Table 17.1: Guidelines for Risk Assessment

OCCUPANCY	REQUIRMENTS
5. **FIRE MODELS**	**3.b. PROBABILISTIC MODELS** i. In a probabilistic model, the quantities being modeled are treated as being uncertain — the purpose of the model is to quantify the degree of uncertainty in these quantities. For example, in addressing the availability of a fire suppression system, it is uncertain whether the system is operational at any given point in time. A state transition model representing the various states of the suppression system may be used to quantify the time-dependent likelihood that the system is operational (or not). ii. Probabilistic models deals with the uncertainties associated with fire growth processes. They are further classified as a. Network b. Statistical c. Simulation **3.b.a. NETWORK MODELS** i. Network models are fire growth models in which the transition from one fire stage to another and the effectiveness of fire suppression systems, manual fire fighting, passive fire protection, and so on are governed by user-assigned probabilities that are based on historical data, engineering evaluations, or both. In some cases, these probabilities are single values, and in other models, the probabilities are time dependent. **3.b.b. STATISTICAL MODELS** i. Statistical models represent the probability of an occurrence as it is determined from historical data. A classic example of a statistical model is the occurrence of fire alarms. Fire alarms are random events that are, within certain constraints, uniform in nature. That is, a fire or fire alarm might occur at any time with equal probability. **3.b.c. SIMULATION MODELS** i. Simulation models may predict outcomes for a given set of conditions by using other physical, probabilistic, or deterministic models. In the latter case, simulation models regard fires as deterministic once the fire is fully defined. However, the inputs to the models are assumed to follow probabilistic models.