

**THE APPLICATION & MAINTENANCE OF LIQUID ENCAPSULANTS:  
For code enforcement officials, property owners,  
and lead abatement contractors**



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## ENCAPSULANT USE

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**NOTE:** This manual is intended to provide information on how to apply liquid encapsulants when they are to be used during an ordered lead abatement. If encapsulants are used for reasons other than lead abatement, it is **HIGHLY RECOMMENDED** that property owners consult with the local health department or manufacturer to determine what procedures should be used.

It is important and advantageous for local health departments and property owners that surface tests are performed and encapsulant product type, preparation procedures and application methods are properly documented for future reference.

### Definition and Background Information

Encapsulants are liquid or cementitious coatings that are designed to be long-lasting barriers over lead-based paint. This document discusses liquid encapsulants. Conventional paints are not encapsulants. Only encapsulant products that have been authorized by the Connecticut Department of Public Health can be used for lead abatement in Connecticut. Authorized encapsulants are listed on the [Registry of Authorized Encapsulant Products \(Spanish\)](#). [Fact sheets](#) are available for each authorized encapsulant. It is the responsibility of the user of the authorized encapsulant product to establish appropriate safety and health practices and to follow instructions and recommendations of the manufacturer. [The Registry and Fact Sheets are available from the Lead, Radon & Healthy Homes Program of the Connecticut Department of Public Health](#). Application of all authorized encapsulant products must be done in the method and thickness instructed by the manufacturer. Since local directors of health must approve all lead abatement plans, encapsulant use as a method of lead abatement is also subject to local health department approval.

### Related Information for Encapsulant Use

In determining whether an encapsulant can be used, several other factors must be addressed. For example, any condition that may potentially cause moisture damage must be corrected. These factors must be considered when deciding if encapsulation is appropriate.

It is important to remember that while encapsulation places a lasting barrier over the hazardous lead-based paint when applied on an appropriate surface correctly, the lead-based paint has not been removed. Therefore, any encapsulated surface must be addressed within a management plan and subsequently monitored regularly. This plan must describe how encapsulated surfaces will be monitored to ensure that any wear and damage will be identified and any resulting lead-based paint hazard will be eliminated. A [model lead management plan](#) is available on the DPH webpage.

All authorized encapsulant products should **not** be tampered (i.e. diluting the product) with in any way to maintain the integrity of the product to be a lasting barrier over hazardous lead-based paint surfaces.

## Eligibility of Surfaces

Encapsulation is **prohibited** on the following component surfaces:

1. Friction surfaces
2. Impact surfaces
3. Surfaces with uncorrected underlying conditions (i.e. moisture and physical defects damage such as chipping paint)
4. Surfaces coated with calcimine paint
5. Surfaces that fail the X-Cut Tape Test or the Patch Test
6. Surfaces that are not recommended for encapsulation by the product manufacturer

## Encapsulation Permitted With Preparation<sup>1</sup>

Certain component surfaces are acceptable for encapsulation only after proper preparation. This preparation consists of additional treatment such as stripping of impact-friction surfaces or placing a permanent barrier between an impact surface and the source of contact after the encapsulant has been applied. Chalking surfaces must be adequately prepared to ensure that the encapsulation will adhere to the surface. If preparation of a component surface will generate lead dust or disturb a lead-based paint surface, this work must be done by a licensed lead abatement contractor using certified lead abatement workers and certified lead abatement supervisors or by the property owner. All work must be done by a licensed lead abatement contractor using certified lead abatement workers and certified lead abatement supervisors or by the property owner. Types of component surfaces that are included within this category are:

- Doors
- Door Jambs
- Door Headers
- Window Sashes
- Window Headers
- Shelves
- Stair Treads
- Cabinets & Drawers

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<sup>1</sup> For friction surfaces or those surfaces that are subjected to repeated impact, encapsulation is prohibited as these surfaces are subject to damage which may re-expose the underlying paint and release lead paint chips and dust. Examples of some of these component surfaces are: floors; stair treads; stair risers; thresholds; window sashes; window stops; window parting beads; window wells; window jambs; friction and impact surfaces of doors; door jambs; cabinets; and drawers. In some cases the portions of some of these components that are subject to friction or impact damage, may be treated using an alternate method of abatement that will then permit the component to be encapsulated. The use of these methods is dependent upon site specific circumstances. An example would involve stripping the impact edges of a door, encapsulating the door and adjusting the door when rehanging to establish adequate clearances.

