DIVISION 2 – EXISTING CONDITIONS
SECTION 02 83 19.13 LEAD-BASED PAINT ABATEMENT – ENCAPSULATION
INTERIOR AND EXTERIOR ARCHITECTURAL SURFACES

1.00 GENERAL REQUIREMENTS

1.01 WORK INCLUDED - SUMMARY

A. Provide labor, equipment and materials to complete encapsulation of lead-based paint work on interior and exterior surfaces.
B. This specification includes detailed and specialized information for the removal by cleaning of lead containing dust and particulates.
C. This specification is congruent with the use of historically accurate custom color(s) finishes.

1.02 RELATED SECTIONS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Related Sections generally Specified elsewhere:

a. Section 03 00 00 – Concrete
b. Section 04 00 00 – Masonry
c. Section 05 00 00 – Metals
d. Section 06 00 00 – Wood, Plastics and Composite
e. Section 09 90 00 – Finishes
f. Section 09 01 20 – Plaster Restoration

C. References: Cited Standards, Guidance Documents and Guidelines are incorporated herein by reference and govern the work:

a. ASTM E 1795-04 Standard Specification for Non-Reinforced Liquid Coating Encapsulation Products for Leaded Paint in Buildings, 2004

b. ASTM E 1796-03(2011) Standard Guide for Selection and Use of Liquid Coating Encapsulation Products for Leaded Paint in Buildings

c. ASTM D 4263-83 Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method

d. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

e. ASTM D 4258 Surface Cleaning Concrete for Coating

f. Requirements for Lead-Based Paint Activities in Target Housing and Child-Occupational Facilities: 40 CFR 745, U.S. Environmental Protection Agency (EPA) (1996)

g. U.S. Department of Housing and Urban Development (HUD), Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 13 - Abatement by Encapsulation, And Chapter 14 – Cleaning. 2nd edition, July 2012

h. Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X of the Housing and Community Development Act of 1992 (US Public Law 102-550), Section 1017, 42 U.S.C. 4852c)

i. Lead Standard: 29 CFR 1910.1025 and 29 CFR 1926.62, U.S. Occupational Safety and Health Administration (OSHA) (1993)

j. *How Much Cleaning is Enough*, National Center for Lead-Safe Housing.

k. Steel Structures Painting Council (SSPC):

l. South Coast Air Quality Management District (SCAQMD): Rule 1113 - Architectural Coatings

m. Lead and Environmental Hazards Association (LEHA)

D. Notes to Users of this Document (e.g., Architects, Engineers, Designers and Consulting Professionals that prepare scopes of work, project specifications):

a. This specification is supplied for a specific site/building type at Moffett Field with the intent of achieving as broad an inclusion of project factors as possible. Specifications for other special application/performance requirements may be produced upon request, or consultation can be provided by ICP/Fiberlock/Masterworks subject-matter-experts

b. The specifier is not obligated to utilize this specification in entirety, but instead is encouraged to adopt/adapt/apply those provisions which are applicable to individual sites/project at the Moffett Field site.

c. The MASTERWORKS DESIGN+SPECIFICATION team of the ICP Building Solutions Group has prepared this overall specification. Users of this specification are strongly encouraged to engage the resources and industry expertise of Masterworks in customizing this specification:

i. Web: https://www.icpgroup.com/programs/masterworks

ii. Email: masterworks@icpgroup.com

iii. Phone: 800-342-3755 or 978-623-9980 X 2241

E. Metric Conversions: Metric conversion, where used, is soft metric conversion

1.03 QUALITY ASSURANCE

A. Apply coatings (encapsulants; and primers, and finishes) consistent with workmanship that exceeds pertinent industry standard-of-care, and the following inadequate defects will not be tolerated:
a. Runs,
b. drips,
c. "ropiness",
d. uneven cut-ins,
e. over-application,
f. or other defects in final finish will not be accepted.

B. Aesthetic Standard for Accepting Work: Painted surfaces will be deemed acceptable if, in the sole opinion of the Engineer, Owner's Designee, or Architect, there are no insufficient or excessive application irregularities when viewed in normal lighting from 8 feet away, whether or not such irregularities existed prior to start of painting work. The party responsible for determining acceptance shall be determined in advance of coating application and notice given in writing to both General Contractor and Installer.

C. Pre-Project Meeting/Coordination: Convene a pre-application meeting [2] [Two] weeks or more before start of surface preparation (meeting may be in-person or via electronic participation, per preference of owner and logistics for each party). Require attendance of parties directly affecting work of this section, including Contractor, Architect, Installer, and manufacturer's representative.

Review surface preparation, priming, application, curing, protection, and coordination with other work.

D. Responsibility for Surface Preparation: If substrate preparation is the responsibility of another contractor, Installer shall notify Owner's agent of unsatisfactory preparation before proceeding.

E. Single Source Responsibility:
   a. Obtain coating system components from a single manufacturer with 15+ years successful experience in manufacturing and specifying installation of the principal materials described in this section.
   b. Products shall be of first-quality only.
   c. Coating systems comprised of multiple brands, when those brands all are owned and manufactured by the same entity, are permitted.
   d. Coatings systems comprised of multiple brands manufactured by different entities are not permitted as a rule of this specification, but may be permitted by approved exception as an "or equal" in writing by architect, prime contractor or owner/owner's designee. Note the adhesion primer noted above at E.a.i. of this section is pre-approved.

