



Designation: E 2271 – 03

# Standard Practice for Clearance Examinations Following Lead Hazard Reduction Activities in Single-Family Dwellings and Child-Occupied Facilities<sup>1</sup>

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 Procedures<sup>2</sup>
- D 5124 Practice for Testing and Use of a Random Number Generator in Lumber and Wood Products Simulation<sup>3</sup>

- E 631 Terminology of Building Constructions<sup>4</sup>
- E 1480 Terminology of Facility Management (Building-Related)<sup>4</sup>
- E 1605 Terminology Relating to Abatement of Hazards from Lead-Based Paint in Buildings and Related Structures<sup>4</sup>
- E 1727 Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques<sup>5</sup>
- E 1728 Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques<sup>5</sup>
- E 1792 Specification for Wipe Sampling Materials for Lead in Surface Dust<sup>5</sup>
- 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 Structures<sup>5</sup>
- E 2239 Record Keeping and Record Preservation for Lead Hazard Activities<sup>5</sup>
- E 2255 Practice for Conducting Visual Assessments for Lead Hazards in Buildings<sup>5</sup>

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

### 2.3 Governmental Agency Guidance:

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

<sup>1</sup> 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 May 10, 2003. Published July 2003.

<sup>2</sup> Annual Book of ASTM Standards, Vol 11.01.

<sup>3</sup> Annual Book of ASTM Standards, Vol 04.10.

<sup>4</sup> Annual Book of ASTM Standards, Vol 04.11.

<sup>5</sup> Annual Book of ASTM Standards, Vol 04.12.

<sup>6</sup> Available from Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, PA 5250-7954. Also available from <http://www.gpo.gov/nara/cfr/index.html>.

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

### 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.

<sup>7</sup> Available from HUD USER, P.O. Box 6091, Rockville, MD 20849.

<sup>8</sup> <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.

8.2.2 In procedure B, floor sampling locations are identified in up to four portions of a room, four entire rooms, or four 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. See Note 5.

### 8.3 Procedure A:

#### 8.3.1 Work Area Floors:

8.3.1.1 Select at least one sampling location from the floor of each portion of a room, entire room, or room equivalent in the work area.

(a) For portions of rooms, entire rooms, or room equivalents smaller than 50 m<sup>2</sup> (500 ft<sup>2</sup>), select one sampling location based either on professional judgment or according to the procedure described in Annex A1.

(b) For portions of rooms, entire rooms, or room equivalents larger than 50 m<sup>2</sup> (500 ft<sup>2</sup>), divide the floor into two or more equal parts of 50 m<sup>2</sup> (500 ft<sup>2</sup>) or less. Select one sampling location in each part based either on professional judgment or according to the Annex A1 procedure.

#### 8.3.2 Windows in the Work Area:

8.3.2.1 *No Window Within the Work Area*—Record that there is no window in the work area.

8.3.2.2 *One Window in a Portion of a Room, Entire Room, or Room Equivalent*—Identify two sampling locations; one as the entire interior sill and the other as the entire trough. If the trough surface is unavailable (for example, window nailed shut), record so (no trough sample is taken).

8.3.2.3 *More Than One Window Within the Work Area*—Select window sill(s) or trough(s), or both, as sampling locations based on professional judgment such that either the sill or trough, or both, of each window is sampled, or

(1) Stand at the entrance used to enter the room and flip a coin. HEADS selects the first window to the right; TAILS selects the first window to the left.

(2) For the window selected, flip a coin. HEADS means that the entire interior sill is the sample location; TAILS means that the trough is the sample location.

(3) Continue in the direction determined in (1), selecting sampling locations on all windows in the work area, alternating between sills and troughs.

(4) For those windows in which the troughs are selected but unavailable to sample, collect a sill sample.

### 8.4 Procedure B:

#### 8.4.1 Work Area Floors:

8.4.1.1 *No More Than Four Portions of Rooms, Four Entire Rooms, or Four Room Equivalents*—Select a floor sampling location in each portion of a room, entire room, or room equivalent according to 8.3.1.1(a) or 8.3.1.1(b).

8.4.1.2 *More than Four Portions of Rooms, at Least Four Entire Rooms, or Four Room Equivalents, or a Combination:*

Use either (a) or (b) to select four portions of rooms, four rooms, or four room equivalents and record the option used.

