Designation: E2271/E2271M – 18

Standard Practice for Clearance Examinations Following Lead Hazard Reduction Activities in Multifamily Dwellings[1]

This standard is issued under the fixed designation E2271/E2271M; 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 covers 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 lead-hazard reduction activities, or other building maintenance and modification activities.

1.2 This practice addresses clearance examination of multifamily dwellings having similar units, common areas or exterior sites.

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 based on 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, except that composite dust sampling as described therein is not used.

1.5 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D4840 Guide for Sample Chain-of-Custody Procedures

D5124 Practice for Testing and Use of a Random Number Generator in Lumber and Wood Products Simulation

E631 Terminology of Building Constructions

E1480 Terminology of Facility Management (Building-Related)

E1583 Practice for Evaluating Laboratories Engaged in Determination of Lead in Paint, Dust, Airborne Particulates, and Soil Taken From and Around Buildings and Related Structures

E1605 Terminology Relating to Lead in Buildings

E1727 Practice for Field Collection of Soil Samples for Subsequent Lead Determination

E1728 Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination

E1792 Specification for Wipe Sampling Materials for Lead in Surface Dust

E2239 Practice for Record Keeping and Record Preservation for Lead Hazard Activities

E2255/E2255M Practice for Conducting Visual Assessments for Lead Hazards in Buildings

E3074/E3074M Practice for Clearance Examinations Following Lead Hazard Reduction Activities in Single Family Dwellings, in Individual Units of Multifamily Dwellings, and in Other Child-Occupied Facilities

2.2 *U.S. Regulations:*[3]

24 CFR (Code of Federal Regulations) 35, Department of Housing and Urban Development (HUD), Requirements

[1] This practice is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.12 on Sampling and Analysis, of Lead, for Exposure and Risk Assessment.

Current edition approved April 1, 2018. Published May 2018. Originally approved in 2003. Last previous edition approved in 2012 as E2271 – 05a (2012)ε1. DOI: 10.1520/E2271_E2271M-18.

[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 U.S. Government Publishing Office (GPO), 732 N. Capitol St., NW, Washington, DC 20401, http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR.

for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Property and Housing Receiving Federal Assistance (especially subparts B and R)

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

2.3 *Governmental Agency Guidance:*[4,5]

EPA National Lead Laboratory Accreditation Program (NLLAP)

3. Terminology

3.1 *Definitions*—For definitions of terms not appearing here, see Terminologies E631, E1480, and E1605.

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

3.2.2.1 *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, depending 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, an entire building façade, associated structures, such as fences, and *(2)* bare soil.

4. Significance and Use

4.1 A clearance examination of abatement areas and other areas associated with other lead-hazard control activities, or building maintenance or modification activities in multifamily dwellings having similar units, common areas or exterior sites 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 E2255/E2255M and the record keeping requirements are found in Practice E2239.

4.4 Although this practice was primarily developed for multifamily dwellings, this practice may be also applied to nonresidential buildings and related structures 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.

4.6 This standard does not address whether lead-hazard reduction activities or other building modification or maintenance work were done properly.

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, 40 CFR Part 745, Subpart L, or 24 CFR Part 35, Subpart R, or both, may apply.

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 E1792 to collect samples of surface dust.

5.5 *Dust Sampling Procedure*—Collect surface dust wipe samples in accordance with Practices E1728 and E3074/E3074M. 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 E2255/E2255M).

5.6 *Soil Sampling Procedure*—When required, collect soil samples in accordance with Practice E1727. Record the unique location description, unique sample identifier, and all other sample collection information on the Ground Data Form (given in Practice E2255/E2255M).

5.7 *Laboratory Selection:*

5.7.1 Use only laboratories (fixed site, mobile, or field operational) that meet Practice E1583, or hold the necessary accreditations, certifications, and recognitions needed to conduct lead testing services required by regulations promulgated by authorities having jurisdiction, or both.

[4] Available from U.S. Dept. of Housing and Urban Development (HUD), 451 7th Street SW, Washington DC 20410, https://www.hud.gov/program_offices/healthy_homes/.

[5] Available from United States Environmental Protection Agency (EPA), William Jefferson Clinton Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460, http://www.epa.gov.

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 *Permissions and Releases*—In advance of carrying out the Clearance Examination, obtain the following:

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

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

6.1.3 Permission to collect samples.

6.2 *Consider Random Sampling of Dwelling Units in Multifamily Dwellings:*

NOTE 4—Random sampling of similar units, areas, or sites in multifamily dwellings or groups of other detached dwellings may be permitted in regulations promulgated by authorities having jurisdiction. For example, in the United States of America, see 40 CFR 745.227(e)(9) and 24 CFR 35.1340(b)(2) or other regulations promulgated by authorities having jurisdiction. Regulations can be found at www.epa.gov/lead or http://www.hud.gov/offices/lead/index.cfm.

6.2.1 Determine with the client or client's designee whether to conduct clearance examination in a random sample of multifamily dwelling units, common areas, or exterior sites, or all three. If random sampling is not acceptable, continue with 6.3. Otherwise,

6.2.2 Group units, areas, or sites, or all three, having similar construction and maintenance history based on written documentation or visual evidence.

6.2.3 Determine the number(s) of distinct dwelling units, common areas or exterior sites, or all three, in which clearance examination will be performed using statistical methods or other referenced methods to estimate mean lead contents.

NOTE 5—In the United States of America, The U.S. Department of Housing and Urban Development (HUD) has developed guidance on determining the appropriate number of samples to include in lead inspections, risk assessment, and clearance examinations.

6.2.4 For each group of dwelling units, common areas, and exterior sites identified in 6.2.2, prepare a table that uniquely describes each unit, area or site within the group.

6.2.5 Create a list of random numbers for each group of dwelling units, common areas, or exterior sites identified in 6.2.2 having a length corresponding to the number of units, areas, or sites in the group. Use a random number generator meeting the randomness quality measure of Practice D5124.

6.2.6 For each unit, area or site, record the list of random numbers in the corresponding table developed in 6.2.4, associating a random number with each unit, area, or site.

6.2.7 Sort each group of units, areas, or sites in either ascending or descending order, determined prior to sorting the table, of the corresponding random numbers.

6.2.8 Select the random sample of units, areas, or sites beginning at the top of the sorted list using the number of units, areas, or sites to be included in the random sample from 6.2.3.

6.2.8.1 When access cannot be gained to a selected dwelling unit, common area, or exterior area, select the next such location on the corresponding sorted table.

6.3 *Determine Clearance Area*—Determine the clearance area with the client or client's designee.

6.3.1 For multifamily housing, agree on the specific dwelling units.

6.3.2 If within a specific dwelling unit 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 examiner shall assume that the clearance area is the entire interior of the dwelling.

6.3.3 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.

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

6.4.1 Prepare a floor plan (interior) or property site plan (exterior), or both, to cover all the clearance areas, as applicable, in accordance with Practice E2255/E2255M for each dwelling unit, common area or exterior site to be examined. Each plan shall be used to record clearance examination activities including:

6.4.1.1 Location of the clearance area,

6.4.1.2 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 6),

NOTE 6—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.

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

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

6.4.1.5 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).

6.5 *Clearance Examination Initiation:*

6.5.1 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.

6.5.2 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 clearance areas in each dwelling unit, common area, or exterior site to be examined in accordance with Practice E2255/E2255M.

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

7.1.1.1 *Rooms Connected to the Work Area*—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