



Designation: E 2271 – 04

An American National Standard

Standard Practice for Clearance Examinations Following Lead Hazard Reduction Activities in Single-Family Dwellings and Child-Occupied Facilities¹

This standard is issued under the fixed designation E 2271; 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 combines visual assessment for the presence of deteriorated paint, surface dust, painted debris, and paint chips with environmental sampling of surface dust to determine whether a lead hazard exists at the time of sample collection, following abatement, other lead-hazard reduction activities, or building maintenance or modification activities.

1.2 This practice addresses clearance examination of single-family residential dwellings and child-occupied facilities.

1.3 This practice also addresses clearance examinations that may include soil sampling, for example when soil abatement has been performed.

1.4 This practice includes a procedure for determining whether regulatory requirements for lead clearance levels for dust and, where warranted, soil have been met, and, consequently whether a clearance area, passes or fails a clearance examination.

NOTE 1—This practice is consistent with that portion of “clearance” described in 40 CFR Part 745 for abatement, and in 24 CFR 35 for lead-hazard reduction activities other than abatement.

1.5 The values stated in SI units are to be regarded as the standard.

1.6 *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.*

2. Referenced Documents

2.1 ASTM Standards:²

D 4840 Guide for Sampling Chain-of-Custody Procedures

¹ This practice is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.23 on Lead Hazards Associated With Buildings.

Current edition approved April 1, 2004. Published April 2004. Originally approved in 2003. Last previous edition approved in 2003 as E 2271 – 03.

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.

D 5124 Practice for Testing and Use of a Random Number Generator in Lumber and Wood Products Simulation

E 631 Terminology of Building Constructions

E 1480 Terminology of Facility Management (Building-Related)

E 1605 Terminology Relating to Lead in Buildings

E 1727 Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques

E 1728 Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination

E 1792 Specification for Wipe Sampling Materials for Lead in Surface Dust

E 1864 Practice for Evaluating Quality Systems of Organizations Engaged in Conducting Facility and Hazard Assessments for Lead in Paint, Dust, Airborne Particulate, and Soil In and Around Buildings and Related Structures

E 2239 Practice for Record Keeping and Record Preservation for Lead Hazard Activities

E 2255 Practice for Conducting Visual Assessments for Lead Hazards in Buildings

2.2 U.S. Regulations:

24 CFR (Code of Federal Regulations) 35, Department of Housing and Urban Development (HUD), Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Property and Housing Receiving Federal Assistance³

40 CFR 745, Environmental Protection Agency (EPA), Lead-Based Paint Poisoning Prevention in Certain Residential Structures (especially subparts D, L and Q)³

2.3 Governmental Agency Guidance:

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, HUD-1539-LBP, June 1995, revised September 1997 (“HUD Guidelines”)⁴

³ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401. Also available from <http://www.gpo.gov/nara/cfr/index.html>.

⁴ Available from HUD USER, P.O. Box 6091, Rockville, MD 20849.

National Lead Laboratory Accreditation Program (NLLAP)⁵

3. Terminology

3.1 *Definitions*—For definitions of terms related to this practice that do not appear in this section, refer to Terminologies E 631, E 1605, and E 1480.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *clearance area, n*—work area and additional spaces outside the work area where lead contamination may have occurred during lead hazard control and other building maintenance or modification activities.

3.2.1.1 *Discussion*—The spaces outside the work area may include rooms connected to the work area, egress routes, waste storage areas, and grounds adjoining exterior work areas.

3.2.2 *lead hazard reduction, n*—any measure that results in a lessening of the number or extent, or both, of lead hazards.

3.2.3 *surface dust, n*—particulate matter on a surface.

3.2.3.1 *Discussion*—For lead hazard activities, the particulate matter may be transported to the surface by various means such as through the air or by tracking or be produced by deterioration of the surface.

3.2.4 *work area, n*—the interior or exterior space where lead hazard control or other building maintenance or modification activities are performed.

3.2.4.1 *Discussion*—The interior work space may include (1) a portion of a room, an entire room, or room equivalent, or (2) portions of multiple rooms, multiple rooms or room equivalents, dependent upon the extent or location, or both, of the lead hazard control activity. The exterior work space may include (1) a portion of a building façade or an entire building façade and (2) bare soil.