(a) Select the portions of rooms, entire rooms, or room equivalents most likely to be frequented by children.

(b) Select portions of rooms, entire rooms, or rooms equivalents using a random selection process, such as the one described in Annex A2.

8.4.1.3 Determine at least one floor sampling location in each portion of room, entire room, or room equivalent selected according to 8.3.1.1(a) or 8.3.1.1(b).

8.4.2 *Windows*—For all portions of rooms, entire rooms, or room equivalents in which a floor sampling location was selected according to 8.4.1.2 and having a window, determine a minimum of two sampling locations of which one is an interior sill and the second is a trough using either 8.4.2.1 or 8.4.2.2.

8.4.2.1 Select one window based either on professional judgment, or using a random procedure such as the one in Annex A2. One sampling location is the interior sill and the other the trough.

8.4.2.2 Select sampling locations for two or more windows based on either professional judgment or using a random procedure such as the one in Annex A2. The interior sill of one window is a sampling location and the trough of another window is a sampling location.

8.4.3 If the trough is inaccessible, select another window.

### 8.5 Floors Outside the Work Area:

#### 8.5.1 Rooms Connected to the Work Area:

8.5.1.1 Using professional judgement, identify a minimum of one sampling location in either a portion of the room outside of the work area, or in rooms connected to the work area by a doorway, or both. See Note 6.

NOTE 6—Dust samples are collected outside the work area to assure that leaded dust has not migrated from the work area to adjacent areas.

8.5.2 *Painted Debris and Lead Hazard Reduction Waste Storage Areas*—Select a sampling location based on either professional judgment or the procedure from Annex A1 on the floor of each interior location where painted debris or lead hazard reduction waste, or both, has been stored, if any.

8.5.3 *Egress Routes*—Determine one or more sampling location(s) approximately halfway along each route that was used by workers to walk from the work area(s) and, if within the building, lead hazard reduction waste storage area(s), to the exterior of the building.

## 9. Protocol for Exterior Visual Assessment and Sampling

9.1 *Visual Assessment*—Conduct a visual assessment of the exterior work area in accordance with E XXXX. Include ground areas within one half the height of the work area or up to the property line, whichever is smaller.

9.1.1 For lead hazard reduction activities performed on the exterior surface of the building, include the ground areas beneath the adjacent faces of the building surface subjected to the lead hazard reduction activity up to the distance determined in 9.1.

9.1.2 Exterior work areas pass visual assessment when no deteriorated paint is observed, and ground areas below the surfaces in question and beneath the adjacent faces of the building surface subjected to the lead hazard reduction activity are free of painted debris, including paint chips and lead hazard reduction waste.

9.1.2.1 If visual assessment is not passed, advise the client or the client's designee.

9.1.2.2 If visual assessment is passed, conduct soil sampling (if required).

## 9.2 Soil Sampling:

9.2.1 When soil sampling is required (see Note 4, 6.3.1.2), collect the following samples from bare soil areas observed during the visual assessment (see 9.1) according to Practice E 1727:

- 9.2.1.1 The dripline,
- 9.2.1.2 Replacement soil,
- 9.2.1.3 Bare soil areas located beneath the exterior surface abated, and
- 9.2.1.4 Bare soil beneath the two adjoining exterior building faces.

NOTE 7—Bare soil beneath the two adjoining exterior building surfaces on the property is sampled because paint contamination from the exterior surface upon which hazard reduction activities were performed may spread and be deposited on the adjoining horizontal surfaces.

## 10. Sample Processing

10.1 Assure that each sample container is labeled with a unique sample identifier.

10.2 Initiate a chain of custody record in accordance with Guide D 4840 for collected settled dust and soil samples. The chain of custody form shall include:

- 10.2.1 Unique sample identifiers,
- 10.2.2 Date of collection,
- 10.2.3 The dimensions of the areas from which dust-wipe samples were collected, and,
- 10.2.4 The dates of assumption and relinquishment of custody for each person who collected the samples and for each person or company/organization that obtains custody of any or all of the samples, at least the name(s) of the person(s).

10.3 Submit all samples to a laboratory recognized for lead analysis as promulgated by authorities having jurisdiction.

10.3.1 Establish an acceptable laboratory turnaround time based on the requirements for scheduling re-occupancy, additional construction or maintenance work, or both, work schedule or other criteria.

