

Scheme Design stage. They also note that any changes in location, size, shape or cost after the Detail Design stage will result in abortive work.

Allowances for design development may be built-in to the design programme to cope with the sorts of problem which, often arise in practice. There may be periods during which a two way exchange of information between the design and construction teams is possible, but ever decreasing timescales are reducing the possibility for such overlaps. Unfortunately, even with disciplined procedures abortive work often takes place.

### **ACTIONS - Planning for construction**

The designer should:

- carry out a thorough investigation
- plan for essential site production requirements
- plan for a practical sequence
- plan for simplicity of assembly
- plan for logical trade sequences
- recognise the complexity of the design process
- establish an appropriate design team
- agree information and programme
- coordinate contributions
- manage the interfaces
- control design development

## **2.4 Further reading**

(For further information, see Section 9, References)

*Buildability: an assessment*<sup>(3)</sup>. Buildability is defined, and how to achieve it is explained in general terms. The guide is not material specific.

*The successful management of design - a handbook of building design management*<sup>(8)</sup>. This is one of several relevant publications produced by the University of Reading. General management issues are discussed, considering both design-led and production-led approaches for the industry.

*Communication of structural design*<sup>(4)</sup>. Stages in the design process are identified and defined, giving details of work to be undertaken. This document is linked to the RIBA plan of work (reference 7), and includes extensive tables.

*Aims of structural design*<sup>(9)</sup>. Addresses needs identified following the Ronan Point collapse, by qualitatively discussing the purposes of design, the processes by which the designer seeks to achieve them, and various considerations that affect his actions.

*RIBA plan of work*<sup>(7)</sup>. Defines 12 stages in the development of a project. For each stage identifies the purpose of the work and decisions to be taken, tasks to be undertaken, and people directly involved. Key stages beyond which changes should not be made are identified.

*The National Structural Steelwork Specification for Building Construction, 3<sup>rd</sup> edition*.<sup>(6)</sup> The aim of this document is to achieve greater uniformity in contract specifications. It covers materials, drawings, workmanship, and quality assurance amongst other issues. Section 1 outlines the information which should be supplied to the steelwork contractor for different types of contract.

*Commentary on the third edition of the National Steelwork Specification for Building Construction* <sup>(10)</sup>. The title of this book is self-explanatory.

*Quality management in construction - contractual aspects*<sup>(11)</sup>. Discusses different construction contracts, and the invoking of quality systems.