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Standard Guide for Selection of Physical Security Measures for a Facility¹

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^{e1} NOTE—Keywords were added editorially in July 1998.

1. Scope

1.1 This guide is intended to aid in the selection of effective physical security measures to deter or detect an attack on a protected facility. Consideration is made for the skill of the attacker and the type of facility that is being protected. A threat/physical security matrix given in [Table 1](#) identifies typical protective measures and instrumentation applicable for protecting several types of facilities from several identified levels of threat.

2. Terminology

2.1 *Descriptions of Terms Specific to This Standard:*

2.1.1 *threat*—an actual or perceived source of jeopardy.

2.1.2 *vulnerability*—the circumstances that would allow a source of jeopardy to be identified or recognized.

2.1.3 *consequences*—the negative results of an attack.

2.1.4 *threat level*—a perception of the capability, motivation, and skill of an intruder. Four threat levels are identified in this guide:

2.1.4.1 *Threat Level 4*—a group of highly skilled individuals with strong motivation, substantial technological support, knowledge, and funding. They are driven by motivations such as profit, public attention, sabotage, or acts of war.

2.1.4.2 *Threat Level 3*—a group of skilled individuals with similar but less motivation, capability, knowledge, and funding than Threat Level 4. Driven by motives such as profit, public attention, or disruption of services.

2.1.4.3 *Threat Level 2*—one or more semi-skilled individuals with some knowledge of locks, barriers, intrusion detectors,

and the ability to disable or defeat or otherwise compromise medium and low level security measures. These intruders would be expected to be driven by profit motives.

2.1.4.4 *Threat Level 1*—one or more unskilled individuals who have little knowledge of security systems or protective measures, who attack with little or no advanced planning, usually on installations with little or no security beyond locks, fences, and other physical protection. Their motivation is almost always monetary or vandalistic.

2.1.5 *Internal Threat*—The risk of an attack by an employee or other individual with access to a facility and at least some knowledge of the installation protection and alarm response procedures. Individuals attempting an internal attack will be expected to have some or all of the skills listed in [2.1.4](#) but the risk should be considered more significant by virtue of the increased accessibility and increased knowledge.

3. Significance and Use

3.1 *Physical Security Guide*—This guide is intended to serve as an aid in assessing the risk levels of a facility, setting it into one of four categories, and correlating security equipment and protective measures that could be installed to provide an effective security system.

4. Threat/Physical Security Measures

4.1 A tabulation of applicable measures is given in [Table 1](#). This matrix is intended to serve as a starting point for security system design. Since each facility is unique, only general guidelines can be suggested in this guide. Not all of the protective measures suggested in the matrix are applicable to a specific installation. The designer should apply his knowledge of physical considerations, equipment, vulnerability, consequences, and cost effectiveness in making his selections.

¹ This guide is under the jurisdiction of ASTM Committee F-12 on Security Systems and Equipment and is the direct responsibility of Subcommittee F12.40 on Detection and Surveillance Systems and Services.

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TABLE 1 Threat/Physical Security Matrix

Protected Site	Threat Level			
	1	2	3	4
1. Residential				
<i>Physical:</i>	Good door and window locks Standard doors	Higher grade door and window locks Solid doors	Higher grade door and window locks Structurally sound door assemblies Window grills Lighting	Rewards inadequate to warrant attempt
<i>Detection:</i>	Mechanical or magnetic door switches	Magnetic door switches Photoelectric beam Pressure mats	Magnetic door switches Photoelectric beam Volumetric motion detection	
<i>Alarm Transmission:</i>	Local audible alarms	Auto telephone dialer Digital dialer Series current loop alarm circuit	Interrogate/response DC or AC alarm transmission	
<i>Miscellaneous:</i>	Pet dog Recorded sounds Timed lighting Warning signs	Warning signs Local audible alarms Police patrols Pet dog	Trained animals Police patrols Safes	
2. Commercial				
<i>Physical:</i>	Good door and window locks Solid doors Lighting Perimeter fence	Higher grade door and window locks Solid doors Lighting Perimeter fence	Higher grade door and window locks Structurally sound door assemblies, walls and ceilings Safes/vaults Lighting Perimeter fence or barriers	Rewards inadequate to warrant attempt
<i>Detection:</i>	Magnetic door switch Window foil Glass breakage detectors Fence strain wire sensor Fence disturbance sensor	Balanced magnetic door switches Glass breakage detectors Volumetric motion detectors Fence strain wire sensor Fence disturbance sensor Invisible barrier microwave infra-red	<i>Exterior:</i> Fence disturbance sensor Microwave Infra-red Buried line <i>Interior:</i> Balanced magnetic door switches Glass breakage detectors Volumetric motion detectors Capacitance proximity sensors	
<i>Alarm Transmission:</i>	Local audible alarm Series current loop alarm circuit Digital dialer Warning signs	DC or AC digital dialers	Interrogate/response DC or AC digital dialers	
<i>Miscellaneous:</i>	Television surveillance Watch dog	Television surveillance Local audible alarm One-way glass Trained animals	Trained animals Attack dogs Full time guards Television surveillance and alarm assessment One-way glass	
3. Industrial				
<i>Physical:</i>	Risk of apprehension usually great; attack not normally attempted	Perimeter fences High security locks Structurally sound door assemblies Window grills Safes/vaults Lighting	Perimeter fences High security locks Structurally sound door assemblies Window grills Safes/vaults Security lighting	Usually for industrial espionage; use Threat Level 3 techniques
<i>Detection:</i>		Strain fence sensors	<i>Exterior:</i>	