10.4 Request that the laboratory report receipt of the samples.

10.4.1 When pre-lead hazard reduction samples are collected, ensure that the laboratory provides secure storage of such samples.

10.5 *Dust-Wipe Samples*—Request that the laboratory provide:

- 10.5.1 Analytical results for lead in all settled dust samples as total mass (micrograms,  $\mu\text{g}$ ) of lead found in the sample,
- 10.5.2 The calculated mass of lead per unit area sampled ( $\mu\text{g}$  of lead per  $\text{m}^2$  or  $\text{ft}^2$ );
- 10.5.3 Method reporting limit (MRL or RL) in mass ( $\mu\text{g}$ ) of lead per sample for wipes.

10.6 *Soil Samples*—Request the laboratory report:

10.6.1 Micrograms of lead per gram of soil ( $\mu\text{g}/\text{g}$ ), milligrams of lead per kilogram of soil ( $\text{mg}/\text{kg}$ ), or parts per million (ppm; preferred) for soil; and,

10.6.2 Method reporting limit (MRL or RL) in micrograms of lead per gram of soil ( $\mu\text{g}/\text{g}$ ), milligrams of lead per kilogram of soil ( $\text{mg}/\text{kg}$ ), or parts per million (ppm; preferred) for soil.

10.7 *Other Laboratory Information*—Request that the laboratory provide a copy of their certificate that recognizes that the laboratory meets the regulatory requirements of the authorities having jurisdiction.

10.7.1 Also request that the laboratory provide other information developed by the laboratory as specified in their quality system (for example, such as required in the United States of America by the EPA NLLAP Laboratory Quality System Requirements (LQSR)).

## 11. Decision Making for Dust-Wipe Samples

11.1 Upon receipt of the analysis report from the laboratory, transfer the dust-wipe sample analysis results to the Clearance Summary Form (Annex A3). Compare the sample analysis results to applicable regulatory clearance level(s).

11.1.1 *Sample Analysis Result Less than Clearance Level*—If the lead content of a sample is less than the clearance level, or another more stringent level as set forth by contractual agreement, the surface or surfaces represented by that sample pass clearance.

11.1.2 *Sample Analysis Result Equal to or Greater than Clearance Level*—If the lead content of a sample is equal to or greater than the clearance level specified by applicable regulation or, or another more stringent level as set forth by contractual agreement, the surface or surfaces represented by that sample fail clearance. See Note 8.

11.1.2.1 *Work Area Surfaces:*

(a) For a sample failing clearance collected using Procedure A (see 8.3), the result of a floor sample is applicable to the portion of room, entire room, or room equivalent in which the sample was taken. The result of a window sample is applicable to the sill and trough of the window where the sample was taken.

(b) For a sample failing clearance collected using Procedure B (see 8.4), the result of a floor sample is applicable to all floor surfaces in the work area except for those floor surfaces for which passing clearance results were obtained. The result of a window sample is applicable to all windows (both sills and troughs surfaces) in the work area except for those windows for which passing clearance results for both the interior sill and trough were obtained.

11.1.2.2 *Floors Outside Work Area:*

(a) *Portion-of-Room Work Area*—For those samples failing clearance, the result of a sample taken from the floor of the portion of the room outside the work area applies to the entire floor of the portion of the room outside the work area.

(b) *Rooms Connected by a Doorway to Work Area*—For those samples failing clearance, the result of a sample taken from the floor of a room connected by a doorway to the work area applies to the floor of the entire room from which the sample was collected.

(c) *Painted Debris and Lead Hazard Reduction Waste Storage Area*—For those samples failing clearance, the result of a sample taken from the floor of a painted debris or lead hazard reduction waste storage area applies to the total floor surface of the room from which the sample was collected.

(d) *Egress Route*—For samples failing clearance, the result of a sample taken from the floor of an egress route applies to the entire floor of the entire egress route.

NOTE 8—For any area that fails clearance examination, the cleaning steps and/or additional portions of the lead hazard control activity needed to prepare for clearance examination are repeated, after which the clearance examination process is to be begun anew.