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## SURFACE PREPARATION

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All surfaces that are to be encapsulated must be free of damage, chipping paint, dirt, dust, chalking, scale, oil, grease, wax, smoke residues, biological growth, rust, mold and mildew. Read the manufacturer's instructions before beginning surface preparation activities. Review all product labels and Material Safety Data Sheets for the cleaning products and use proper safety equipment as specified. Follow the lead abatement plan that has been approved by the local health department. Schedule cleaning to ensure that all dust generating activities are completed first and there is adequate time for the surfaces and substrates to dry. **Once surface preparation is complete an X-Cut Tape Test must be performed to assess the surface and the results recorded and kept for future reference and possible review by the local health department.**

If the removal or disturbance of lead-based paint is required during surface preparation, the work must be done by a licensed lead abatement contractor or the property owner. The performance of this work must comply with all applicable regulations and work practices that are required for lead abatement.

### Common Preparation Procedures

#### ***General cleaning:***

All surfaces that are to be encapsulated must be washed completely with a cleaning solution. Use a spray bottle or a sponge to apply the cleaning agent. Be sure to follow the manufacturer's instructions regarding use. Rinse the surfaces with clean water and dry the surfaces with clean paper or cloth towels to remove any residue. Surfaces must be thoroughly rinsed or the encapsulant may not adhere properly.

#### ***Surface Repairs:***

All surface damage, such as minor holes, dents and cracking **must** be repaired. Use spackling compounds or a paintable acrylic joint compound. Smooth the compound with a damp sponge to remove excess compound and to reduce shrinkage. All seams, joints, cracks and junctures around fixtures must be properly caulked to provide a smooth surface for proper adhesion of the encapsulant.

#### ***Deglossing:***

For proper encapsulant adhesion, some deglossing (removing the shiny, glossy surface typical of high gloss or semi-gloss paint) is usually recommended by the manufacturer. A strong solution of TSP is often used for deglossing. The surface should be thoroughly rinsed with clean water and dried after any deglossing process.

### ***Mold/Mildew Removal:***

When mold or mildew is present, it must be completely removed before the application of an encapsulant. Use a mixture of one part household bleach (5¼% sodium hypochlorite) to four (4) parts water. Wear utility gloves and safety goggles since the bleach solution is corrosive and can be a skin irritant. This mixture should be made up fresh for each work day to ensure that the proper concentration is used. The bleach solution should be left on the area for at least fifteen (15) minutes and then thoroughly rinsed with clean water and dried. Since bleach can damage existing coatings, there are risks of failure when encapsulants are applied over surfaces where bleach residues have not been completely removed.

If repairs will generate dust, they must be done by the property owner or a licensed lead abatement contractor. Work practices include the use of work area containment, occupancy restrictions and proper cleaning of surfaces using wet cleaning methods and a commercial High Efficiency Particulate Air (HEPA) filter vacuum.

### ***Surface Priming:***

In some cases, the encapsulant system may require the use of a primer to enhance the overall performance of the encapsulant product. Primers may be proprietary components within a manufacturer's product line.

**After the substrates are prepared for encapsulation, an X-Cut Tape Test must be performed to determine if the approved encapsulant will adhere to the painted substrate/surface.**

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## ***TESTING SURFACES***

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### **Tools and Personnel**

The various surface assessment tests require the following tools:

- Quality cleaning agent/deglosser, water and paper or cloth towels
- 1" wide clear packing tape -- 3M600 is recommended
- Pencil with an eraser
- Sharp utility knife
- Metal ruler
- Flashlight

The X-Cut Tape Test and Patch Test must be conducted by either:

- A trained code enforcement official; or
- A certified lead inspector<sup>2</sup>; or
- A certified lead inspector risk assessor<sup>2</sup>; or
- The certified lead abatement supervisor<sup>2,3</sup> who will oversee encapsulant application; or
- The property owner.

## Test 1: X-Cut Tape Test

The X-Cut Tape Test assesses the potential success or failure of the encapsulant to adhere to a painted substrate before an approved encapsulant is applied.

