Department of Commerce

Ohio Board of Building Standards

RESIDENTIAL CODE OF OHIO: INTERPRETATIONS

These code interpretations are based upon reviews and recommendations from the Residential Construction Advisory Committee (RCAC) to the Ohio Board of Building Standards. After deliberation and review of the recommendations from the RCAC, the Board's Code Committee reports its recommendation to the full Board for action at a regularly scheduled conference meeting. Upon formal action of the Ohio Board of Building Standards, pursuant to ORC Sections 3781.10 and 4740.14, the interpretation will apply for enforcement of the *Residential Code of Ohio for 1-, 2-, and 3-Family Dwellings*.

OHIO BOARD OF BUILDING STANDARDS
RESIDENTIAL CODE OF OHIO CODE INTERPRETATIONS

CHAPTER 3

No. 1-2025
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SECTION 314
Smoke Alarms

314.1.1 Listings. Smoke alarms shall be listed and labeled in accordance with UL 217. Combination smoke and carbon monoxide alarms shall be listed and labeled in accordance with UL 217 and UL 2034.

314.1.2 Technologies. On each level within each dwelling unit, smoke alarms utilizing photoelectric and ionization technologies shall be installed. Separate or dual-sensing smoke alarms may be used. A smoke alarm in accordance with Section 314.3(2) shall include photoelectric technology.

314.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the sleeping rooms.
3. On each additional story of the dwelling, including basements and habitable attics and not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by this section.

Q. How can I comply with the dual technologies requirement of Residential Code of Ohio (RCO) § 314.1.2 if one of the two technologies required is discontinued?

A. Smoke alarms utilizing other technologies or combinations of technologies that are listed and labeled in accordance with the 8th edition or later of UL 217 may be approved as prescriptive products through § 114.3.1.2 of the RCO for installation in 1-, 2- & 3-family dwellings in place of the devices utilizing the technologies specified in RCO § 314.1.2. Placement is determined as though the devices offers "dual technology."

Q. Can I still comply with Residential Code of Ohio (RCO) § 314 with devices that meet the 6th edition of UL 217, as currently referenced in RCO Chapter 44?

A. Yes. Until the Board updates the edition of the UL 217 Standard referenced in RCO Chapter 44, devices listed and labeled in accordance with the 6th edition of the standard may still be used so long as the technology requirements of current RCO § 314.1.2 are met.

Background

The current requirements in RCO § 314.1.2 requiring the installation of both ionization and photoelectric technologies in 1-, 2- & 3-familiy dwellings was originally adopted by the Board on January 1, 2016, to recognize the then two primary types of technology: ionization- and photoelectric-based detection units. Ionization detection technology uses a small amount of radioactive material to ionize the air between two differently charged electrodes to sense the presence of smoke particles. Photoelectric detection technology uses a light source and a photosensitive sensor. When smoke particles enter the light path, some of the light is scattered and some is absorbed, thereby reducing the light reaching the sensor. See the BBS 2016 Publication Smoke Alarms and Fire Safety.

Since these devices perform differently and detect smoke particles in different ways, the Board determined to require both technologies for maximum protection. However, since the adoption of the dual technology requirement in the RCO, smoke detection technology has further evolved. Beginning with the 8th Edition of UL 217, significant changes were made to the standard that address new fire test scenarios, advanced smoke sensing technology, enhanced sensitivity and response times, durability and environmental testing, and protection against surges on commercial AC power lines. See UL Solutions Fact Sheet UL 217, Standard for Smoke Alarms Published with New Technical Requirements.

The Board has learned that due to these changes to the 8th edition or later of UL 217 requires certain performance requirements of smoke alarms today that the traditional technologies specified by the RCO may no longer be able to meet. Additionally, we have learned from manufacturers, contractors, and certified building department personnel that the market is quickly liquidating its supply of older technology smoke alarms to make room for the newer technologies that meet the 8th edition or later of UL 217.

In its next code update, the code will be modified to remove RCO § 314.1.2 specifying certain technologies. Until those amendments are adopted, the Board has determined that devices listed and labeled in accordance with 8th edition or later of UL 217 meet the intent of the dual technology requirements of § 314.1.2 and may be installed instead of specified photoelectric or ionization devices so long as they are installed in accordance with the standard and the manufacturers installation requirements.

Finally, if an owner installs only devices listed and labeled in accordance with the 6th edition of UL 217 as currently referenced in RCO Chapter 44, then the devices must continue to meet the dual technology requirements of RCO § 314.1.2.