F. Contractor Experience: The installer shall be a firm or individual experienced in applying coatings, similar in material, design, and extent to those indicated for this Project.
   a. Letter or Certificate provided directly by Approved Encapsulant manufacturer stating that contractor (designating contracting firm, and/or dedicated project supervisor) has completed and satisfactorily demonstrated competent understanding of instructional training in painting, and specific use of the Approved manufacturer's specified products.
   b. The utilization of adequately trained workers is the sole responsibility of the Installer.

G. Sampling of Material: Provide samples of each color and material to be applied, as follows:
   a. If directed by Architect/Engineer, obtain test samples from the source of supply (distributor or manufacturer).
   b. If directed by Architect/Engineer, obtain 3 of each (as relevant to project) color samples from manufacturer, as actual production material on hardboard or standard paint industry drawdown card, not as simulation of aspects such as colors produced on cardstock.
   c. If directed by Architect/Engineer, provide a clear list of samples coordinated as applicable to each unit of work, and position within each application process (i.e., primer, conditioner, finish, texture, protective finish) and critical performance function (e,g. intumescent, encapsulant, waterproofing membrane, odor sealer).

D. Pilot Application/Mock-Up: If directed by Architect/Engineer, it may be determined necessary to provide a mock-up to verify aesthetic effects of selected materials, as well as for evaluation of surface preparation techniques, validation of performance expectations, and anticipated application workmanship.
   a. Prepare surfaces designated for verification of suitability of proposed surface preparation procedures
   b. Deliver specified coating system, as applicable to each/any unit of work, strictly in accord with coverage rate and dry film thickness proposed for project. Assume two 3" x 5" (or similar size) samples for each required color, at correct film thicknesses as checked with wet film thickness gauge by applicator. Architect or Prime Contractor will instruct whether to sample directly onto substrates, or onto mechanically attached coupons (metal or cardstock).

i. Final acceptance of color selections will be from field samples.

c. Do not proceed with full-scale execution of work until pertinent project authority (By Owner, Client, Enforcement Authority, Architect or Engineer), approves the mock-up.

d. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.04 SUBMITTALS (.PDF or similar electronic file format to conserve resources)

A. Submit Product technical data, safety data sheet (SDS) and label. This is required for all products in this Specification including lead-specific cleaner, lead encapsulant, primers, historic color finishes, and ancillary products (such as primers, foam, caulks and joint compounds).

B. Material Certificates: Upon request by Architect, submit manufacturer's certificate evidencing compliance with specified requirements and that materials are manufacturer's best quality trade product of each type. A Certificate of Analysis (COA) specific to batch numbers found on containers of product delivered and to be used will be acceptable.

C. Submit contact information for local representatives of Approved coatings manufacturer. Manufacturer must have representation sufficiently knowledgeable and local that assistance is available and informative no less than monthly in person (and next-day by email or phone) in order to resolve project and material-specific questions.

D. Enforcement Certification: Obtain and submit certification by authority having jurisdiction that encapsulation products are acceptable.

a. Note that encapsulants must satisfy “most recent” ASTM E 1795 testing protocol as “most recent” edition is incorporated by name and/or reference in both HUD *Guidelines* and regulations promulgated by EPA.

b. Documentation that the encapsulant satisfies all 15 aspects of coating performance included in the ASTM E 1795 protocol shall be supplied only in the form of a test report from an independent and certified testing laboratory.

c. Test report shall indicate the minimum dry film thickness at which the encapsulant passes all requirements of ASTM E 1795, as application at a lower thickness (higher than recommended spread rate) is not considered lead abatement, and is therefore not fulfilling the project objectives.

d. In the following states, regulatory authorities have a state specific approval of encapsulant products by name and manufacturer: MA, CT, NH, NY, MI, MN and OH. When encapsulation project is located in any of these states, documentation of encapsulant acceptance in that state must be submitted.

e. For any of these encapsulation requirements: Manufacturer self-certification verbally, electronically or via written letter will not constitute an acceptable submittal.

E. List of Samples, and coupons (if utilized) as delineated in Section 1.03 F

F. Letter or Certificate of Applicator competency from Approved products manufacturer (as delineated in Section 1.03 F).

G. Maintenance Instructions: Submit manufacturer's maintenance instructions, including maintenance procedures and materials, procedures for stain removal and surface repair, and recommended schedule for cleaning

Notes Regarding Substitutions:

a) Bidders are encouraged to submit materials that meet the Basis of Design.

b) In order to have a material accepted as substantially equal for the work outlined herein, the submittal of alternatives must be received by the Architect/Engineer for evaluation and approval no less than 21 days prior to the original published bid date. Approved alternative coatings and coating systems will be by Addendum only.

c) Submittals circumventing this process will not be approved and will not be acceptable for inclusion in this project. Alternative/substitution products considered in accordance with provisions of Section 01 60 00 specifications attached by consulting architects and engineers to the overall scope of this project.

d) Substitutions will only be considered for products manufactured by companies of primarily U.S. ownership, and when the proposed substitute product is "all or virtually" all manufactured in the United States (in accord with the Made in USA Standard of the Federal Trade Commission (FTC).

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and product number (as well as minimum information detailed at Section 2.01, Subsection C of this specification).

B. Storage of materials:

1. Store only acceptable project materials on site.
2. Store in suitable location convenient to progress of work.
3. Comply with health and fire regulations.
4. Storage temperature shall be between 40 F (4.5 C) and 90 F (32 C), or such other ambient temperature conditions as may be specifically recommended by product manufacturer.
5. Encapsulants shall not be permitted to freeze on site, and delivery of encapsulant should be refused if freezing during transit is probable.
6. Avoid storage directly in hot sun exposures.
7. Keep containers tightly closed when not in use.
8. Keep out of reach of children.