The X-Cut Tape Test must be performed on a representative component (architectural element) of each group of similar *architectural systems* (See Glossary, page 16 for definition) that are slated for encapsulation. A representative component is a component that is selected for testing from a group of architectural systems that share a common painting history and must be the component within the group that appears to be in the worst condition. If the representative component fails, all components within the group also fail unless they are tested individually.

### ***Surface Preparation for the X-Cut Tape Test:***

Surface preparation for the X-Cut Tape Test is required prior to evaluating the potential success or failure of the encapsulant. The surface might have to be cleaned and made free of deteriorating paint before the X-Cut Tape Test is performed.

If the removal of paint is required during surface preparation, the work must be done by a licensed abatement lead contractor or the property owner. The performance of this part of the test must comply with all applicable regulations and work practices that are required for actual lead abatement.

### ***Procedure for X-Cut Tape Test:***

1. The surface to be tested must be cleaned with a cleaning agent, rinsed and thoroughly dried.
2. Holding the utility knife with the blade perpendicular to the surface and using a ruler as a guide, make two (2) straight cuts in the paint film down to the substrate. These cuts must be about two (2) inches long, intersecting near the middle to form an "X". DO NOT cut into the substrate.
3. Inspect the cuts with a flashlight to establish that the paint film has been penetrated to the substrate. If not, repeat steps 1 and 2 in a different location. DO NOT attempt to deepen a previous cut.
4. Take a 3" length of tape and place the center of the tape at the intersection of the cuts.

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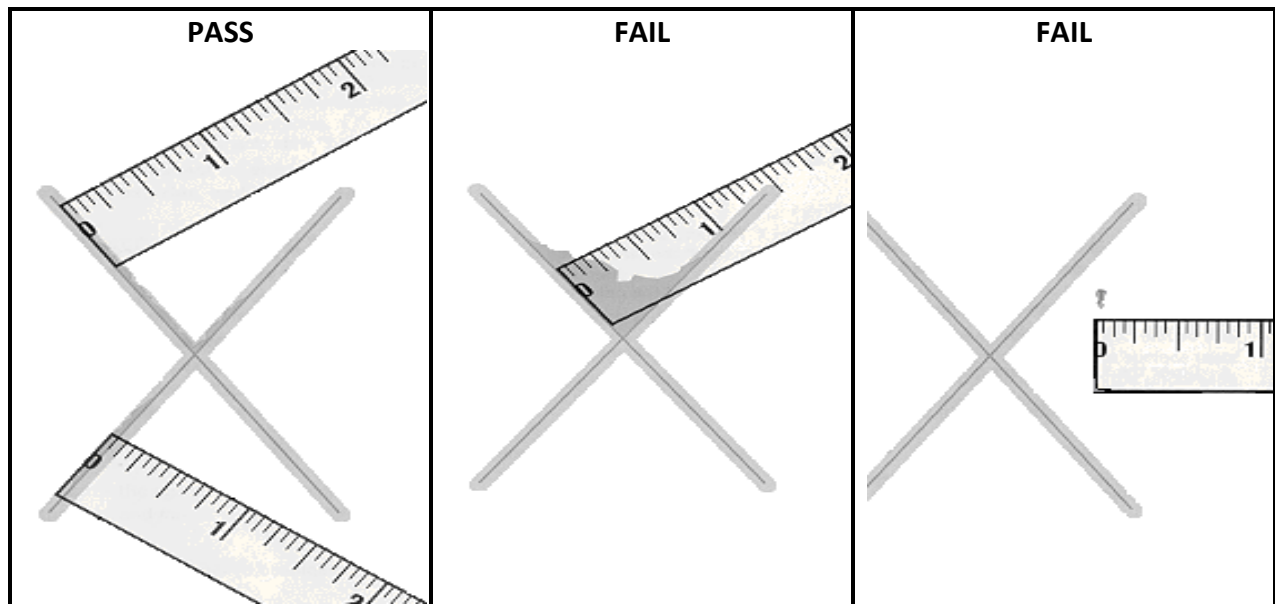
<sup>2</sup> Must be an employee of a licensed lead consultant contractor.

<sup>3</sup> It is recommended that this individual perform the Patch Test.

