Ask Jon Eakes

Green ooze from electrical outlets???

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Yes it happens -- but Why?
Two viewers have strange problems with their electrical outlets. One has had bright green oily ooze coming out of an electrical outlet on and off for the last two years. Changing the outlet didn't stop it. Another has green deposits at the outlet every time she uses her vacuum cleaner. What problem might these viewers have in common?

Let's start with the church roof
Look at copper roofs, like on churches or the Parliament building. Water, weather and the copper have created a green patina. In fact the critical elements are water, copper, and time. Add electricity and the greening process is accelerated. The contacts inside an electrical outlet are made of copper. The electrical activity is there any time you plug or unplug anything, and even a little could be draining off to ground all the time if there is moisture present. So where does the moisture come from?

Copper and water inside the house
In ordinary homes (not the new super energy efficient draft-proof homes), electrical outlets are often a path for cold air drafts. Moisture is always present in the house and if it floats into the wall through the outlet and if the outlet or the area around it becomes cold, you can get condensation. In fact if sometimes the hot blows out and other times the cold blows in, the condensation is actually increased -- the moisture first flows into the wall but then chills to condensation when the outdoor air blows back in. Up to 10 pounds of water can go through a single electrical outlet during a normal Canadian winter. If enough of that is condensing on the wires above the electrical box, you will get a very slow drip back down the wire.
Because it is possible for water, from whatever source, to follow a wire down and into the working parts of an electrical outlet, good electrical practice requires that wires be looped below the box and brought back up into the bottom of the box. But often the wires do enter the box from the top. A very slow but constant flow of condensation into the electrical outlet will create a current flow within the outlet, probably not enough to blow a fuse, but enough to set up the oxidation of the copper, and the creation of the green ooze.

But a vacuum cleaner problem?
How about that vacuum cleaner? The homeowner mentioned that it was a Rainbow vacuum cleaner. This is a vacuum cleaner with a water filter. This particular cleaner is very efficient at collecting dust, but adds tremendous quantities of moisture to any room where it is operating. This would seriously raise the humidity and if the outlets are cold, cause condensation inside the electrical box every time you use the vacuum cleaner, that is, precisely when there is electrical current going through the outlet. So now you have both moisture and electricity at the same time. Hence their "green deposits". Not ghosts, just building science. The primary solution? Replace the outlets with air-tight electrical boxes, or at least put gaskets under the face plates and anti-draft plugs into the unused outlets. This will make this hole in the wall air tight, stop the hot and cold air drafts, and keep the moisture away from the cold -- hence stopping the condensation. Reducing the humidity levels in the house could help as well. Replacing that vacuum cleaner outlet may be all you need on that inside wall to get a solid contact -- or plug the machine into the other room where there is less humidity.

I am sorry -- no ghosts here.

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