C. Handling:

a. Dispose of water-based and solvent-based materials, encapsulant and supplemental products, as well as lead contamination removed in cleaning, in accordance with requirements of local authorities having jurisdiction.

b. Verify that encapsulant and supplemental products are within acceptable shelf life, and do not utilize any product that is older than the maximum shelf life stated by the manufacturer.

D. Extra Materials:

a. Furnish extra encapsulant and finish materials in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.

b. Furnish Owner with an additional one percent of each material and color, but not less than 1 gal (3.8 l), pail (19 l), or 1 case, as appropriate and collectively agreed upon in advance of substantial completion.

1.06 JOB CONDITIONS

A. Environmental requirements

1. Comply with manufacturer's recommendations as to environmental conditions under which encapsulant coating systems can be applied.

a. Temperature:

i. At Application: Surfaces to be encapsulated and ambient air temperature shall be between 45° F (7.2° C) and 100° F (38° C). Do not apply lead-specific cleaner or encapsulants at temperatures beyond those limits stated in the manufacturer's technical data sheet unless given written permission by the manufacturer.

ii. After Application: Site temperature shall remain post-application within the manufacturer's acceptable range for no less than specified in technical product information.

iii. Fluctuating Conditions: When temperatures are expected to be consistently in the cooler segment of the acceptable range (<50 F), or temperatures are expected to fluctuate significantly, multiple thin applications with dry time in between is advisable versus a single application. Supply of air movement may be recommended to aid curing when site conditions are minimal for application.

b. Humidity:

i. Ideal humidity for encapsulant application is 40-50% Relative Humidity (%RH).

ii. Humidity in excess of 70% RH will slow the drying and curing of encapsulant coatings. Application of multiple thin coats, and/or supply of air movement may be recommended when site conditions are minimal for application.

iii. Do not apply encapsulant when the Relative Humidity is above 85% or when the Dew Point is closer than 5° degrees to the ambient air temperature.

2. Protective Procedures for People and Property

a. Surface Protection/Prevention of Cross-Contamination:

i. Cover or otherwise protect finished work from activity of occupants and/or of other trades; and surfaces not being coated concurrently or not to be coated.

ii. Do not apply encapsulants, paints, and coatings in areas where dust or other airborne particulate matter is being generated.

iii. Avoid cross-contaminating encapsulation finished areas with airborne particulate from areas of surface preparation and demolition. Such particulate may contain lead and other hazardous contaminants.

iv. Do not begin application of intermediate or final painting coats until work is sufficiently advanced that coatings will not be damaged by later construction operations.

b. Worker Safeguards: Shall exceed activity-specific requirements as promulgated by OSHA and relevant local jurisdictions. To include but not limited to:

i. Provide adequate illumination and ventilation during application.

A. Utilities, including electric, water, heat and finished lighting to be supplied by General Contractor.

ii. Contractor is to ensure and document provision with and training for use of all necessary Personal Protective Equipment (PPE).

iii. Manufacturer, Prime Contractor, and Owner shall bear no responsibility for failure of Installer to properly equip and train workers with PPE.

c. Damage: Each Contractor and Subcontractor shall be held responsible for and shall pay for all damage to or soiling of other work caused by its work or operations.

d. Maintain adequate safeguards concerning the premises and the public from hazards associated with work of this Section.

i. Post "Wet Paint" signs at surfaces subject to contact.

ii. Ensure that site and on-site supplies are secured, locked, chocked, powered down and protected against accident, intrusion, vandalism, and curiosity.

3. Surface/Substrate Moisture:

a. Do not apply any coatings outdoors when precipitation can be reasonably expected to directly contact the curing film within 24 hours after application, when fog/mist is prevalent, and/or when temperatures are less than 5°F (3°C) above dew point.

b. Consult manufacturer regarding whether topical dampness (latent moisture tangible by touch) after wet cleaning or recent precipitation is acceptable at time of application, or if a completely dry substrate's surface is required. At no time should encapsulants be applied where significant topical moisture is present (such as droplets, "beading" water). Applicators are expected to account for slow-drying surface elements (such as shaded areas, hairline cracks, nail holes).

c. Review carefully and comply with manufacturer's permissible maximum moisture content (MC%) for product and substrate combinations where entrained substrate moisture could influence curing and performance, especially when trapped substrate moisture will attempt to escape or balance in future, such as when influenced by radiant heating/cooling cycles (or other similar causes of "vapor drive"). Moisture content readings taken should be recorded in the applicator's project log.

d. Maximum Moisture Content of Substrates: Moisture Content should generally be closer to the dry end of the paintable range, especially with the encapsulant. This is especially important as meters have variable information interfaces. When measured generally in MC % with an electronic moisture meter, consider best general guidance as follows:

i. Concrete: 12 percent.

ii. Fiber-Cement Board: 12 percent.

iii. Masonry (Clay and CMUs): 12 percent.

iv. Wood: 15 percent for paints/primers; 11 percent for lead encapsulant.

v. Portland Cement Plaster: 12 percent.

vi. Gypsum Board: 12 percent

2.00 PRODUCTS

2.01 MATERIALS (Basis of Design)

A. LEAD SPECIFIC CLEANING AGENT: **LEADSAFE™ LEAD DUST CLEANER**: Product ID: 5496. Manufactured by FIBERLOCK, a brand of ICP Building Solutions Group; located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com [or equal]

a. Key Performance Attributes of Lead-Specific Cleaner:

i. Active Ingredients: Chelating Agents

1. Does not contain TSP Trisodium Phosphate or have high phosphate content

ii. VOC Content: Zero.