5. Smooth the tape into place over the "X" and rub the tape firmly with the eraser end of a pencil. (Folding the top edge of the tape will assist in step #6, tape removal.)
6. After 90 seconds, remove the tape by pulling straight down with a quick smooth motion.
7. Inspect the X-Cut area and the tape for any removal of paint and assign the following scores:
  - 0 = no paint removed. (PASS)
  - 1 = removal of less than  $\frac{1}{16}$ " of paint on either side of the cuts. (PASS)
  - 2 = removal of greater than  $\frac{1}{16}$ " of paint on either side of the cuts or removal of paint more than  $\frac{1}{8}$ " away from the cuts. (FAIL)
8. Record the X-Cut Tape Test results on the Lead Paint Surface/Substrate Assessment Form (a copy can be found on page 19 of this Guide).
9. Mist and wet clean any dust or paint chips that may have been created.

***Interpretation of Scores:***

Elements scoring a "2" FAIL and are not eligible for encapsulation.



Greater than  $\frac{1}{16}$ " of paint is removed on either side of the cuts

Removal of paint more than  $\frac{1}{8}$ " away from the cuts.



## Test 2: Patch Test

If a component passes an X-Cut Tape Test a Patch Test must be performed to evaluate the effectiveness of a liquid encapsulant on a small area of the painted surface before final selection and widespread application of the proposed encapsulant. Results must be recorded and kept for future reference and possible review by the local health department.

Patch Tests of the proposed encapsulant should be performed in each room on a representative component of each *architectural system* (See Glossary, page 16 for definition).

Since the cure time for each encapsulant product varies, consult the manufacturer or Product Fact Sheet for the specific encapsulant to determine the suitable cure time for patch testing procedures. Some of the factors that affect cure time are temperature, relative humidity, ventilation and film thickness.

### ***Surface Preparation for the Patch Test:***

Surface preparation for the Patch Test is a critical factor in evaluating the potential success or failure of the encapsulant. The surface must be clean, deglossed and free of deteriorating paint. Generally the area of the Patch Test should be prepared in the same manner as the entire component would be prepared for encapsulation. The manufacturer's product literature provides specific instructions for surface preparation for patch testing.

**IMPORTANT:** If the removal of paint is required during surface preparation, the work must be done by a licensed lead abatement contractor or the property owner. The performance of this part of the test must comply with all applicable regulations and work practices that are required for actual lead abatement.

### ***Location of the Patch Test:***

A test should be conducted on a representative component on each type of architectural system in each room. All locations of test patches must be documented on the Lead Paint Surface/Substrate Assessment Form (Page 19). Where possible Patch Tests should be located in inconspicuous areas since the Patch Test area may appear raised once full encapsulation is completed.

### ***Size and Shape of the Patch Tests:***

The shape of the patch depends on the surface that is being evaluated. For liquid encapsulants on a large surface, a 6" x 6" patch is recommended. For narrow surfaces, such as door frames and window casings, approximately the same total surface area should be tested (e.g. 4" x 9" or 3" x 12"). The shape of the patch must accommodate the dimensions of the building component.

### ***Patch Test Procedure:***

1. The surface to be tested must be cleaned with a cleaning agent, rinsed and thoroughly dried.
2. Apply the test patch of encapsulant.
3. Visually examine the patch for bubbling, cracking, cratering and any other apparent defects. Record results on the Lead Paint Surface/Substrate Assessment Form. If more than 10% of the patch has visual defects, it FAILS the Patch Test; do not continue.
4. Allow to cure.
5. Holding the utility knife with the blade perpendicular to the surface and using a ruler as a guide, make two (2) straight cuts in the paint film down to the substrate. These cuts must be about two (2) inches long, intersecting near the middle to form an "X". DO NOT cut into the substrate.
6. Inspect the cuts with a flashlight to establish that the encapsulant and underlying paint film have been penetrated to the substrate. If not, repeat step 1 through 3 in a different location. **DO NOT** attempt to deepen a previous cut.
7. Take a 3" length of tape and place the center of the tape at the intersection of the cuts.
8. Smooth the tape into place over the "X" and rub the tape firmly with the eraser end of a pencil.
9. After 90 seconds, remove the tape by pulling straight down with a quick smooth motion.
10. Inspect the surface and tape for removal of coating from substrate and assign the following scores (**NOTE:** This scoring is different from that which is used for the X-Cut Tape Test.)
  - 0 = No paint/encapsulant removed. (PASS)
  - 1 = Removal of less than 1/2" of paint/encapsulant on either side of the cuts. (PASS)
  - 2 = Removal of greater than 1/2" of paint/encapsulant on either side of the cuts or removal of paint/encapsulant more than 1/8" away from the cuts. (FAIL)
9. Record the Patch Test results on the Lead Paint Surface/Substrate Assessment Form (page 19).
10. Mist and wet clean any dust or paint chips that may have been created.