4. Significance and Use

4.1 A clearance examination of abatement areas and areas associated with other lead-hazard control activities in single-family residential dwellings and child-occupied facilities is performed to determine that the clearance area is adequately safe for reoccupancy.

4.2 It is the responsibility of the user of this standard to assure that all regulatory, contractual, and personnel requirements are met prior to conduct of a clearance examination. At a minimum, users of this standard shall be trained in its use and in safe practices for its conduct.

4.3 This practice is one of a set of standards developed for lead hazard management activities. The visual assessment procedures required in this standard are found in Practice E 2255 and the record keeping requirements are found in Practice E 2239.

4.4 Although this practice was primarily developed for residential dwellings and child occupied facilities, this practice is also applicable to nonresidential buildings and related structures, as may be needed, by agreement between the client and the individual conducting the clearance examination.

4.5 This practice may be used by owners and property managers, including owner-occupants, and others responsible

for maintaining facilities. It may also be used by lead hazard management consultants, construction contractors, labor groups, real estate and financial professionals, insurance organizations, legislators, regulators, and legal professionals.

5. General Requirements

5.1 *Applicable Regulations*—The clearance examination shall be conducted in accordance with all regulations promulgated by authorities having jurisdiction. Applicable regulations are those that are currently in force in jurisdictions where the clearance examination is conducted.

5.2 *Personnel Qualifications*—All persons conducting or participating in the clearance examination shall be qualified in accordance with regulations promulgated by authorities having jurisdiction.

NOTE 2—For example, in the United States of America, see 40 CFR Part 745 Subpart L, 24 CFR Part 35.

5.3 *Reporting Schedule*—Before arriving at the property, determine with the client the schedule for reporting the results of the clearance examination. Specify in hours or days when the clearance summary and clearance report are due to the client. Consider in the reporting schedule the following: when the last sample for the clearance examination is to be collected; when the results of testing are to be available; and, whether and how reoccupancy, additional construction, or maintenance work, or other factors affect the schedule.

5.4 *Dust Wipe Sampling Materials*—Use only dust wipes that meet Specification E 1792 to collect samples of surface dust.

5.5 *Dust Sampling Procedure*—Collect surface dust wipe samples in accordance with Practice E 1728. Record the unique location description, unique sample identifier, the dimensions of the area sampled, and all other sample collection information on the Paint/Dust/Debris Data Form (given in Practice E 2255).

5.6 *Soil Sampling Procedure*—When required, collect soil samples in accordance with Practice E 1727. Record the unique location description, unique sample identifier, and all other sample collection information on the Ground Data Form (given in Practice E 2255).

5.7 *Laboratory Selection:*

5.7.1 Use only laboratories that hold the necessary accreditations, certifications, and recognitions needed to conduct lead testing services required by regulations promulgated by authorities having jurisdiction.

NOTE 3—For example, in the United States of America, laboratories are recognized for analysis of lead in soil or dust wipe samples, or both, as applicable, by the U.S. Environmental Protection Agency (EPA) through the National Lead Laboratory Accreditation Program (NLLAP).

6. Activities Conducted Prior to Visual Assessment and Sample Collection

6.1 *Define the Clearance Area:*

6.1.1 Determine the clearance area with the client or client's designee.

6.1.1.1 If the location of the interior work area in which the lead hazard reduction or other building maintenance or modification activity was performed is unknown, the clearance

⁵ <http://www.epa.gov/opptintr/lead/index.html>

examiner shall assume that the clearance area is the entire interior of the dwelling.

6.1.1.2 If the exterior work area upon which hazard reduction or other building maintenance or modification activity was performed is unknown, the clearance examiner shall assume that the clearance area is the entire exterior property.

6.2 *Secure Contract*—A contract shall be secured and include:

6.2.1 Signed releases permitting entry to the property and for conducting the clearance examination, as may be needed, prior to attempting entry to the property,

6.2.2 Permission to acquire and review available property construction records and any other records appropriate to the conduct of the clearance examination,

6.2.3 Permission to collect samples,

6.2.4 Description of the work area, and

6.2.5 Description of the clearance area.

6.3 *Prepare Floor and Site Plan(s)*:

6.3.1 Prepare a floor plan (interior) or property site plan (exterior), or both, to cover all work and associated areas, as applicable, in accordance with Practice E 2255. Each plan shall be used to record clearance examination activities including:

6.3.1.1 Location of the clearance area,

6.3.1.2 Locations from which samples of soil or surface dust, or both, were collected prior to a lead hazard or other building maintenance or modification activity (see Note 4),

NOTE 4—These samples of soil or surface dust, or both, may have been collected to document lead levels prior to the conduct of abatement, other lead hazard activities, and other building maintenance or modification activities.

