

## SMOKE AND CO DETECTORS

Smoke detectors and carbon monoxide detectors should be tested monthly. They should have the batteries replaced twice a year. This is usually done at day light savings time. Change the clocks change your batteries.

### OTHER USEFUL INFORMATION ABOUT SMOKE DETECTORS

#### WHY HOME SMOKE DETECTORS SHOULD BE REPLACED AFTER 10 YEARS

Smoke detectors are one of the most important safety features of your home. Properly installed, working smoke detectors will give you the early warning you need to safely escape from a fire. But how do you make sure your detectors are working? One important way is to replace them after 10 years.

As electronic devices, detectors are subject to random failures. Product, installation, and maintenance standards are used to assure products work as designed despite this. Part of the technical basis for the first detector product standard was an assessment of expected failure rate, estimated at four per million hours of operation or one every 30 years. Early field studies of detector reliability, notably by Canada's Ontario Housing Corporation, confirmed the essential accuracy of the estimate, restated as a 3% failure rate per year. This means a very small fraction of home smoke detectors will fail almost immediately, and 3% will fail by the end of the first year. After 30 years, nearly all the detectors will have failed, most years earlier.

#### HOW SOON SHOULD YOU REPLACE YOUR DETECTOR?

This is a value judgment. Only 3% of detectors are likely to fail in the first year, and annual replacement would be very expensive, so that doesn't make sense. At 15 years, the chances are better than 50/50 that your detector has failed, and that seems too big a risk to take. Manufacturers' warranties for the early detectors typically ran out in 3-5 years. So, in ten years there is roughly a 30% probability of failure before replacement. This seemed to balance safety and cost in a way that made sense to the responsible technical committees.

If a 30% failure probability seems to high, remember that replacement on a schedule is only a backup for replacement based on testing. A national study found that when home smoke detectors fail, tend to fail completely. Regular monthly testing will help discover detector failure as well as a dead or missing battery.

The same study showed all the inoperable detectors tested in 1992 were at least 5 years old and predated a 1987 change in product standards that reduced sensitivity to reduce nuisance alarms. Changes in detector chip design, among other improvements, make it likely that electronic failure now occurs at a rate much less than 4 times per million hours of operation.

Replacing detectors after 10 years protects against the accumulated chance of failure, but monthly testing is still your best means of making sure detectors work. Today's detectors are even less vulnerable than the older models to failure.