Physical Security:
Ceilings and Floors

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In this series, we are looking at how physical security can support the security needs of network operations centers (NOCs) and data centers (DCs). Today's brief note is about ceilings and floors.

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Practically all offices these days have drop ceilings; i.e., acoustic tiles are suspended from the actual ceiling. This design provides for a place where electrical and communications wiring can be laid out of sight. This crawl space must not extend without interruption into the data center. Within the data center, the drop ceiling should include smoke, heat and water sensors. This is especially important when there are other floors above the NOC or DC and there is a possibility of water leakage.

Most information processing centers have raised floors because of all the cabling and power cords required for processing equipment and peripherals. The floor tiles are laid on a framework about 18 inches (~50 cm) off the actual floor. These tiles must be fire-resistant, easy to keep clean, and strong enough for the loads that will be placed on them. For access to the underfloor area, the tiles are raised using suction cups. Perforated tiles are part of the air-conditioning and fire-suppression systems and are raised using hooks.

The underfloor area must be kept scrupulously clean. Gas-based fire-suppression systems discharge high-pressure gas through the underfloor. If that area is dusty, the entire computer room will be filled with a cloud of dirt when the gas discharges.

In some cases, operators have used the underfloor as a storage area, sometimes for things that don't belong in the computer room at all (e.g., in one case I personally noted, soda pop). Such foreign objects interfere with the air-conditioning system and cause access problems in emergencies.

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