### ***Patch Test Results:***

The product patch must pass the visual examination (step 2) and the tape evaluation (step 8) with a score of "0" or "1". If the tape evaluation of the patch is rated "2", then the product cannot be used on that architectural system. Major reasons for Patch Test failure include encapsulant failure, failure of an underlying layer of paint, inadequate surface preparation, and/or improper cure time.

Poor application or improper surface preparation can cause the Patch Test failure. This is usually the cause of Patch Test failure when a piece of encapsulant is removed without any of the paint layers remaining attached to the back of it. If this is the case, a retest may be conducted by applying and testing a new patch in a different location after proper surface preparation.

If the representative surface passes both the X-Cut Tape Test and Patch Test, and prior preparation was performed to make the surface pass, the same preparation must be performed on each component of the same architectural system in similar or worse condition.

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## ISSUES ASSOCIATED WITH APPLICATION

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### Before Application

#### ***Delivery, Storage, and Handling of Encapsulants:***

The encapsulant should be received in the original, unopened containers bearing the manufacturer's labels with an accompanying Safety Data Sheet (SDS).

Storage of materials should be in original properly labeled containers with adequate ventilation as specified by the manufacturer. High heat or extreme cold may affect the integrity of the product. The product should be kept from freezing.

If the product drips or spills, clean-up should be done with warm soapy water immediately. Follow the manufacturer's specific recommendations.

Appropriate personal protective equipment (PPE) must be worn to avoid skin and eye contact. Follow the recommendations found on the encapsulant Product Fact Sheet. Respiratory protection may be required for specific encapsulants and application methods.

#### ***Environmental Conditions for Application:***

The manufacturer will specify dry times that are required to recoat and to achieve full cure. These times are dependent on temperature and relative humidity, type of coating system and thickness of the coating.

#### ***Occupancy and Re-occupancy:***

The Registry of Approved Encapsulant Products provides product-specific information on occupancy and re-occupancy during encapsulant application. In all cases, occupants should not be in the immediate work area during the Patch Tests and encapsulant application.

#### ***Final Preparation Activities before Application:***

Before beginning the application of the encapsulant, all seams, joints, cracks and junctures around fixtures must be properly caulked. The products must not be diluted, thinned, tinted or mixed with other products except as specifically recommend by the manufacturer. Contact the manufacturer regarding colors, tints and custom colors of their encapsulant products.

### ***Property Owner Responsibility:***

Before work is performed the owner must submit an abatement plan to the local health director for approval. Work cannot be done until the local health director approves the plan.

### ***Coordination of Other Construction Activities:***

Coordinate the scheduling of other phases of the lead abatement, per the abatement plan, to ensure that dust generating activities and subsequent cleaning are completed so that debris is not disturbed during encapsulant application and dry time.

Other preparatory work should be completed before applying the encapsulant, particularly if the product will be applied by a spray method. This includes the removal of hardware, hardware accessories, lighting fixtures, and other items that are associated with building components but do not require encapsulation. These items should be removed where appropriate to ensure adequate coating behind such items. Masking of the hardware may be done if recommended by the manufacturer and if the integrity of the encapsulant will not be affected.

Surface applied protection, such as taping or masking, should be used to protect adjacent areas in the dwelling. Protection may include drop cloths, masking paper, poly film or masking tape. When masking tape is used, the surface should be free of dirt, dust, grease and oil to ensure adequate contact. The appropriate personal protective equipment indicated on the product literature and the product fact sheet must be used.

After all abatement has been completed including encapsulation, and dust levels have been found to comply with the Lead Poisoning Prevention and Control Regulations, the code enforcement agency shall inspect the abatement work area.

