



Designation: E 2271 – 03

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, settled dust, painted debris, and paint chips with environmental sampling of settled dust to report the leaded-dust hazard level at the time of sample collection, in and around single-family residential dwellings or child-occupied facilities following abatement and other lead-hazard reduction activities.

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

1.3 This practice provides a procedure for determining whether regulatory requirements for dust-lead levels and soil-lead levels have been met, and, consequently whether a work area, or a portion of a work 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.

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

1.5 *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:

- D 4840 Guide for Sampling Chain-of-Custody Procedures²
- D 5124 Practice for Testing and Use of a Random Number Generator in Lumber and Wood Products Simulation³

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.

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² Annual Book of ASTM Standards, Vol 11.01.

³ Annual Book of ASTM Standards, Vol 04.10.

E 631 Terminology of Building Constructions⁴

E 1480 Terminology of Facility Management (Building-Related)⁴

E 1605 Terminology Relating to Abatement of Hazards from Lead-Based Paint in Buildings and Related Structures⁴

E 1727 Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques⁵

E 1728 Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques⁵

E 1792 Specification for Wipe Sampling Materials for Lead in Surface Dust⁵

E 1864 Practice for Evaluating Quality Systems of Organizations Engaged in Conducting Facility and Hazard Assessments to Determine the Presence and Extent of Lead in Paint, Dust, Airborne Particulate, and Soil In and Around Buildings and Related Structures⁵

E 2239 Record Keeping and Record Preservation for Lead Hazard Activities⁵

E 2255 Practice for Conducting Visual Assessments for Lead Hazards in Buildings⁵

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 Assistance⁶

40 CFR 745, Environmental Protection Agency (EPA), Lead-Based Paint Poisoning Prevention in Certain Residential Structures (especially subparts D, L and Q)⁶

2.3 Governmental Agency Guidance:

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, HUD-1539-LBP, June 1995,

⁴ Annual Book of ASTM Standards, Vol 04.11.

⁵ Annual Book of ASTM Standards, Vol 04.12.

⁶ Available from Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7954. Also available from <http://www.gpo.gov/nara/cfr/index.html>.

revised September 1997 (“HUD Guidelines”)⁷
National Lead Laboratory Accreditation Program (N-LLAP)⁸

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 examination, n*—a process conducted after a lead hazard reduction activity to determine that the hazard reduction activity is complete and that no dust-lead or soil-lead hazards remain in the area examined.

3.2.2 *clearance level, n*—the amount of lead in dust samples that is not to be equaled or exceeded so that a residential dwelling or child-occupied facility is classified as adequately clean and safe for re-occupancy, as promulgated by authorities having jurisdiction.

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

3.2.4 *painted debris, n*—pieces of detached substrate or construction waste completely or partially coated with paint.

3.2.5 *professional judgement, n*—for clearance examination, a decision made by the individual conducting the clearance examination as to where dust wipe and soil samples should be taken.

3.2.5.1 *Discussion*—The decision takes into account the type of lead hazard reduction activity conducted prior to the clearance examination and the visual observations made of the spaces in the clearance examination.

3.2.6 *random sample, n*—a sample selected from a population using a randomization process; in particular, a subset drawn from a population in a way that allows each member of the population to have an equal chance of being selected with uniform probability, using a randomization procedure such as a random-number generator, the flip of an unbiased coin, or the cast of an unbiased die to determine which member(s) of the population is (are) selected to enter the subset as a sample.

3.2.7 *room equivalent, n*—an identifiable exterior or interior area that is of different usage than surrounding area(s), or appears by visual or other evidence to have a different painting history. For example: a hallway; a stairway; an exterior play area; or, an exterior building surface with a different painting history.

3.2.8 *sampling location, n*—a specific area within a sampling site that is subjected to sample collection.

3.2.8.1 *Discussion*—Multiple sampling locations are commonly designated for a single sampling site.

3.2.9 *settled dust, n*—particulate matter that has precipitated onto a surface.

3.2.10 *sampling site, n*—a local place that contains the sampling locations.

