BS 8093: 1991
Code of practice for the use of safety nets, containment nets and sheets on constructional works

87. **BS 8110: Structural use of concrete**
Part 1: 1985 Code of practice for design and construction

CP3010: 1972
Code of practice for safe use of cranes (mobile cranes, tower cranes and derrick cranes)
(Partially replaced by Parts 1 and 2 of BS 7121)

88. **DD ENV 1090**
Execution of steel structures
ENV 1090-1: 1996 General rules and rules for buildings

DD ENV 1993: Eurocode 3. Design of steel structures
DD ENV 1993-1-1: 1992 General rules and rules for buildings (together with United Kingdom National Application Document)
ENV 1993-1-2: 1995 General rules - structural fire design
ENV 1993-1-3: 1996 General rules - supplementary rules for cold formed thin gauge members and sheeting
ENV 1993-1-4: 1996 General rules - supplementary rules for stainless steels

DD ENV 1994: Eurocode 4: Design of composite steel and concrete structures
DD ENV 1994-1-1:1994 General rules and rules for buildings (together with United Kingdom National Application Document)
ENV 1994-1-2: 1994 General rules -structural fire design

BS EN ISO 9001: 1994 Quality systems. Model for quality assurance in design, development, production, installation and servicing

APPENDIX A - Additional information

A.1 Introduction

Most buildings are one-off designs, which means that structural designers cannot use exact repeats of previous practice when designing a new building. Nevertheless, the designer will generally benefit from drawing on past experience. The purpose of this Appendix is to collate useful information relating to existing designs for steel framed buildings.

Section A.1 provides general guidance on typical tonnages (per unit area and per unit volume) for steelwork used in various types of building. These values are intended to give the designer an indication of the frame weight to expect. It should be noted that the values given do not represent upper and lower bounds of acceptability; depending on the design criteria a well designed frame might quite reasonably have a weight falling outside the specified range. The values given are purely and simply intended for guidance.

Section A.2 lists references to specific case studies that illustrate particular solutions that may be useful in developing the conceptual design - particularly with clients and architects unfamiliar with steel framed building design.

Section A.3 provides warnings about past experiences that turned sour. It draws on a wide range of investigations of defects and failures to provide a checklist of possible problems to watch out for.

A.2 Typical tonnages for various types of building

Typical tonnages for various types of building are given in Table A.1.

Table A.1 *Steel framed buildings - typical weights*

Type of building		Typical range of weight per unit volume kg/m^3	Typical range of weight per unit area kg/m^2
Sheds (or halls)			
Saw-tooth roof structures		4.6 to 7.2	30 to 47
Single bay buildings with lattice girders		4.3 to 6.3	26 to 38
Single bay buildings with roof trusses		4.2 to 6.0	25 to 36
Single bay portal-framed buildings	without overhead cranes	4.8 to 7.2	31 to 47
	with overhead cranes	6.0 to 10.0	60 to 100
Multi-bay portal-framed buildings	without overhead cranes	4.3 to 6.8	28 to 44
	with overhead cranes	5.5 to 10.0	55 to 100
Special hall structures (e.g. space frames)		5.5 to 10.0	44 to 80