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## APPLICATION

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### ***Mixing:***

Although many of the authorized liquid encapsulant products are ready to use as provided, thorough mixing is required.

### ***Coverage per Gallon:***

The manufacturer and the encapsulant Product Fact Sheet provide specifications on coverage per gallon. The coverage per gallon is specific to the application method and the product. The spreadability of liquid encapsulants is much different than standard paints.

***Film Thickness:***

Follow the manufacturer's information and the encapsulant Product Fact Sheet for specific wet and dry film thickness requirements. Monitor wet film thickness during application using a wet film (mil) gauge.

***Spray Equipment:***

Spray equipment may consist of high pressure airless, conventional air spray, high volume low pressure (HVLP) and electrostatic equipment. Airless equipment is most often specified. Equipment should be in good condition and should not be left unattended when not in use.

Follow the manufacturer's specific recommendations for spray equipment application procedures, including pressure settings and tip size.

***Brush:***

High quality brushes in good condition, such as polyester or nylon brushes, are recommended. A high quality tapered trim brush is recommended for a smooth finish.

The encapsulant should be applied liberally and uniformly following the manufacturer's recommended square footage coverage per gallon and film thickness specifications. Pay careful attention to the direction and speed of application, the thickness and number of coats. Working with a "wet edge" may reduce overlap marks. It may be necessary to "cut in" only as much of an area that can be manually brushed within a short time before the "wet edge" dries.

***Roller:***

When roller application is selected, a high quality roller cover with a 1/2" to 3/4" nap is often recommended. For smooth areas a roller with the smaller 1/2" nap is often recommended and for rough areas the larger 3/4" nap is often recommended.

The encapsulant should be applied liberally and uniformly following the manufacturer's recommended square footage coverage per gallon and film thickness. Pay careful attention to the direction and speed of application, the thickness and number of coats. Working with a "wet edge" may reduce overlap marks. It may be necessary to "cut in" only as much of an area that can be manually rolled within a short time before the "wet edge" dries.

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## POST-APPLICATION CLEANING

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### ***Cleaning of Tools:***

While the encapsulant is still wet, clean tools with warm soapy water, followed by a clean water rinse.

### ***Removal and Disposal of Masking Materials:***

It may be necessary to remove the masking material before the product is dry to ensure that the masking material does not stick to the encapsulant. Masking materials that contain dried encapsulant product should be disposed of as regular construction waste unless otherwise specified by the manufacturer.

### ***Over spray, drips or spills:***

Over spray, drips or spills should be cleaned up with warm soapy water when they occur. Follow the manufacturer's specific recommendations.

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## MAINTENANCE

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### **Management Plan**

Encapsulated surfaces should be checked visually as outlined in a schedule established in a written management plan. A [template management plan](#) can be found on the [DPH website](#). Surfaces should be checked each month for the first six months after application. After this initial period, the encapsulated surfaces should be checked at least once a year.

The results of visual monitoring should be recorded on a standard form and kept for future reference. A copy of a form developed for this purpose is included at the end of this manual (page 20).

It is important to look carefully at all surfaces that have been coated with encapsulants and note any irregularities. The following conditions should be noted on the maintenance record: dirt; thin spots; holes; cracks; dents; water damage; stains; blistering; peeling; sagging; bubbling; or chemical damage.

Local Health Departments will not be conducting 1 and 6 month checks. The monitoring of the maintenance plan is the responsibility of the property owner/landlord.

## Repairs

It is important to consider two factors when deciding who should do repair work on an encapsulated surface. First, the amount of dust that will result from the repair of failed areas is very important. Lead dust is dangerous, and any work that will produce lead dust must be done properly and safely.

Second, the skill level that is required to apply the encapsulant must also be considered. An encapsulant that has been applied improperly will not protect people from lead hazards/lead poisoning. If the area that requires repair is large, the level of skill that is required to apply the encapsulant is higher.

### What should be done?

#### ***Dirty Surfaces:***

Such surfaces should be cleaned by the owner/owner agent using a proper cleaner or soap and water.

#### ***Small Amount of Damage:***

Property owners may repair the damage by applying new encapsulant, caulking, spackling or another material as suggested by the manufacturer.

#### ***Large Amount of Damage:***

The property owner must contact the [local health department](#) and the contractor who originally applied the encapsulant.