## 12. Decision Making for Soil Samples

12.1 Upon receipt of the analysis report from the laboratory, transfer the soil sample analysis results to the Clearance Summary Form (Annex A3). Compare the sample analysis results to applicable clearance level(s).

12.1.1 *Samples Analysis Less than Clearance Level*—If the result of a sample analysis is less than the clearance level, or if more stringent, by other agreements, the surface represented by that sample is determined to have passed clearance.

12.1.2 *Samples Analysis Equal to or Greater than Clearance Level*—If the result of a sample analysis is equal to or greater than the clearance level, or if more stringent, by other agreements, the surface or surfaces represented by that sample are determined to have failed clearance.

12.1.2.1 *Bare Soil Areas*—For soil samples failing clearance, the result made for a single dripline soil sample applies to all bare soil along the drip line. The result made for a single soil sample taken from replacement soil applies to all bare replacement soil. The result made for a single soil sample taken from bare soil beneath the work area applies to all bare soil on the work-area side of the building. The result made for a single soil sample taken from bare soil on one of the adjoining sides of the building to the work area applies to all bare soil on the adjoining sides of the building.

## 13. Record Keeping

13.1 Records shall be maintained in accordance with E 2239, and shall include a copy of the clearance summary and the clearance report.

## 14. Report

14.1 *Clearance Summary*—Provide a clearance summary report to the client. An example of a suitable Clearance Summary Report Form is shown in Annex A3.

14.2 *Clearance Report*—Prepare a clearance report only when the work area examined passes clearance. See Note 9. Ensure that it meets the requirements of the authorities having jurisdiction. At a minimum, include in the report:

### 14.2.1 *Client Information:*

14.2.1.1 Name, address, and telephone number of the person and of the organization that ordered the clearance examination.

14.2.1.2 Relationship(s) of the person and of the organization that ordered the clearance examination to the property involved (owner, buyer, tenant, lender, insurer, etc.).

14.2.2 *Information on the Property for Which the Clearance Examination Was Conducted:*

14.2.2.1 Address of the property, including as applicable other unique identifiers of buildings, dwelling units, common areas, and exterior locations,

14.2.2.2 Name, address, and telephone number of the property owner (if known),

14.2.2.3 Name, address, and telephone number(s) of the property manager(s) (if applicable),

14.2.2.4 The type of building (single family residence, apartment, etc.) and the year of construction, and

14.2.2.5 Starting and ending times and date(s) that the clearance examination was performed.

### 14.2.3 *Examiner and Laboratory Information:*

14.2.3.1 Name, address, telephone number, and certification or license number, or both, with expiration date, of the firm or individual, or both, that participated in the clearance examination.

14.2.3.2 The name, address, telephone number, and recognition for conducting lead analysis by regulatory authorities having jurisdiction of each laboratory, along with the documentation acknowledging its accreditation or licensing, or both, for analysis for lead in the matrix analyzed, at the time samples were processed.

14.2.3.3 Makes/brands, models, and serial numbers of any field-testing instrumentation and Certified Reference Materials used.

### 14.2.4 *Regulatory Lead Clearance Levels:*

14.2.4.1 Levels used for dust wipes and soil, if applicable.

14.2.5 *Glossary*—A glossary of defined technical terms used to report the clearance examination results. At a minimum, the glossary shall contain definitions for building component names and codes (such as wall orientation and sampling identification codes) used. Any unique or local name for building components used in the report shall also be defined.

14.2.6 *Deviations from Standard Practice*—Any deviations from standard methods and practices used in the clearance examination shall be described.

### 14.2.7 *Testing Information:*

14.2.7.1 All forms, including chain-of-custody forms and laboratory reports of sample analysis.

14.2.7.2 All field data collected during the clearance examination, including:

(a) The unique test identification number for each sample collected.

(b) The description of the location(s) sampled, and the analysis results.

NOTE 9—For example, for abatement activities in the United States of America, the clearance report must be in accordance with 40 CFR 745.227(e)(10) or other regulations promulgated by authorities having jurisdiction. For non-abatement activities in the United States of America, the clearance report is described in 24 CFR 35.1340.

