



Standard Practice for Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings¹

This standard is issued under the fixed designation E2121; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice describes methods for reducing radon entry into existing attached and detached residential buildings three stories or less in height. This practice is intended for use by trained, certified or licensed, or both, or otherwise qualified individuals.

1.2 These methods are based on radon mitigation techniques that have been effective in reducing radon levels in a wide range of residential buildings and soil conditions. These fan powered mitigation methods are listed in [Appendix X1](#). More detailed information is contained in references cited throughout this practice.

1.3 This practice is intended to provide radon mitigation contractors with a uniform set of practices that will ensure a high degree of safety and the likelihood of success in retrofitting low rise residential buildings with radon mitigation systems.

1.4 The methods described in this practice apply to currently occupied or formerly occupied residential buildings, including buildings converted or being converted to residential use, as well as residential buildings changed or being changed by addition(s) or alteration(s), or both. The radon reduction activities performed on new dwellings, while under construction, before occupancy, and for up to one year after occupancy, are covered by Guide [E1465](#).

1.5 This practice also is intended as a model set of practices, which can be adopted or modified by state and local jurisdictions, to fulfill objectives of their specific radon contractor certification or licensure programs. Radon mitigation performed in accordance with this practice is considered ordinary repair.

1.6 The methods addressed in this practice include the following categories of contractor activity: general practices,

building investigation, systems design, systems installation, materials, monitors and labeling, post-mitigation testing, and documentation.

1.7 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.8 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. See Section 6 for specific safety hazards.*

2. Referenced Documents

2.1 ASTM Standards:²

[E631 Terminology of Building Constructions](#)

[E1465 Practice for Radon Control Options for the Design and Construction of New Low-Rise Residential Buildings](#)

[E1745 Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs](#)

2.2 Government Publications:

[EPA “Asbestos School Hazard Abatement Reauthorization Act,” regulation 40 CFR Part 763, Subpart E.](#)³

[EPA “A Citizen’s Guide to Radon \(Second Edition\),” EPA 402-K92-001, May 1992.](#)³

[EPA “Consumer’s Guide to Radon Reduction,” EPA 402-K92-003, August 1992.](#)³

[EPA “Handbook, Sub-Slab Depressurization for Low-Permeability Fill Material,” EPA/625/6-91/029, July 1991.](#)³

[EPA “Home Buyers and Sellers Guide,” EPA 402-K-00-008, July 2000.](#)³

[EPA “National Emission Standard for Asbestos,” 40 CFR 61, Subpart M.](#)³

¹ This practice is under the jurisdiction of ASTM Committee [E06](#) on Performance of Buildings and is the direct responsibility of Subcommittee [E06.41](#) on Air Leakage and Ventilation Performance.

Current edition approved March 1, 2013. Published March 2013. Originally approved in 2001. Last previous edition approved in 2012 as E2121 – 12. DOI: 10.1520/E2121-13.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

³ Available from United States Environmental Protection Agency (EPA), Ariel Rios Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460, <http://www.epa.gov>.