iii. Flash Point: Non-combustible

iv. Vapor Pressure: 20 mm Hg at 20°C (68°F)

v. Specific Gravity: 1.069 grams/ml. at 20°C (68°F)

vi. Density: 8.92 at 20°C (68°F)

vii. Concentrate Formula Mixed 6-7 ounces per gallon water

viii. pH as Concentrate: 5.0-6.2 Mildly Acidic

ix. pH in Use Solution: 6.0-7.0 Neutral Range

B. ENCAPSULANT FOR LEAD-BASED PAINT: **L-B-C® LEAD BARRIER COMPOUND** – (TYPE III INTERIOR/EXTERIOR), Product ID: 5800-5 (Antique Linen), 5801-5 (Tintable White), 5802-5 (Black). {Can be supplied in custom and historic colors}. Manufactured by FIBERLOCK, a brand of ICP Building Solutions Group; located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com [or equal]

a. Key Performance Attributes of Encapsulant

i. Exposure: Interior/Exterior

ii. Dry Film Thickness Compliance to ASTM E 1795 (Interior Use): 7 mils DFT

iii. Dry Film Thickness Compliance to ASTM E 1795 (Exterior Use): 7 mils DFT

iv. Finish: Matte

v. Specular Gloss: 5.5° ± 1 @ 60°

vi. Volume Solids: 45.0% ± 2

vii. Weight Solids: 59.0% ± 2

viii. Viscosity @ 77°F: 95-120 KU @ 70°F

ix. Maximum VOC: 88 g/l

x. Flame Spread (UL 723): 0

xi. Smoke Development (UL 723): 0

xii. Contains FDA-approved Anti-Ingestant: Yes (Bitrex®)

xiii. Underwriter's Laboratories (UL®): Classified

C. ADHESION PRIMER FOR GLOSS (if necessary; if other deglossing methods are impractical): FIXALL GRIPCOAT. Product ID: F507. Water-based, urethane modified adhesion primer for difficult surface profiles.

a. Key Performance Attributes of Penetrating Adhesion Primer

i. Exposure: Interior/Exterior (Topcoat required within 14 days)

ii. Finish: White, Matte

iii. Specular Gloss: 5° ± 2

iv. Volume Solids: 37.8% ± 2

v. Weight Solids: 52.5% ± 2

vi. Viscosity @ 77°F: 83 ± 5 KU @ 77°F

vii. Maximum VOC: 100 g/l

viii. Flash Point: Non-combustible (water based)

D. SURFACE STABILIZING ADHESIVE/PRIMER FOR EXTERIOR CEMENTITIOUS WALLS: **GRIPTACK**, , Product ID: 2419-5 (WHITE, dries CLEAR). Manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP; located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com [or equal]

a. Key Performance Attributes of Penetrating Adhesion Primer

i. Exposure: Interior/Exterior (Topcoat required within 30 days)

ii. Finish: clear, tacky to touch

iii. Specular Gloss: N/A

iv. Volume Solids: 50.0% ± 2

v. Weight Solids: 50.0% ± 2

vi. Viscosity @ 77°F: 50-60 ± 2 KU @ 77°F

vii. Maximum VOC: 0 g/l

viii. Flash Point: Non-combustible (water based)

ix. Decomposition Profile: Manufacturer must demonstrate that their product will pass the State of California Waste Extraction Testing for toxic metals content (See W.E.T. Test found at State of California Code of Regulations, Title 22, Section 66261.24 and Section 66261.126, Appendix II). Testing performed to demonstrate compliance with W.E.T. must be documented with test report data from an NVLAP (National Environmental Laboratory Accreditation Program) accredited laboratory. In addition, the dry film must be capable of gradual degradation in the presence of sunlight (UV).

E. HIGH GLOSS WATER-BASED FINISH FOR STEEL (e.g. stairwells) AND INTERIOR/EXTERIOR WOODWORK PREVIOUSLY/HISTORICALLY FINISHED WITH GLOSS: **EVERLIFE WATERBORNE ENAMEL HIGH GLOSS**. Product IDs: F521-00 white; F521-02 Black Gloss; F521-04 Wrought Iron Black (Low luster only); F521-91 Pastel Base; F521-92 Medium Base; F521-93

Deep Base; F521-95 Neutral Base. Manufactured by FIXALL, a brand of ICP Building Solutions Group; located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fixallpaint.com/

a. Key Performance Attributes of Waterborne Topcoat
   i. Custom Color:
      1. *[custom color #1)* (selected from the Historic Colors of America palette[i])
      2. *[custom color #2)* (selected from the Historic Colors of America palette[ii])
      3.
   ii. Exposure: Interior/Exterior
   iii. Rust-Inhibiting
   iv. Formula Composition: 100% acrylic waterborne with ceramic reinforcement
   v. Wet Film Thickness [WFT]: 3.0-3.5 mils
   vi. Dry Film Thickness [DFT]: 1.5 mils
   vii. Finish: High Gloss
   viii. Specular Gloss: 70° ± 5 @ 60°
   ix. Volume Solids: 36% ± 2
   x. Weight Solids: 47% ± 2
   xi. Vehicle Solids: 58% ± 2
   xii. Pigment: 42% ± 2
   xiii. Viscosity @ 77°F: 97 KU ± 3
   xiv. Maximum VOC: 100 g/l
   xv. Flash Point °F: Non-Combustible

F. Specific surface preparation products may be incorporated into a project specific system. Encapsulant and supplementary product systems shall be applied in accordance with manufacturer's instructions and these specification documents. Unless an alternative product is submitted to the Architect/Engineer and deemed acceptable (see Section 1.04, Notes "a-d" of this specification), supplementary materials (topcoats, primers, foam) only of type and from a source recommended by the manufacturer (of the encapsulant) shall be used.

