

Corporation for Battery Recycling

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Anthony Caputo, Chairman
MA Board of Fire Prevention Regulations
P.O. Box 1025
Stow, MA 01775

August 1, 2016

Dear Chairman Caputo and Members of the Board of Fire Prevention Regulations,

The Corporation for Battery Recycling (CBR) members Duracell and Energizer respectfully request this letter and the attached brief be submitted as written testimony against the proposed regulation (section 13.7.5.1.1) changes pertaining to smoke alarms powered by 10-year non-removable, non-replaceable batteries in residential structures which were built prior to 1975 and which contain 1-5 dwelling units.

Consumer safety is of the utmost importance. While we appreciate the current flexibility within the proposed regulations, we believe that they may unwittingly put consumers at risk. As further detailed in the attached brief, there are reliability concerns associated with these 10-year batteries, particularly as it relates to the adequacy of the testing methods used to substantiate "10 year" battery life. According to a study for the Center for Disease Control¹, for a subset of homes that had participated in the "Smoke Alarm Installation and Fire Safety Education Program", it was determined that only 78% of the smoke alarms with 10-year batteries were functional 8-10 years after installation. This mandate should not preclude consumers from choosing other proven life-saving devices that can make homes safer.

CBR is an organization committed to promoting responsible practices that ensure the safe and sustainable use and disposal of consumer batteries.

Thank you for your consideration of our testimony as we respectfully ask the Board to reject the proposed regulation changes as written. If the Board has any questions or requests for information please contact CBR Staff: Zach Koser, zkoser@kellencompany.com, 212-297-2137.

Respectfully,



Marcus Boolish
President
Corporation for Battery Recycling (CBR)

¹ Evaluation of the "10-Year" Smoke Alarm Project – Final Report, National Center for Healthy Housing. October 7, 2008, pg. 1-2. [http://www.nchh.org/Portals/0/Contents/Smoke Alarm Eval Report 1-09.pdf](http://www.nchh.org/Portals/0/Contents/Smoke%20Alarm%20Eval%20Report%201-09.pdf)

DURACELL

Energizer



Concerns with “10-Year” Battery Mandates

DURACELL

Duracell and Energizer are committed to consumer product safety and support efforts to improve the performance and life-saving capability of smoke detectors and similar devices.

1. **CONSUMER SAFETY IS PARAMOUNT** – and the proposed state mandates requiring the installation of “10-year” smoke alarms with sealed batteries has the unintended consequence of actually making consumers less safe. It effectively bans relatively inexpensive but proven life-saving products and further reduces consumer choice.
2. **QUALITY AND RELIABILITY CONCERNS:** All batteries are subject to the potential risk of premature expiration and the lithium manganese dioxide (Li/ MnO₂) batteries that currently power these “10-year, worry free” alarms are no exception.
 - Numerous consumer complaints regarding these alarms consistently speak to batteries which only lasted a few months or a few years before failing, far sooner than the purported “10-year” claims.
 - One study, conducted for the Center for Disease Control¹, for a subset of homes that had participated in the “Smoke Alarm Installation and Fire Safety Education Program”, concluded that **only** 78% of the smoke alarms still present and equipped with lithium batteries were functional 8-10 years after installation.
 - The accelerated testing methods used to qualify the battery and the alarm do not adequately simulate “real world” applications, and as a result, may over-estimate the capacity of the battery left at end-of-life, giving a false sense of security, when in reality, there may not be enough capacity to fully deliver 10 years of service life.
 - Some alarms on the market that claim to contain a “10-year battery” have not completed a full 10 years of testing and the “10-year service life” is based solely upon 1 or more years of testing at **constant temperature**, extrapolated for 10 years.
 - Unfortunately, homes are rarely, if ever maintained at a constant temperature and fluctuations in temperature and humidity will have a detrimental effect on battery performance (capacity), especially over a 10-year period.
 - Significant changes in temperature can have a negative effect on battery performance and service life as they promote corrosion reactions and increase the presence of impurities in the battery’s electrolyte.
 - The negative and harmful environmental corrosion effects associated with the entry of water vapor and carbon dioxide into the battery are drastically minimized with accelerated testing. The formation of films on the battery’s internal surfaces is greatly reduced in this abbreviated time frame. These films typically result in decreased battery performance – by minimizing this film formation, you effectively over-predict the batteries capacity at end-of-life.
3. **FALSE SENSE OF SECURITY / WASTEFUL PRACTICE:**
 - Consumers are apt to adapt an unsafe “Set-it and Forget-it” mentality when they see claims of “Worry-Free” / “Maintenance-Free” marked on the packages. These alarms still require periodic testing and cleaning.
 - A slow discharge over many years (characteristic of 10-year alarms) may introduce new failure modes for the battery associated with post partial discharge. We are seeing a marked increase in internal resistance in some MnO₂ based cells after only 55 months, which will also limit capacity.
 - Consistent messaging over the past 25 years of “Change Your Clock, Change Your Battery” will be obsolete
 - Once the battery fails, the whole alarm has to be replaced, not just the battery; these units are costlier
 - Lower income households would be less likely to have the recommended number of alarms in their homes as a result of the higher price point
4. **EXCLUSION OF OTHER LIFE-SAFETY MEASURES AND NEWER TECHNOLOGIES:**

Focusing on an arbitrary number for battery life will potentially preclude other technologies from being sold and may stifle innovation.

¹ *Evaluation of the “10-Year” Smoke Alarm Project – Final Report*, National Center for Healthy Housing. October 7, 2008, pg. 1-2. [http://www.nchh.org/Portals/0/Contents/Smoke Alarm Eval Report 1-09.pdf](http://www.nchh.org/Portals/0/Contents/Smoke%20Alarm%20Eval%20Report%201-09.pdf)