Table 17.1: Guidelines for Risk Assessment

OCCUPANCY	REQUIRMENTS
4. **RA METHODS**	i. 5 RA methodologies mentioned below are defined in **Table 17.1.a.** a. Qualitative method. b. Semiquantitative likelihood method. c. Semiquantitative consequence method d. Quantitative method. e. Cost benefit risk methods.

Table 17.1.a: RA Methodology

CATEGORY	DEFINITION	TYPE OF OUTPUT	EXAMPLES
1. **QUALITATIVE METHOD**	Treats both likelihood and consequences qualitatively.	Tabulations of outcome and relative likelihood of various fire scenarios and how they are affected by various protection options.	i. What-if analyses ii. Risk matrices iii. Risk indices iv. Fire safety concepts tree
2. SEMI QUALITATIVE METHOD	Treats likelihood quantitatively and consequences qualitatively	Determination of frequency of occurrence of different types of fires and/or fires with different types of protection.	i. Actuarial/loss statistical analyses ii. Stand-alone event tree analyses
3. SEMI QUANTITAIVE CONSEQUENCE METHOD	Treats consequences quantitatively and likelihood qualitatively.	Deterministic fire model outputs with qualitative representation of likelihood	i. Enclosure fire models for selected challenging fire scenarios
4. QUANTITATIVE METHOD	Combines quantitative estimates of likelihood and consequences.	i. Determination of loss expectancy OR ii. Determination of probability of flashover OR iii. Determination of probability of fatalities in other rooms or floors of building OR iv. Plot of frequency versus number of fatalities OR v. Plot of frequency versus size of loss OR vi. Determination of likelihood of injuries, fatalities, property damage, and business interruption OR vii. Determination of individual risk (to building occupants) and of societal risk (to entire population)	i. FRAs to determine probability of reactor-core melt due to fire at a nuclear power plant Event tree analysis combined with fire models.
5. COST BENEFIT RISK METHODS	Include determination of costs of alternative approaches to limit consequences and/or likelihoods	i. Determination of costs required to achieve various levels of risk reduction OR ii. Determination of "optimum" level of fire protection based on minimizing "overall risk" or some other risk criterion	i. Computational models that incorporate probability, consequences, and cost data in an integrated manner