G. Ensure the following information is present and legible on labels of containers of cleaner, encapsulant, and all supplementary products:

1. Product name, and type (description).
2. Batch Number
3. Manufacture date.
4. Product SKU
5. Color number/identification

2.02 COLORS

A. Colors shall be selected by the Architect/Engineer/Owner's Agent from Manufacturer's standard palette of not less than 3 standard solid colors. (Also, see 1.04, subsection G *Submittals*).

B. Clear encapsulants for lead-based paint are not acceptable. Current minimum performance standards (E.g., requirements of ASTM E 1795) preclude any viable clear lead encapsulants. For guidance on management of lead-containing substrates with minimal appearance alteration, contact the encapsulant manufacturer for alternatives to this specification.

C. Custom Colors (for finishes such as decorative paints and/or encapsulant):
   a. Custom colors may be required by the Owner or Architect/Engineer for aesthetic and/or historic/preservation concerns.
   b. Evaluation and approval of custom color submittals shall be conducted in accord with directions on color selection, test areas and sampling delineated in Section 1.
   c. Encapsulants - Pastel Colors: Some encapsulant manufacturers can provide products which may be ready-to-use as white, and which also may be tinted from white to pastel colors. When this capability is available:

i. Tinting to pastel colors shall be executed only by the manufacturer or a distributor authorized to tint the encapsulant.
ii. No more than 2 ounces of tint per gallon may be added to the encapsulant, unless expressly instructed in writing in advance by the manufacturer.
iii. Tints added must be specifically recommended by the manufacturer (generic type, pigment strength, and tint manufacturer's brand).
iv. Field tinting is never permitted, unless expressly instructed in writing in advance by the manufacturer.

d. Encapsulants - Deeper Than Pastel Colors: may only be supplied directly from the manufacturer.
e. The required performance warranty, as well as any performance expectation, suitability for use, or similar, will be invalidated by unauthorized tinting of the encapsulant or epoxy coatings, and results in the installer being in abrogation of responsibility for adherence to this specification.

2.03.1 MIXING

A. Accomplish job mixing and application only when acceptable to the Architect/Engineer.
B. Mix components only in containers approved in writing by the Manufacturer.
C. Lead Dust cleaner solution preparation (Based on product listed in Basis of Design section above):
a. Contractor is expected to use a concentrated product, and either mix on site, or mix in shop and bring to the site ready-to-use.
i. Contractor may choose a ready-to-use product, but under the not to exceed provisions of this project, the additional cost will not be compensated.
ii. Contractor will be provided with a source of clean water.
iii. Contractor is expected to clearly label ALL containers of both concentrated and use-dilution solutions with secondary use labels provided by the manufacturer.
1. Handwriting with marker on trigger and compression/pump-up spray containers will not be acceptable.
2. When secondary use labels mar r otherwise become illegible, then replacements will be sourced from the cleaning solution manufacturer.
iv. Dilute 6-7 oz. of concentrate per gallon of water.
i. Per basis of design specified product: (One 32 oz. bottle will make 5 gallons) (One gallon will make 20 gallons).
ii. One gallon of diluted product will clean approximately 600-700 square feet of hard, non-porous surfaces and rough uncoated surfaces with low porosity.

f. To improve performance of cleaning chemistry, use warm water when mixing the solution and allow the product to sit for 10 minutes prior to cleaning.

D. Mix encapsulant thoroughly, preferably with an electric drill mounted device designed for blending liquid coatings.
a. When a clear liquid is present in the headspace when container is opened, installer is to consider that liquid an integral part of the product, and such liquid must be mixed in completely (unless the encapsulant manufacturer expressly instructs otherwise)/

b. Thinning or diluting of the encapsulant is not permitted, unless expressly instructed in writing in advance by the manufacturer.

3. EXECUTION

3.01 LEAD CONTAMINATION CLEANING AND PRE-APPLICATION EXAMINATIONS

A. WORK AREA PREPARATION

a. WORK AREA PREPARATION FOR CLEANING, EPOXY PREPARATION & ENCAPSULATION

A. Lead-services subcontractor shall take possession of work area, and isolate work area within scope from adjacent areas. Isolation will require multi-stage decontamination as required by pertinent ordinances and regulatory authority in effect, but at a minimum ingress and egress will incorporate pressure differential, tack mats, and don/doff protocols for personal protective clothing & equipment control.

B. Allowing for site-specific variations negotiated by all parties, contractor shall be responsible for securing a physical boundary that limits access to unauthorized personnel.

C. Warning signage shall be implemented as required by pertinent ordinances and regulatory authority in effect, but at a minimum

1. Provide warning signs at approaches to lead control areas;

2. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the area; and,

3. Signs shall comply with the requirements of 29 CFR 1926.62.

D. Establish critical barriers with negative and positive pressure differentials.

1. Positive pressure may be used to protect addressed (cleaned, encapsulated) areas from still contaminated spaces.

2. Negative pressure containment shall be implemented as required by pertinent ordinances and regulatory authority in effect, but at a minimum negative pressure will be sufficient that small ruptures in critical barriers (such as 6 mil polyethylene sheeting) does not result in release of particulates, gases, liquids, or solids into surrounding spaces.

3. Shut down, lock out, and isolate HVAC systems that supply, exhaust, or pass through the lead control areas. Seal intake and exhaust vents in the lead control area with 6 mil plastic sheet and tape. Seal seams in HVAC components that pass through the lead control area.