3.2.10.1 *Discussion*—A sampling site is generally limited to an area that is easily covered by walking, for example, an apartment building or a single-family residence.

3.2.11 *work area, n*—the area within which lead hazard control activities are performed. The work area 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.

4. Significance and Use

4.1 Although this practice was primarily developed for residential buildings, 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. 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 work area, and possibly areas adjoining or related to the work area, is adequately clean and is safe for reoccupancy.

4.2 It is the responsibility of the user of this standard to assure that all statutory, regulatory, contractual, and other personnel qualifications are met prior to conduct of procedures herein. At a minimum, users of this standard shall be trained in its use and in safe practices for 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 E 2255 and the record keeping requirements are found in E 2239.

4.4 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 to do so 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. The schedule should individually specify in hours or days when the clearance summary, clearance report, and the project report are due to the client. The reporting schedule should consider 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 settled dust.

⁷ Available from HUD USER, P.O. Box 6091, Rockville, MD 20849.

⁸ <http://www.epa.gov/opptintr/lead/index.html>

5.5 Dust Sampling Procedure—Collect settled 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 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 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 of the sample types (soil or dust wipe samples, or both) as 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 Clearance Examination

6.1 Define the Work Area:

6.1.1 Determine the location and size of the work area with the client or client's designee.

6.1.1.1 If the location of the interior space(s) within which the hazard reduction activity was performed is unknown, the clearance examiner shall assume that the entire interior of the dwelling is to undergo clearance examination.

6.1.1.2 If the exterior surface upon which hazard reduction activity was performed is unknown, the clearance examiner shall assume that the entire property (interior and exterior) is to undergo clearance examination.

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, and

6.2.4 Description of the work area.

6.3 Prepare 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 E 2255. Each plan shall be used to record and report clearance examination activities including:

6.3.1.1 Location of the activity for which the clearance examination was conducted,

6.3.1.2 Locations from which pre-activity samples of soil and settled dust were collected (see Note 4),

NOTE 4—Pre-activity samples of soil and/or settled dust, upon notice to the client, may be collected to document lead levels prior to the conduct of abatement and non-abatement 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, settled dust, paint chips, and painted or unpainted debris (if any) were observed within the work area during visual examination(s), and

6.3.1.6 Locations from which post-activity soil samples and wipe samples of settled dust were collected.

6.4 Clearance Time:

6.4.1 Verify with the client or client's designee, that the lead hazard reduction activity (including completion of cleaning, breakdown, and final cleaning of erected containment if utilized) has been completed.

6.4.2 Wait at least 1 h after the lead hazard reduction clean-up activities are completed before initiating the clearance examination to allow airborne dust to settle.

7. Protocol for Interior Visual Assessment

7.1 Conduct a visual assessment in each interior area, if any, where painted debris or other lead hazard reduction waste has been stored. If no painted debris or lead hazard reduction waste is observed, the storage area passes visual assessment. An observation of painted debris or lead hazard reduction waste constitutes failure.

7.2 In accordance with E 2255, assess the work area for the presence of deteriorated paint, settled dust, and painted debris. Any observation of deteriorated paint, settled dust, or painted debris indicates that the work area has failed visual assessment. If no deteriorated paint, settled dust, or painted debris is observed, the work area passes visual assessment.

7.3 If a storage area or the work area, or both, does not pass visual assessment, advise the client or the client's designee, or both, that recleaning of the area or removal of debris and waste, or both, are required prior to performance of another visual examination.

7.4 If the storage area(s) and the work area pass visual assessment, proceed to collect samples of settled dust as described in Section 8.

8. Protocol for Interior Settled Dust Sampling

8.1 Collect a wipe sample of settled dust for each sampling location described in 8.2 through 8.5.

8.2 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.

NOTE 5—Surfaces affected as a consequence of a failed clearance analysis result depend on the procedure used to sample the work area, which may include many portions of rooms, entire rooms (or room equivalents) and windows. 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.

8.2.1 In procedure A, 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.