## 15. Keywords

15.1 clearance; clearance examination; lead; lead-based paint; lead hazard; sampling; testing

**ANNEXES**
**(Mandatory Information)**
**A1. PROCEDURE FOR SELECTING REPRESENTATIVE FLOOR-DUST SAMPLING LOCATIONS**
**A1.1 Scope**

A1.1.1 This annex describes a procedure for selecting a floor dust-wipe sample location in a work area using a random number generator, such as that provided by a calculator.

NOTE A1.1—There is limited information on how to significantly increase the likelihood of finding unclean surfaces. These procedures use a system that is slightly weighted toward the edges of a room, but nevertheless are intended to provide a near-equal chance that all areas available for sampling may be selected and are intended to eliminate the ability of someone to predict the sampling location prior to the clearance examination.

NOTE A1.2—The method below randomly chooses sampling locations from a list of predetermined sampling locations. Predetermined sampling locations are used to reduce the need for determination of a grid of the entire area undergoing clearance examination.

**A1.2 Procedure A**

A1.2.1 *Equipment*—A calculator or other device capable of generating random numbers.

A1.2.2 Use the procedure described in A1.2.2.1 for rooms or work areas having a minimum dimension greater than about 2 m (6 ft). Use the Procedure A1.2.2.2 for smaller rooms or work areas.

A1.2.2.1 Work Areas having a minimum dimension greater than about 2 m (6 ft):

(a) If the room or work area does not have a rectangular shape, define a rectangular shape in the room or work area having the largest feasible dimensions.

(b) Obtain a random number using a calculator program or other suitable random number generator. Ensure that the number generated is between 0 and 1.

(c) Multiply the random number by 36 and add 1. Truncate the number to obtain a whole number (that is, 13.9 truncates to 13; 12.2 truncates to 12). Use this number and Fig. A1.1 to determine the sampling location for collection of a floor-dust wipe sample.

A1.2.2.2 Work Areas having a minimum dimension less than about 2 m (6 ft):

(a) Follow the steps of A1.2.2.1 except use one quadrant of Fig. A1.1 to define nine potential sampling locations and multiply the random number by 9 rather than 36 as described in paragraph (c) above.

A1.2.3 Record the sampling location number in the clearance records.

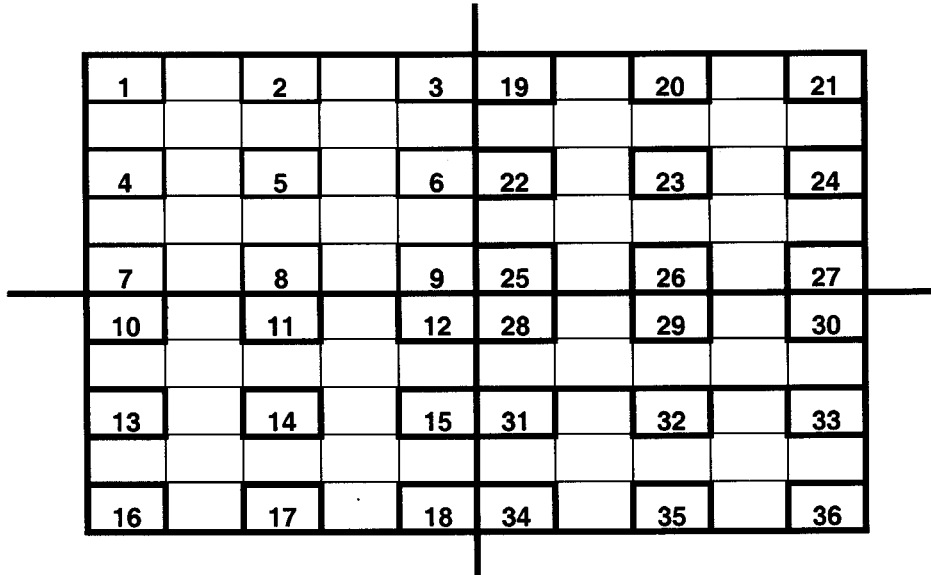


FIG. A1.1 Work Area Quadrant Pseudo Random Sampling Location Selection Diagram

**A2. PROCEDURES FOR SELECTING REPRESENTATIVE ROOMS OR WINDOWS FOR DUST-WIPE SAMPLING**

**A2.1 Scope**

A2.1.1 This annex describes a procedure for selecting rooms or windows for dust-wipe sampling in a work area. This procedure uses a random number generator, such as that provided by a calculator.