4. Provide temporary HVAC system for areas in which HVAC has been shut down outside the lead control area.

E. Provide Eye Wash Station: Where eyes may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes shall be provided within the work area.

F. Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items in place that are not to be painted, or provide surface applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces.

1. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

b. GENERAL BEST PRACTICES FOR CLEANING HAZARDOUS SUBSTANCE CONTAMINATION

A. As recommended by HUD in the HUD *Guidelines*, a three-phase, vacuum-wet cleaning-vacuum cycle is recommended for high-dust jobs with some rough or

porous surfaces.[iii] This specification requires this three-phase approach to cleaning, and the wet cleaning phase will require the "three bucket" method described herein.

B. Unless noted otherwise, a best practice requirement of this Specification shall be that when cleaning a designated space (e.g., a room interior), start with the highest overhead surfaces and work down high-to-low cleaning vertical surfaces to the floor.

C. Unless noted otherwise, a best practice requirement is, when practical, to work from the cleanest areas to the dirtiest areas to minimize spreading lead-contaminated dust to clean areas.

D. Unless noted otherwise, a best practice requirement is when cleaning to follow what has been colloquially called the process of ***"ceiling to floor and out the door",*** or restated: when practical, to work backwards from farthest point in a space towards the main entrance/egress to minimize spreading lead-contaminated dust and compromising cleaning efficacy.

E. Unless noted otherwise, a best practice requirement is to carefully dry clean easily removable particulate and soils, likely containing lead and/or other contaminants, prior to wet cleaning methods. At no time will dry cleaning in the spaces addressed by this specification be considered sufficient without the wet cleaning methods described herein with lead-specific cleaner chemistry and techniques.

F. Unless noted otherwise, carpets and other difficult to clean (porous, soft) surfaces will be removed and discarded as contaminated.

c. INITIAL PARTICULATE REMOVAL

A. Clean all vertical and overhead surfaces with a vacuum cleaner equipped with a High Efficiency Particulate Air Filter (HEPA) or an equivalent high efficiency filter.

B. In the course of vertical surface cleaning, horizontal surfaces above floor level (such as the top of HVAC ducts) will be given attention and scrutiny including brushing accumulated dust, particulates and soil down to the floors for proper cleanup and waste collection. Those pre-cleaned horizontal surfaces above floor level will then be HEPA vacuumed as all other surfaces.

C. Be sure to clean dust traps such as windows, radiators, air vents/registers and ceiling fans.

D. Address floors after vacuuming of vertical and overhead surfaces. Sweep floor of larger particulate, followed by HEPA-vacuum.

E. When practical, work from the cleanest areas to the dirtiest areas to minimize spreading lead-contaminated dust to clean areas.

F. Do not open or change the filters and bags inside the containment.

G. Always follow the manufacturer's instructions for routine maintenance, cleaning and filter changing. Contractor shall verify that entire device is achieving HEPA filtration by evaluation methods recommended by equipment manufacturer (e.g., DOP test). HEPA filters in a device do not automatically ensure HEPA performance as unseated filters, internal damage, filters approaching collection capacity, and many causes can result in pressure drop, or filter blow-by, and similar unacceptable circumstances.

d. WET CLEANING

A. During wet cleaning:
1. Replace rags, wipes, sponges, microfiber cloths and mops frequently.

2. Replace cleaning solution and rinse water when dirty.
3. Do not use a high-phosphate detergent (such as TSP Trisodium Phosphate).

B. Pre-spray with prepared lead cleaner solution, but do not allow to dry. Only pre-spray as far ahead of physical cleaning activity as personnel resources and drying conditions together dictate.
   1. Prespray with a pump-up, compression type sprayer to target cleaning solution activity in a controlled manner that minimizes runoff.
   2. Use a foaming tip or similar to generate some foaming that extends contact time on vertical and overhead surfaces.

C. Use a “three-bucket” system for all lead-dust cleaning activity.
   1. Fill one bucket with a cleaning solution.
   2. Fill the second bucket with rinse water.
   3. Leave the third bucket empty.
      a. Or use a three-chamber bucket
   4. Put cleaning implement (e.g., mop, rag, sponge) into the bucket of cleaning solution, then wring out excess into empty bucket.
   5. Clean a small section and rinse in the rinse bucket. Wring out excess into empty bucket.
   6. Repeat until entire surface is clean.
   7. Rinse with clean water from pressure sprayer, and wipe/mop with a new clean implement
   8. Dispose of wastewater and soiled implements properly.

D. FINAL WET CLEANING: Because the projects covered by this specification are inherently “high-dust” (see HUD) *Guidelines*), another/FINAL wet cleaning is required for horizontal surfaces, but this is not required to use the three bucket method.

E. DEGREASING WHEN NECESSARY:
   1. If necessary, oil, grease and similar surface hydrophobic surface contamination should be removed with any manufacturer-approved degreasing surface cleaner which is free-rinsing and does not require a neutralizer.
   2. Rinse surfaces with clean water. Avoid uncontrolled release of rinsate beyond the work area, as it may contain lead. Jurisdictional regulations for management of rinsate (collection and disposal of waste liquids) can vary, and project-specific requirements are the responsibility of the installer.
   3. On representative surfaces, perform a "water-break" test to determine if traces of oil, grease and similar hydrophobic contaminants are still present.
      a. Wet a portion of the surface with clean water by splashing to induce runoff in a sheeting action. If water "beads", oil and/or grease is still present, and the washing and/or rinsing procedure must be repeated.
      b. Water-break tests can be difficult for architectural elements involving complex geometry, including acute angles, undercuts and overhangs. Examine such areas carefully by eye and touch to detect whether hydrophobic residues remain present.

e. POST WET-CLEANING HEPA VACUUM

A. Allow at least one hour prior to vacuuming after wet cleaning. Surfaces may be damp to the touch, but should not be visibly wet such as bead-like droplets.