## Glossary

**Abatement:** Any set of measures designed to eliminate lead hazards including, but not limited to, the encapsulation, replacement, removal, enclosure or covering of paint, plaster, soil or other material containing toxic levels of lead and all preparation, clean-up, disposal and reoccupancy clearance testing.

**Architectural Element:** A single building component with a discrete function. Examples include a window sill, window apron, window sash, door, etc.

**Architectural System:** A group of architectural elements that are related in function and/or proximity. Architectural systems include the following: door systems (e.g., doors, door casings, door jambs, thresholds); window systems; cabinet systems, including shelves; drawer systems; wall systems; chair rail/baseboard systems; staircase and associated railing systems; shelving systems; fireplace systems; and radiator/baseboard heater systems. All other miscellaneous elements that may be found in a housing unit, such as a cast iron tub, should be considered an individual element that does not belong to a "system".

**Certified Lead Abatement Supervisor:** Any person who completes an appropriate approved training course and obtains a certificate as a lead abatement supervisor from the department. A lead abatement supervisor oversees lead abatement activities.

**Certified Lead Abatement Worker:** Any person who completes an appropriate approved training course and obtains a certificate as a lead abatement worker from the department. A lead abatement worker performs lead abatement activities.

**Certified Lead Inspector:** Any person who completes an appropriate approved training course and obtains a certificate as a lead inspector from the department. A certified lead inspector conducts inspections to determine the presence of lead in paint, other surface coverings and various environmental media.

**Certified Lead Inspector Risk Assessor:** Any person who completes an appropriate approved training course and obtains a certificate as a lead inspector risk assessor from the department. A certified lead inspector risk assessor conducts inspections and collects and interprets information to assess the level of risk from lead hazards.

**Chalking:** The formation on a pigmented coating of a powder evolved from the film itself or just beneath the surface" (ASTM D4214-89). In practical terms, chalking is the formation of a fine dust like that commonly found on a blackboard.

**Coverage per Gallon:** The encapsulant manufacturer specifies how much area (square footage) one gallon of a particular product will cover to achieve the recommended thickness, regardless of the number of coats required.



**Cracking:** That phenomenon manifested on paint films by a break extending through to the surface painted. When this is difficult to determine between, the breach should be called a crack only if the underlying subsurface is visible” (ASTM D661-86).

**Cure:** When the coating changes from a liquid to a solid film by a chemical reaction such as the two-part epoxy reaction or by oxidation, whereby the chemical in the liquid reacts with the oxygen in the air. This may also be called polymerization. At full cure, the encapsulant offers its maximum benefit, is not tacky and meets the manufacturer’s specifications.

**Cut In:** A painting term to describe the brush application of an encapsulant beyond the reach of the roller.

**Degloss:** To remove the shine, or gloss, from a typical high or semi-gloss painted surface.

**Delamination:** The separation of paint layers from each other or from the substrate that may occur with or without an encapsulant having been applied.

**Dry:** A condition that occurs when the coating changes from a liquid to a solid film by evaporation of the liquid component(s) in the product. The encapsulant may be tacky to the touch.

**Encapsulant:** A liquid (flexible) or cementitious coating that provides a long-lasting barrier over lead-based paint. An encapsulant prevents lead-based paint from becoming part of house dust or accessible to occupants. Conventional paint is NOT an encapsulant. Only those liquid or cementitious encapsulants that are listed on the [Registry of Authorized Encapsulant Products](#) may be used to abate lead hazards in compliance with Connecticut regulations.

**Film Thickness:** Manufacturers specify wet and dry film thickness and they often provide a reference to the expected square feet per gallon at a particular wet film thickness. Wet film thickness is measured with a wet film gauge, and is the responsibility of the applier.

**Lead Paint Surface/Substrate Assessment Form:** The form used to record X-cut and Patch Tests (see page 19).

**Licensed Lead Abatement Contractor:** Any entity that has applied for and received a license from the Department. A lead abatement contractor contracts to perform lead hazard reduction by means of abatement including, but not limited to, the encapsulation, replacement, removal, enclosure or covering of paint, plaster, soil or other material containing toxic levels of lead and obtains a license from the department to conduct such abatement work. The contractor utilizes certified lead abatement supervisors to oversee such lead abatement activities and certified lead abatement workers to perform such abatement activities.

