

FACILITIES MAINTENANCE AND ENGINEERING PROCEDURE		
DESIGNING FOR SAFETY	FMEP-P-0350A	Rev. No. 1
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1.0 PURPOSE

To identify the activities associated with ensuring that safety is given due consideration during the design process.

2.0 GENERAL

2.1 Discussion

Safety considerations on engineering design fall broadly into two areas; those related to the ongoing safe operation, and those related to the safety of personnel involved in the demolition, construction, and maintenance of the facility. Each must be carefully considered during all phases of the design.

Safety in physical design is a continuous work process that begins with the implementation of safety considerations identified during the design process. Incorporation of safety considerations is facilitated by reviews, including the customer and the Science Applications International Corporation (SAIC) Safety Department, at various stages during the design process.

2.2 Definitions

Hazard - A physical situation with the potential to harm life, limb, or property.

Risk - The probability of the realization of the potential of a hazard.

Risk Assessment - A qualitative approach to assessing the need to take mitigating measures against a given hazard, which considers the severity presented by the hazard and its likelihood of occurrence

3.0 PROCEDURE

3.1 Responsibilities

The Manager of Engineering is responsible for ensuring that the duties required from the Engineering Department, as defined in the Facilities Maintenance and Engineering (FME) procedures manual, are complied with. Procedure FMEP-P-0350, Design Process, requires safety considerations during the design phase.

2.2 Duties

The key requirement with respect to design activities is that the FME designer includes, among the design considerations, adequate regard to the safety of persons involved in the construction, maintenance, cleaning, future modifications and eventual demolition of the structures.

The FME designer responsible for preparing a design should identify the significant safety hazards associated with the design and how it may be constructed and maintained. Consideration should then be given to the level of risk from those hazards, and the steps that need to be taken in order to avoid those risks.

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The duty of the FME designer is to avoid foreseeable risks by what is “reasonably practicable”. In determining what is “reasonably practicable”, the risk to safety produced by a design feature has to be considered against what is required in order to reduce the risk. The recommended approach to compliance with this duty has been termed “the hierarchy of risk control”.

Guidance on hazard identification and risk assessment are given in Exhibit A.

The designer shall decide what measures, if any, need to be taken in order to provide what is needed for the hazards identified.

Where basic design assumptions affect safety, or risks are not obvious, the FME designer should ensure that additional information is provided on design documents. Typically this should include the provision of additional notes on design drawings covering precautions required for construction, maintenance and demolition.

This duty relates to situations where hazards associated with a design have been considered but it has not been reasonably practicable to eliminate them. Where a design includes features that may present a risk to safety when carrying out construction, maintenance or demolition, sufficient information needs to be included with the design documentation to alert others to the risks inherent, and to provide those dependent on it with that information which they cannot reasonably be expected to know.

The FME designer shall make clear the principles of the design and describe any special requirements and any assumptions made for the purposes of construction, maintenance or demolition as appropriate. This may be achieved by the inclusion of special “Notes” on drawings, or by reference to other relevant documents, such as Operating or Maintenance Manuals. The FME designer may use other means if appropriate as long as the information is clearly presented and located so as to be obvious to the user.

It is the responsibility of the FME designer to design for safety. During the design review process, other reviewers, including EH&S and the FME Shops review and evaluate the design for safety and offer recommendations.

The Manager of Engineering shall consider the safety aspects of the design when reviewing design documentation for signature prior to issue for construction or procurement. All FME department engineers who are required to review design documentation from other disciplines, or from contracted Architect Engineering firms, shall give careful consideration to the safety aspects of those designs.

FMEP-P-0350A Exhibits

Exhibit A-Guidance on Hazard Identification and Risk Assessment (3 Pages)