B. HEPA-vacuum all surfaces before proceeding to encapsulation. Arrange for on-site representative to visually inspect and approve each space in the interim between lead dust cleaning and encapsulation.

f. POST-CLEANING VERIFICATION

A. This specification adheres to HUD *Guidelines* which state concerning verification of lead-dust cleaning:

1. Repeat cleaning and clearance (or cleaning verification), if necessary. Continue cleaning verification until the work area passes. If the work area fails, repeat cleaning of all of the surfaces that failed and all other surfaces represented by the surfaces that failed.

2. The cost of repeated cleaning after failing to pass clearance or cleaning verification should be borne by the contractor, not the owner, as a matter of the job specification.

3. "Cleaning is the process of removing visible dust and debris *and* dust particles too small to be seen by the naked eye". Restated: Cleaning shall not be limited to visual contamination, but must address invisible lead present, with a minimum goal of achieving no more than 200 micrograms per sq. ft. (N.B., when an encapsulant is to be applied, achieving a goal of a certain micrograms Pb per measured surface area is not relevant).

B. PRE-ENCAPSULATION VISUAL INSPECTION

a. After cleaning and cleaning verification, visually examine vertical and overhead surfaces to be encapsulated. The purpose of the visual inspection is to evaluate existing surface conditions and determine how to properly encapsulate in accordance with this Specification. If the surface cannot be put into an acceptable condition, as described within this Specification for the particular substrate type and/or surface conditions, do not encapsulate.

b. Examine surfaces scheduled to receive encapsulant for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into an acceptable condition through preparatory work as included in 3.02. PREPARATION OF SURFACES.

c. Notify Owner's agent immediately upon determination that surfaces scheduled to receive encapsulant are unacceptable for proper adhesion or subsequent performance. If substrate preparation is the responsibility of another installer, notify Owner's agent of unsatisfactory preparation before proceeding.

d. Do not proceed with surface preparation or encapsulant application until conditions are suitable. Work should commence only after conditions have been corrected and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.

e. Do not proceed with surface preparation and application without first consulting with federal, state and local authorities for specific work practice guidelines and safety procedure information for that jurisdiction.

f. During the visual inspection of surfaces, direct special attention to doors, windows and other surfaces that may receive repeated friction or wear from ordinary operation. Components of doors and windows that do not receive friction and abrasion during ordinary operation (e.g., casing, muntins, mullions, jalousies) may be encapsulated in accordance with this Specification for the particular substrate type and/or surface conditions.

A. Avoid encapsulating surfaces that may receive repeated friction or wear from ordinary operation, unless it is possible to prepare the surface in a manner that eliminates the source of the friction or wear.

1. Paint can be removed from the edges of a door or window by sanding or planing the edges within a contained area that has been properly constructed per HUD, EPA and OSHA rules and regulations for the control of lead-containing dust. Such a temporary containment area shall be constructed with negative pressure, HEPA filtration, and decontamination at entrance/exits as required by the project jurisdiction.

2. Paint on friction surfaces can be removed in a non-dust generating manner by using a chemical paint remover such as Fiberlock brand Piranha® or NexStrip™ chemical removers[iv].

B. The surfaces of a door that are frequently abraded include, but are not limited to the doorstop, threshold, and limited surface area of the door, which meets these surfaces during ordinary operation. Additional options for door systems:

1. Rubber pads may be used to eliminate contact between doors and doorstops where practicable.

2. The plumb of door systems may also be altered to ensure the only impact is strictly between the striker and strike plate.

C. The surfaces of a window that are frequently abraded include, but are not limited to the channels, sash edges, top rails, meeting rails, etc. Additional options for window systems:

1. Vinyl inserts or similar barriers can also be attached to the friction surfaces of a window.

2. Casement and louver/jalousie window systems have components that move into contact, but generally without significant impact force or friction, and as such may be encapsulated. Rubber pads may be used to eliminate contact between window elements where practicable.

3. Operational window shutters can be addressed similar to door systems. Impact points should have paint removed, then impact and non-impact areas (such as jalousies) can be encapsulated.

NOTE ON 3.01, B: The surface assessment procedures described herein may differ across states and provinces. Project sponsorship and funding may also trigger specific preferred surface assessment metrics, such as projects involving the U.S. Department of Housing and Urban Development (HUD). Requirements regarding who may conduct surface assessment such as described in 3.01 B (below), as well as documentation requirements, can also vary per jurisdiction. Always check with local authorities for specific surface assessment requirements.

C. PRE-WORK SURFACE ASSESSMENTS: When encapsulating, at this stage of abatement, an extensive cleaning has just been completed which involved physical contact with presumably all surfaces. Typically, this will render the adhesion tape test and encapsulant patch test a formality. The Architect, Engineer or Owner may choose for this reason to waive one or both of these assessments (however, this presumes these surface assessments were conducted as part of scope of work development). However, note that upon drying the cleaned paint systems can behave differently, so post-cleaning observation is recommended.

a. ADHESION TAPE TEST:

A. Description: Following the visual inspection, use the procedure outlined below to perform an adhesion tape test on representative areas. A tape test involves the

application of pressure sensitive tape to the paint system, then removing the tape and measuring the paint removed by the tape, if any. Surfaces to be evaluated should be appropriately clean, dry and sound as if prepared for encapsulation

B. Purpose: The purpose of the adhesion tape test is to determine the intercoat adhesion of the existing paint system.

C. Tools Required:

1. Tape: two (2") inch wide, pressure sensitive adhesive clear tape.
    a. Recommended: 3M 600 or equivalent.
    b. Not recommended: duct tape, opaque packing tape
2. Pencil with rubber eraser.
3. Resealable plastic storage bags
4. Permanent Marker

D. Conducting Adhesion Tape Test:

1. Apply a 6 - 10" strip of pressure sensitive adhesive tape.
2. Burnish the tape down on surface with the rubber eraser end of a pencil.
3. After 90 seconds, remove (do not yank) the tape by pulling smoothly and slowly back upon itself at as close to a 180° angle as possible.