6.3.1.3 Area(s) used for the storage of debris and waste,

6.3.1.4 Route(s) used by workers to walk from the work area to the exterior of the building,

6.3.1.5 Locations(s) where deteriorated paint, surface dust, paint chips, and painted or unpainted debris (if any) had been observed within the work area during visual examination(s), and performed prior to the lead hazard reduction or other building maintenance or modification activity.

6.4 *Clearance Examination Initiation*:

6.4.1 Verify with the client or client's designee, that the lead hazard reduction or other building maintenance or modification activity has been completed before initiating the visual assessment.

6.4.2 Wait at least 1 h after cleaning has been completed before initiating the visual assessment to allow airborne dust to settle.

7. Protocol for Interior Visual Assessment

7.1 Conduct visual assessments of all areas in accordance with Practice E 2255.

7.1.1 *Spaces Outside the Work Area*—Assess each space outside the work area but within the clearance area.

7.1.1.1 *Storage Areas*—Assess each room connected to the work area for the presence of surface dust and painted debris. If no surface dust or painted debris is observed, the room connected to the work area passes visual assessment. Any observation of surface dust or painted debris constitutes failure.

7.1.1.2 *Rooms Connected to the Work Area*—Assess each storage area, if any, where painted debris or other lead hazard reduction or other building maintenance or modification waste has been stored. If no painted debris or other lead hazard reduction or building maintenance or modification waste is observed, the storage area passes visual assessment. Any observation of painted debris or lead hazard reduction waste constitutes failure.

7.1.1.3 *Egress Routes*—Assess egress routes for the presence of surface dust and painted debris. If no surface dust or painted debris is observed in an egress route, the egress route passes visual assessment. Any observation of surface dust or painted debris constitutes failure.

7.1.2 *Work Area*—Assess the work area for the presence of deteriorated paint, surface dust, and painted debris. Any observation of deteriorated paint, surface dust, or painted debris indicates that the work area has failed visual assessment. If no deteriorated paint, surface dust, or painted debris is observed, the work area passes visual assessment.

7.2 If any part of the clearance area does not pass visual assessment, advise the client or the client's designee, or both, that corrective action, such as recleaning of the area or removal of debris and waste, or both, are required prior to performance of another visual examination.

7.3 If the clearance area passes visual assessment, proceed to collect samples of surface dust as described in Section 8.

8. Protocol for Interior Settled Dust Sampling

8.1 Collect a wipe sample of surface dust for each sampling location described in 8.2 through 8.6 in accordance with Practice E 1728.

8.2 Record on the floor plan locations from which dust wipe samples are collected.

8.3 *Floor and Windows within the Work Area*—Select either Procedure A or Procedure B to determine sampling locations for collecting floor and window dust-wipe samples within the work area. See Note 5.

NOTE 5—Surfaces affected as a consequence of a failed clearance analysis result depend on the whether Procedure A or Procedure B was used to sample the work area. In the case of Procedure A, a failed clearance analysis result means that only the floor or window surface represented by this result fails clearance. In Procedure B, because a few floor and window sampling sites are intended to represent all floors and window surfaces within the work area respectively, a failed clearance analysis result means all floor or window surfaces represented by the sample except for those for which acceptable dust-lead levels were obtained fail clearance. See 11.1.2.1.

8.3.1 In procedure A, independent of the number of rooms in the clearance area, floor sampling locations are identified in every portion of a room, entire room, or room equivalent and every window. The result of a dust wipe analysis applies only to the surface that was sampled.

8.3.2 In procedure B, depending on the number of rooms in the clearance area, floor sampling locations are identified in all or at least four portions of a room, entire rooms, or room equivalents and one window in each portion of a room, entire room or room equivalent. In most cases, the result of a dust wipe analysis applies to all the surfaces that are represented by the sample.