**Licensed Lead Consultant Contractor:** Any entity that has applied for and received a licensed from the Department as a Lead Consultant Contractor. A lead consultant contractor contracts to perform lead hazard reduction consultation work utilizing a certified lead inspector, certified lead inspector risk assessor and/or certified lead planner-project designer.

**Material Safety Data Sheet (MSDS):** Written material concerning a hazardous chemical that is prepared according to the OSHA Hazard Communication Standard 29 CFR 1910.1200.

**Mil(s):** Unit of length, equal to  $\frac{1}{1000}$ .

**Mil Gauge:** Tool to measure the film thickness of a coating (also see Wet Film Gauge).

**Mil Thickness:** The product-specific film thickness of a coating.

**Mildew:** Fungus that may appear on building components that are wet or have been wet and results in a thin, furry, whitish coating or discoloration.

**Patch Test:** A test that evaluates the effectiveness of a liquid encapsulant on a small area of the painted surface before final selection and widespread application of the proposed encapsulant.

**Registry of Authorized Encapsulant Products:** A list of liquid or cementitious encapsulants, issued and from time to time revised by the Connecticut Department of Public Health, which may be used to achieve abatement compliance with regulations. Encapsulants not listed on the registry may not be used for lead abatement. The registry indicates any encapsulant-specific restrictions including but not limited to use, application or occupancy during or following application. Use of authorized encapsulants must conform to any restrictions indicated on the registry and with the manufacturer's instructions.

**Substrate:** The underlying surface such as drywall, wood, plaster or metal upon which paint has been or may be applied.

**Surface:** The outermost layer of material (paint) on a substrate facing the lead inspector, lead inspector risk assessor, property owner or occupants.

**Wet Edge:** A painting term to describe the wet boundary of the applied encapsulant.

**Wet Film Gauge:** A gauge to monitor the wet film thickness of any applied coating (also see Mil Gauge).

**X-Cut Tape Test:** A single, but invasive test that provides evidence of adhesion of the visible layers of paint. The procedure is based on the [ASTM Test Method D3359](#) (Method A).

## Lead Paint Surface/Substrate Assessment Form

Surface Assessor: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ (X-Cut Tape Tests)

Check One:  Property Owner/ Agent  Inspector, Risk Assessor or Supervisor  Code Official

**Address where encapsulant will be applied:**

Street: \_\_\_\_\_ Apt: \_\_\_\_\_ City: \_\_\_\_\_

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

**Owner address:**

Street: \_\_\_\_\_ Apt: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

| ROOM | SIDE | COMPONENT | X-CUT TAPE TEST RESULT | PATCH TEST (Result and Date) | NAME OF ENCAPSULANT TESTED |
|------|------|-----------|------------------------|------------------------------|----------------------------|
|      |      |           |                        |                              |                            |
|      |      |           |                        |                              |                            |
|      |      |           |                        |                              |                            |
|      |      |           |                        |                              |                            |
|      |      |           |                        |                              |                            |
|      |      |           |                        |                              |                            |
|      |      |           |                        |                              |                            |
|      |      |           |                        |                              |                            |
|      |      |           |                        |                              |                            |
|      |      |           |                        |                              |                            |

Surface Assessor's Signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

**X-CUT TAPE TEST:**

**Pass:** 1/16" or less from the "X"

**Fail:** more than 1/16" from the "X"

**PATCH TEST:**

**Pass:** 10% or less is defective and/or 1/2" or less removed

**Fail:** More than 10% is defective and/or more than 1/2" removed

***Make additional copies as needed***

## Encapsulant Maintenance Form

**Address** : \_\_\_\_\_ **Apt:** \_\_\_\_\_ **City:** \_\_\_\_\_ **Owner:** \_\_\_\_\_

| ROOM | LOCATION | PRODUCT USED | CONDITION | REPAIR (HOW) | DATE & INITIALS OF MONITOR |
|------|----------|--------------|-----------|--------------|----------------------------|
|      |          |              |           |              |                            |
|      |          |              |           |              |                            |
|      |          |              |           |              |                            |
|      |          |              |           |              |                            |
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|      |          |              |           |              |                            |
|      |          |              |           |              |                            |