

This Little Light of Mine

Candles aren't the only source of soot production. But in the majority of cases investigated by several building scientists and energy specialists, candles were somehow related to the appearance of stains.

Rick Graham and Craig Carter of Air-Right Energy Design in Catharpin, Virginia, say that they have seen an alarming rise in soot-staining complaints over the last two years. "The complaints are generally the same, with black markings on carpets and baseboards, and black particulate dusting on kitchen appliances and television screens," Graham says. "We also find particulate on HVAC filters and supply registers and have even found the stuff in freezers." Graham says that in the majority of homes he's investigated, candles were the main source of sooting. "In comparing information from all of the houses tested and performing our own tests, we found scented candles, jar candles, and oil candles appear to emit a higher soot output than standard wax candles," Graham says.

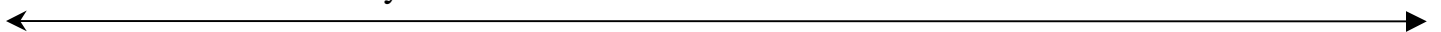
Ron Bailey, an engineer and owner of Bailey Engineering Corporation (BEC) in Palm Beach Gardens, Florida, has had similar experience. Once an engineering design firm, BEC found an increasing demand for forensic engineering--figuring out why buildings are failing. Many of these cases involved soot problems, and Bailey soon began focusing on candle usage. He built a small test lab in his facility to study the various candle types and how well they burned. "My mother used to burn candles; why is it just now that problems are showing up?" Bailey says. "In the last five years, the candle industry has doubled. Where candle making once used to be an art form, it is now simply mass marketing. We suspect that the use of lower-grade waxes and materials is resulting in a higher oil content, which produces more soot when burned."

Bailey's tests include burning different candles in small chambers while passing air through the box and through a filter. To compare the amount of soot production with the length of time candles are burning in a house, Bailey uses the term "candle hours." One candle burning for one hour is one candle hour. Five candles burning for one hour is five candle hours.

"We have a builder client who's experienced a number of soot-related complaints," says Bailey. "He offered us use of one of his model homes to conduct some tests in. We burned four candles for a total of 15 hours (60 candle hours), which produced enough soot in the house that we were forced to stop for fear of creating too much damage in the house. We had significant soot production on the walls, drapes, dishwasher, refrigerator, and AC filter."

Bailey explains that there are two issues to consider when looking at how a candle might soot. "The length, thickness, and strength of the wick highly influence how a candle burns," Bailey says, "and also what is in the candle wax itself." Today, there is a growing trend in the use of aromatic candles. Fragrances added to the wax should be made specifically for that purpose. High temperatures can cause different chemicals to behave differently once burned. "Five percent paraffin wax is good," says Bailey. "But with many of the candles in stores today, we find a mixture of materials, including some fragrances that were not intended for this use." The mixture of the various fragrances and chemicals can result in a candle that is going to burn dirtier than expected.

Wise buyers should attempt to find out what type of candle they are purchasing and what quality of wax the candle is made of. Obviously, this is not an easy task. At the very least, then, buyers should keep an eye out for any soot stains. They can place a new candle near the TV (turned on). After a few candle hours, users can wipe the screen with a clean, white tissue. They can repeat this test periodically. If soot problems become apparent, users should stop using those candles immediately.



Natural Vegetable Soy wax candles will continue to grow in popularity as consumers learn more about the dangers and contaminants of Paraffin candles that pervade their homes. Try one – you'll LOVE it!