

COZY HOME CORNER

By the Zerodraft House Doctor

Seal Recessed Light Fixtures to Combat Wet Attics, Mould and Mildew

In recent columns, we've explored ways to combat air migration to the attic, which can result in condensation, mould and mildew, as well as comfort problems and increased energy consumption. In this column, we'll talk about sealing recessed light fixtures to help keep warm air in the living space where it belongs.

Recessed light fixtures go by many names – in Canada, they are often called potlights, while in the US they are called canlights, and in Australia they're referred to as downlights. Whatever you call them, recessed light fixtures have become extremely popular and are being installed in increasing numbers in rooms of all kinds, in both new construction and as a retrofit measure. The Canadian record for fixtures in one house leading to an attic is 166; in the U.S. it is 444.

If these fixtures are not properly sealed, the heat from the bulb warms the attic space when they are turned on, and when off (typically overnight), down drafting can occur and create severe discomfort for occupants.

Early fixtures, because of the heat build-up from the bulbs, had to be left exposed in the attic with a minimum six-inch uninsulated space around them. Subsequently, the electrical industry produced fixtures that had a tin box installed over the ballast, which enabled them to be insulated with electrical code approval. However, these boxes on newer fixtures are still unsealed in that the ballast box is vented. Some electrical contractors will claim they are sealed, but indeed they are not.

Recessed light fixtures must be sealed. They should also be insulated, but only when protected by a large enough wood or drywall box to prevent overheating. Even a newer fixture with its tin box will require a wood or drywall box over top of the tin box to allow heat from the bulb to dissipate. The sealing and insulation procedure we'll outline today follows boxing specifications from B.C. Hydro (www.bchydro.com).

Your box will need to be either 35cm wide x 1.2m long x 30cm high (14" wide x 48" long x 12" high) for an older fixture, or 53cm wide x 74cm long x 30cm high (21" wide x 29" long x 12" high) for a newer fixture. Boxes of these dimensions will, as a rule, dissipate enough heat to avoid a fire hazard or blowing bulbs

If you choose to hire a professional contractor for this project, they will probably use a two-component polyurethane foam sealant. However, this product is not generally available from hardware or lumber retail stores and must be obtained from an industrial supplier. If you plan to do the project yourself, you can choose either a one-component insulating foam sealant or caulking.

The idea is to create a perfectly airtight separation between the ceiling and the attic. Seal all the joints and seams in the box (this will also hold the pieces of drywall or wood together) and seal the bottom of the box to the ceiling. You will also need to seal where all electrical wires penetrate the box. After sealing, insulation can be blown or positioned over the box.

Occasionally, access above the light fixture is very difficult (for example, in low-slope roofing or cathedral ceiling situations). Also, on ground floor fixtures the rim joint around the ceiling space is often not effectively sealed at the time of construction. This particularly applies to older houses without plastic vapour barriers or house wraps for wind proofing. Such fixtures can be sealed from below using a combination of silicone caulking and foil tape, as long as you're sure that there is adequate space above the ceiling for heat dissipation from the shell of the light fixture.