NOTE A2.1—There is limited information on how to significantly increase the likelihood of finding unclean surfaces. This procedure is intended to essentially eliminate the ability of an individual to predict the room or window to be sampled to the clearance examination.

A2.1.2 *Equipment*—A calculator or other device capable of generating random numbers.

A2.1.3 *Procedure.*

A2.1.3.1 *Rooms:*

A2.1.3.1.1 Determine the number of rooms in the work area. Number the rooms sequentially on the floor plan.

A2.1.3.1.2 Obtain a random number using a calculator program or other suitable random number generator for each room in numerical sequence as defined in A2.1.3.1.1, and

record the random number for the room on the floor plan to the nearest three decimals.

A2.1.3.1.3 Determine the four lowest random numbers and their associated rooms. Use these rooms for floor dust-wipe sampling.

A2.1.3.1.4 Record the rooms sampled in the clearance record.

A2.1.3.2 *Windows:*

A2.1.3.2.1 Repeat A2.1.3.1.1 through A2.1.3.1.2 for windows within a room. That is, replace the word “work area” with “room” and the word “room” with “window” in the procedure described in these paragraphs.

A2.1.3.2.2 Determine the minimum random number and select the associated window for sampling either the interior sill or the trough.

A2.1.4 Record the windows sampled in the clearance record.

**A3. CLEARANCE SUMMARY FORM**

**A3.1 Scope**

A3.1.1 This annex contains an example of a Clearance Summary Form that may be used for reporting the results of a clearance examination.

**A3.2 Clearance Summary Form**

A3.2.1 See Fig. A3.1.



**CLEARANCE SUMMARY**

Page \_\_\_ of \_\_\_

Date: \_\_\_\_\_ Location Description \_\_\_\_\_

Project No.: \_\_\_\_\_ Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Property Owner: \_\_\_\_\_ Contact: \_\_\_\_\_

**Visual Inspection** (circle one):                      Pass                      Fail

(Use additional sheets as necessary.) (In all cases, circle the units that apply.)

**Lead Clearance Stds Used:** floor \_\_\_\_\_  $\mu\text{g}/\text{m}^2$  or  $\mu\text{g}/\text{ft}^2$ ; sill \_\_\_\_\_  $\mu\text{g}/\text{m}^2$  or  $\mu\text{g}/\text{ft}^2$ ; trough \_\_\_\_\_  $\mu\text{g}/\text{m}^2$  or  $\mu\text{g}/\text{ft}^2$

Room Equivalent /Component Type Description	Surface (circle one)	Laboratory Results [ $\mu\text{g}/\text{m}^2$ ] or [ $\mu\text{g}/\text{ft}^2$ ]	Pass/Fail (circle one)
	FW WS WT		Pass Fail
	FW WS WT		Pass Fail
	FW WS WT		Pass Fail
	FW WS WT		Pass Fail
	FW WS WT		Pass Fail

**Lead Clearance Standards Used:** soil \_\_\_\_\_  $\mu\text{g}/\text{g}$  or ppm

Exterior Sample Location Description	Bare Soil Area (circle one)	Laboratory Results [mg/kg] or [ppm]	Pass/Fail (circle one)
	BDL BRS OBS		Pass Fail
	BDL BRS OBS		Pass Fail
	BDL BRS OBS		Pass Fail

**Wipe sample type**  
 FW = Floor Wipe  
 WS = Window Sill  
 WT = Window Trough

**Bare Soil sample type**  
 BDL = Bare DripLine soil  
 BRS = Bare Replacement Soil  
 OBS = Other Bare Soil

**Reporting**  
 Report analysis results in two (2) significant figures, with units [ $\mu\text{g}/\text{m}^2$ ] or [ $\mu\text{g}/\text{ft}^2$ ] for wipes, and [mg/kg] or [ppm] for soil

**Overall property location clearance result (circle one):                      Pass                      Fail**

**Sampling Technician (if applicable):** Printed name \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Certified Inspector, Certified Risk Assessor, or Certified Sampling Technician:**

Printed Name \_\_\_\_\_ Certificate Number \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

*ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.*

*This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.*

*This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or [service@astm.org](mailto:service@astm.org) (e-mail); or through the ASTM website ([www.astm.org](http://www.astm.org)).*