

Insight: Managing Smoking & Vaping Fire Risk



Poorly managed smoking and vaping activities within and around exterior areas of industrial buildings can increase the risk of fire.

According to a multi-year National Fire Protection Association (NFPA) study, smoking was attributed as a leading cause of warehouse fires with an average fire loss of over \$17M USD. In today's growing "non-smoking" workplaces, this risk can be easily avoidable.

Exterior areas can be highly susceptible to lapses in continued good housekeeping where improperly disposed smoldering cigarette butts are an increased risk. Simply designating a site as "100% no smoking" without added training, support, and increased management awareness may drive these activities to "hidden" areas or to property lines where higher unrecognized fire exposures exist such as combustible atmospheres, areas of dry vegetation, or near common property line pallet storage piles.

While the use of tobacco products may be a notable cause of fire ignition, the primary cause and risk of these activities resulting in a large property loss originates from a lack of proper risk management in the form of hazard understanding, identification, training, and enforcement.

Recognizing the Risk

The risk of fire from careless smoking can also be extended to vaping activities. The tip of a cigarette can reach in excess of 1,400 °F (760 °C) during inhalation. And a smoldering cigarette tip has the potential to cause direct ignition for a significant time after smoking when not properly extinguished and disposed of. While electronic cigarettes (E-cigarettes) use noncombustible tobacco fluid products and do not have exposed sources of ignition, internal temperatures over 300 °F (149 °C) can be generated by internal electronics when vaporizing the fluid. And since they are not intrinsically safe (i.e. can create ignition), use must not be allowed in areas with flammable gas, ignitable liquids, combustible dust, fiber, that are oxygen-enriched, etc. Vaping equipment also has other inherent associated hazards - primarily associated with their integrated lithium-ion batteries that can be subject to overheating and explosion due to thermal runaway reactions. This risk increases during charging which should be a consideration at locations where use is permitted.

Even in areas where the fire loading is seen as negligible, written smoking management control policies should be developed for enforcement. In these cases, it may be as simple as a written policy indicating "no smoking is allowed in any location on site premises." And at sites where smoking restrictions are more lenient due to very limited combustible loading in both construction and occupancy, a written policy is still recommended. In all cases, there are "high risk" areas where smoking should never be permitted under any circumstances such as on rooftops, all areas with combustible materials present or combustible construction, ignitable liquids areas, explosive dust potential, storage areas, computer and telecommunication rooms, and electrical rooms. Diligence and review are also needed in smoking area selection where approved. It is not uncommon to select locations near a loading dock or exit doors to allow employees quicker access. But this can then create issues where butts and vapes can blow into buildings and reach combustibles via open doors.

Controlling the Hazard

As with any hazard, a thorough risk assessment is critical. This starts with a review of site areas for risk with regular enforcement inspections and program updates to account for changes. Enforcement and site inspections should be closely tied to a solid site "good housekeeping" program with inspections.

Non-designated or unsupervised locations can actually increase the risk of fire from careless smoking practices. At a minimum, an effective tobacco use control management program should include the following:

1. A written, disseminated and enforceable program for all sites that specifically indicates where smoking is permitted, limited, and not allowed supported with posted signage per NFPA 1: Fire Code*. Where possible, programs should include wording that forbids smoking within the last hour of each workday.
2. Documented program training for employees, site visitors, and contractors with clearly written disciplinary actions taken for violations. This should include clear “low tolerance” contractor violation penalties.
3. Locating designated smoking areas a minimum 50 ft (15.2 m) away from combustible buildings/structures and exterior hazards such as cooling towers, ignitable liquids and gases areas, or pallet storage areas.
4. Locating designated smoking areas a minimum 25 ft (7.6 m) away from noncombustible buildings/structures and doorways.
5. Equipping all designated smoking areas with appropriate noncombustible, self-extinguishing, disposal receptacles with a regular cleaning program.
6. Housekeeping management to ensure smoking areas are well maintained with limited combustibles. Include regular inspections for violations such as improper butt and vapes extinguishment.

Both NFPA 1, and in the United States the Occupational Safety and Health Administration (OSHA) provides additional guidance. OSHA Standard 1926 provides guidance on fire prevention measures related to smoking management at construction sites. Each municipality and country typically has additional mandatory compliance requirements that must be followed. For example, for U.S. government buildings (owned, occupied, or under jurisdiction), smoking is prohibited in courtyards and within 25 ft (7.6 m) of doorways and air intake ducts with specific posted signage requirements.

Resources / Standards

- (1) NFPA 1: Fire Code
- (2) AIG Insight: Good Housekeeping Practices
- (3) AIG Insight: Contractor Management

*While NFPA documents are the global standard used by AIG, international equivalents may be acceptable.

[For more information, contact your local AIG Risk Engineer.](#)

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