5 HEALTH AND SAFETY - THE CDM REGULATIONS

5.1 The Regulations

The Construction (Design and Management) Regulations 1994 (CDM) place significant responsibilities on the designer, recognising the importance of his role during the early stages of a project [2] . Because of his input during the concept and scheme design stages, he can arguably have a greater influence than anyone else on issues of buildability and safety. To ensure that this influence is positive, the designer must carefully think through:

- how the structure will be built
- how it will be used.

5.2 Duties under CDM

The CDM regulations came into force on the 31st March 1995, and were published with an associated Approved Code of Practice (ACoP)[40]. Their particular relevance to the designer of steel structures is outlined in *The Construction (Design and Management) Regulations 1994: interim advice for designers in steel* [41]. The primary thrust of the regulations is to ensure that structures can be both constructed and used safely. Note that *use* in this context includes operations such as maintenance, re-decoration, repair, cleaning and demolition.

The definition of *designer* adopted in the regulations is broad, and includes architects, quantity surveyors and contractors, in addition to structural engineers. Also, the regulations do not cover what is commonly thought of as *design*, namely checking the structural adequacy of the frame, members or connections. They concern the manner and method of construction, maintenance etc., and are therefore of major importance during the concept and scheme design stages.

The regulations place new responsibilities on clients, designers, planning supervisors and contractors. These responsibilities are listed in Reference 41. The responsibilities of the designer are reproduced below. The regulations also enforce the creation of two important documents, the *Health and Safety File* and the *Health and Safety Plan.* It is the responsibility of the planning supervisor to ensure that these are created, but the designer makes a significant contribution to both. Their contents are discussed in Section 5.3.3.

It must be emphasized that the CDM regulations do not mean that safety issues dominate design at all cost. They should be considered alongside other design criteria such as cost and aesthetics.

5.3 Designer‘s responsibilities

The following four points outline the designer’s responsibilities:

- make the client aware of his responsibilities
- give due regard to health and safety issues, so that risks can be avoided, reduced or controlled
- provide information which a contractor, although competent, would not necessarily know
- co-operate with the Planning Supervisor and other designers.

It is strongly recommended that the designer documents his actions, and decisions made. The planning supervisor is required to ensure that the designer has fulfilled his obligations, and the designer may therefore be audited in case of an enquiry.

Particular responsibilities of the designer with regard to ‘risk’, and some of the actions he must take to fulfil his obligations, are considered in the Sections that follow.

5.3.1 Foreseeable risks

The principal action the designer must take is to give adequate regard to *foreseeable risks.* Although the terms *risk* and *hazard* are both used in the regulations, for the purposes of simplicity, they are grouped together under the general term *risk* in these guidelines. The important thing to note is that risk is taken as having a sense of both frequency of occurrence and severity of outcome.

The meaning of *foreseeable* is important. The designer cannot prevent unsafe practices on site, where the contractor remains responsible for health and safety. These are not therefore foreseeable as far as the designer is concerned. Furthermore, foreseeable risks are only those which fall within ‘state-of-the-art’ understanding at the time the design is prepared.

Two mechanisms are adopted in the regulations to ensure that the designer gives adequate regard to foreseeable risks:

- the client may only employ a *competent* designer,
- the planning supervisor must ensure that the designer fulfils his obligations.

Considering the first of these, the following general criteria must be satisfied for a designer to be deemed competent (more detailed information is given in Reference 40). He must possess, and be able to demonstrate:

- an understanding of the work involved
- an awareness of relevant current best practice (as presented in British Standards, design guides etc.), and an ability to apply it to the project
- awareness of the limits of his experience and knowledge (which need only extend to the requirements of the project in question, bearing in mind that these commodities generally cost money).

Traditionally, many designers have not concerned themselves with how a structure is to be built. This was left entirely to the contractor, an attitude which is no longer permitted. The ACoP notes that ‘as the design develops, the designer needs to