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Spray Booths and Sprinkler Heads

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A hundred years ago, there was no need for spray booths. The first car to be painted by spraying, instead of with a brush, was in 1924. Spraying wasn't done in a booth until people realized that the paint didn't always go exactly where it was supposed to go. People soon began fabricating booths to contain the overspray. The first prefabricated booths, usually with fabric walls, showed up in the 1930s. But they caught fire easily. That led to booths being constructed out of metal and concrete block instead. And paint shops began using filters in front of fans, so the fans didn't become coated with flammable overspray.

Today, spray booths are designed for four purposes: the original purpose of keeping the spray contained, for fire control, to protect workers from overexposure, and to provide a quality paint job.

You rely on a well-designed and operating booth to provide a good paint job. To ensure good paint jobs, most shops are very conscientious about keeping booths clean and maintaining filters. But shops can get slack about priming, where quality isn't as critical.

From a health, safety, and environmental perspective, there's no difference between paint, clear, and primer – other than that the waterborne base coats are much safer to use. And there is no difference between a prep station and a paint booth, unless you only sand in the prep station. Any time you are priming, you still need to contain the spray, control the risk of fire, and prevent workers from overexposure.

OSHA doesn't have any exemption for only doing small pieces, using small paint cups, or spraying in a prep station only once a week. If you are spraying flammable coatings – paint, primer or clearcoat – on a regular basis, you need to use a spray booth.

You also need to maintain that booth correctly. We've seen these problems with booths:

- Carpeted booths and mixing rooms. The carpet can both hide spills and absorb spills, making them fire hazards. They're also difficult to clean safely unless you use an explosion-proof vacuum.

  It is okay to use thin paper or plastic or strippable coatings to make cleanup easier. But replace those routinely. You can't allow overspray to build up on the floor or walls.
- Sprinklers that aren't covered. If overspray gets on the sprinkler heads, it will slow down their reaction time or even stop them from working. The fix (draining the system to replace the single sprinkler head) will be costly, but if you're fortunate, it will be discovered during the annual inspection of your sprinkler system, not during a fire.

- Sprinkler heads covered with plastic bags. The standards call for the sprinklers to be covered by very thin cellophane. That's a different polymer than the polyethylene found in sandwich bags or plastic wrap. Cellophane is weaker and lets moisture through. If the sprinkler is activated, the cellophane readily gives way. That's not true with plastic.

  Cellophane bags aren't hard to find (they're often used for food and as small gift bags). But it can be difficult to find ones that are thin enough, only 0.003 inches thick. The alternative: use thin paper bags, such as the cheapest unwaxed paper lunch bags you can find.

  Don't use masking paper. It's too thick and it's coated. Use as little tape as needed to secure the lunch or cellophane bag. Or consider tying the bags in place with lightweight string.
- Missing exhaust filters. Missing or gapping exhaust filters will increase your risk of fire and increase how much you pollute. The exhaust filters trap particulates that could clog your fan blades and your ductwork.
- Blocked exits. Even if your painters rarely use a booth's side walk door, it can't be blocked. Those walk doors provide your painters with escape routes – if the path to the exit is kept clear.
- Electrical cords or devices in spray booths. Unless these are designed for explosive atmospheres, keep them out of your booths. Devices used for drying or curing can be used as long as there is an interlock preventing any spraying when the drying device is in use and the booth has been purged (for at least three minutes) of any flammable vapors.
- Booth controls left open. There's a risk of shock, so keep them closed and only allow trained personnel to open them.
- Flammable materials stored in the booth and combustible material within a three feet area around your booth increase the fire risk.
- Cracked glass over light fixtures. It's cheaper to have sealed covers over your light fixtures than to have truly explosion-proof lights. If the covers are cracked, ignitable vapors can get into the light fixtures. Turning on the lights could spark a fire.
- Overpressurized booths keep dirt out but let overspray escape. That increases the exposure of other employees and increases the fire risk. If the door seals are bad, the paint vapors and overspray can escape into your shop, affecting your employees, instead of going up the stack.

To protect your shop from fire and your employees from chemical overexposure, only spray in areas protected by sprinklers and exhaust ventilation systems designed for paint. Check your booths routinely. Keep the sprinklers covered with lightweight paper bags or, if you can find them, very thin cellophane bags.

This article is intended to provide general information (no advice) about current safety topics. To discuss your specific concerns and how CHESS may help, please contact CHESS at 651-481-9787 or chess@chess-safety.com

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