by HS2 and its supply chain to save large sums during the capital expenditure stage, with knock-on through-life cost benefits.

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