

Ask Jon Eakes

# Cold drafts through a new Patio Door that won't go away.

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Hugh from Vancouver wrote: Our patio door was single glazed and the cold came through it like there was no door there at all. We installed inside storms several years ago and the improvement was like night and day. A couple of years ago, we saw at a local mall show displays of their double glazed replacement patio door with low E2. Because we already have inside storms and we wanted to keep them, the salesman suggested we install their aluminum replacement door. (The handles of their vinyl door protruded into the room too much for us to keep the inside storms.) We thought with double glazing and with inside storms, we'll be warm with no cold drafts coming in... we were wrong... it was worst than before! We complained, the company replaced the weather-stripping. They adjusted the doors. They drilled holes in the door frame and sprayed foam inside. Nothing help. It's been two years now and for the last year every time I called them they would say they'll have someone call, but no one ever called. I've worked my way up from the salesman, to the foreman of installations, to the plant foreman and to the GM. Finally they sent an independent contractor to inspect the door. He said the installation was done right and there was nothing wrong with the door. The company told us that we are just imagining this cold draft. They said because the door was south-facing some drafts were to be expected. They said because the door was located at the corner of the house there was not much anyone can do. On a day like today, 10 degrees Centigrade, when sitting in front of the door, it feels like an air conditioner was turned on. On a windy day, the slats of my vertical louvers would sway. Can you shed any light into what's happening?-----

Reply Here is an interesting case that we need cold weather to work on, but we are in the middle of summer! Sorry about that. But let me give you some testing information anyway, that you can use as soon as your cold draft shows up again. There are three possible sources of draft around patio doors: Through the moveable parts because of problems with the weather-stripping; through the frame because of a lack of air sealing between the door frame and the house itself; by convection. You say the problem is worse on a windy day, leads me to think of air leaks -- despite everything your company has done. We can isolate these things to find out which one is the culprit. On a day when that draft is bothering you, take some two inch wide packing tape, like you can buy at the stationary store, thin, transparent, sticky and wide. Be careful with removing it from a painted surface to not peel off the paint. Masking tape doesn't stick well enough and duct tape sticks too well. Tape shut all the cracks that are weather-stripped. That means between all the moving parts and the frame. Also tape shut between the door frame and the wall trim, and between the wall trim and the wall itself. Don't forget to tape shut between the bottom track and the floor. Doing this will temporarily cut off the possibilities of drafts from weather-stripping and from air sealing problems. That leaves us just with convection. If the cold draft is still flowing down the doors, rattling the blinds and making you feel cold in the room, it is because the glass itself is quite cold. This cools the air at the top of the room and causes it to fall over the glass, gaining speed as it gets colder and colder while dropping. Why is the glass cold? Maybe the outside set of doors are not working well and are letting all the cold air into that set of storm doors? Open one of the doors and tape up all the possible drafts in the outside set of doors and then try it all again. If the problem goes away now, you have to work on improving the weather-stripping and indoor caulking on the outside set of doors. What is often not realized is that air moves into the outside walls through the siding, right around the caulking between the door and the siding, and then blows in beyond the door. Air sealing must be done on the inside edge of frames to be effective in existing houses. Usually drilling holes and shooting foam into the space between the door and the wall is a good technique, but when done after the original installation it is easy to not get a continuous seal, leaving one or more paths for air to continue to blow in. If everything is sealed

absolutely tight and you still have that draft, it really is convection, an indoor movement of air. This happens often on single pane windows and doors, rarely on double pane and is usually non-existent on triple pane. Whether the double or triple panes are manufactured units, or layers of windows or even the shrinkable plastic sheets isn't important as long as each one is air tight. If all this taping has stopped the problem we know that the problem is in fact air leakage. Remove one piece of tape at a time. Stop and check for the draft and then remove another. This will usually identify which crack is supplying the draft. In your case, I would probably wait for a windy day to try all of this, since your problem appears to be worst on a windy day. Professionals can go through all of this a bit faster with a thing called a smoke pencil which can detect drafts quickly and perhaps even a "blower door" that will create it's own draft through the walls, but the tape method is quite reliable and points you to the specific problem. If the problem is drafting through the frame, caulk it yourself on the inside. If the problem is weather-stripping, call the company back with your new evidence, or go to a glass store with a sample of the weather-stripping (glass stores have great stocks of weather-stripping types) and change the weather-stripping yourself. Some weather-stripping is better than others, so ask for the best, probably a brush like strip with a flexible plastic strip down the middle of the brushes. The brushes alone don't stop much air. The plastic strip alone would just bend over. The two together work well.

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