E. Evaluation of Adhesion Tape Test:

1. If more than a square inch of paint is removed along with the tape, the inter-coat adhesion of the existing paint system is poor and surface preparation (i.e. wet sanding, scraping, cleaning, etc.), must be administered to remove layers that are poorly adhered before applying a primer or the encapsulant.
2. If less than a square inch of paint is removed from the substrate, the surface is sound and can be encapsulated.
3. Tape can be retained in plastic bags to be labeled with location, time and date, name of project; and filed with project documents.

b. ENCAPSULANT PATCH TEST:

A. Description: The encapsulant patch test is a small-scale application of encapsulant to an area or areas representative of the surface to be encapsulated. An encapsulant manufacturer may consider a patch test mandatory or optional. Check with the manufacturer. Performance of an encapsulant patch test should be performed at the discretion of the installer, or by Owner's agent, Client, Enforcement Authority, Architect or Engineer.

B. Purpose: Conduct a patch test if there is any question concerning surface conditions that may interfere with encapsulant performance (e.g., adhesion interference due to unstable existing paint systems, excessive gloss sheens, surface contaminants (mold, soot), or repellent chemical residues, such as alkalinity, grease, oils.), excessive substrate moisture content; or conditions that might generate unsatisfactory aesthetics (e.g., migrating or "bleeding" stains)). Surfaces to be evaluated should be appropriately clean, dry and sound as if prepared for full-scale encapsulation.

C. Note: Certain states require the performance of a patch test prior to application.

D. Tools Required:

1. Tape: two (2”) inch wide, pressure sensitive adhesive clear tape.
    a. Recommended: 3M 600 or equivalent.
    b. Not recommended: duct tape, opaque packing tape
2. Pencil with rubber eraser.
3. Resealable plastic storage bags
4. Permanent Marker
5. Small liquid (wet) sample of the candidate encapsulant product
6. Wet film thickness gauge
7. Application and cleaning tools as needed (brush, roller)

E. Conducting an Encapsulant Patch Test: An encapsulant patch test may be performed using the following procedures:

1. Choose a 6”x6” area of a surface representative of those to be encapsulated. If working on trim or other narrow components, the shape of the patch may change provided the same area (36 square inches) is encapsulated for the test.
2. Patch tests may be conducted where deemed necessary (i.e., one per room, or one per type of architectural element present in the dwelling) or as required by relevant state rules and regulations concerning the proper use of lead-based paint encapsulants.
3. Apply encapsulant in accordance with the instructions within this Specification for the substrate type and existing paint conditions present.
4. Use a wet film thickness gauge to ensure proper application to the minimum wet film thickness specified by the manufacturer.
5. Allow the encapsulant to cure substantially (but not necessarily to total cure) before evaluating performance. Under ideal ambient conditions (78°F (air and substrate) and 50% relative humidity) curing sufficiently to evaluate the patch test may take 4-10 days. Consult the manufacturer for product specific guidance. Cure can be accelerated by using forced ambient or warmed air.
6. Visually Evaluating Encapsulant Patch Test: Examine the patch for defects.
    a. Bubbling may indicate chemical contamination of the surface that must be removed by more thorough cleaning.
    b. Cracking may indicate inadequate temperatures for proper curing, surface contaminants, or other environmental conditions not conducive to application of an encapsulant or any topical coating (paint).
    c. Stains generated within the encapsulant film subsequent to application may indicate a source of water-soluble pigment on or within the surface that must be blocked using a primer recommended by the manufacturer. Choose a primer or sealer appropriate for the substrate type and the perceived source of the pigmentation.

d. When visual defects are noted in the cured patch test, remedy the source condition that was likely to have generated those defects, and retest.

7. Evaluating Adhesion of Encapsulant Patch Test:

a. Perform an adhesion tape test on a fully cured patch test in accordance with the description in section 3.01.B.a of this Specification.

b. If delamination occurs (i.e., encapsulant or encapsulant and some of the underlying paint is present on the tape, and the encapsulant has not cured under ideal conditions, allow more time to elapse then retest.

c. Failure of the test patch does not indicate that the candidate encapsulant may not be used to encapsulate the surface in question

d. Failure of any encapsulant test patch indicates that additional surface preparation procedures are necessary for successful application

***IMPORTANT: SEVERELY DETERIORATED PAINT SYSTEMS SHOULD NOT BE ENCAPSULATED UNLESS** they can be rendered sound through proper surface preparation. It is frequently advisable (and is required in several states) to employ the services of a certified lead abatement contractor when extensive dust generating surface preparation procedures are necessary.

CAUTION NOTICE: Dry sanding, scraping and other surface preparation procedures can create toxic dust and hazardous waste. A HEPA (High Efficiency Particulate Air) vacuum should be used on all surfaces to remove hazardous dust and particles. Use MSHA/NIOSH approved or equivalent respiratory protection suitable for concentrations and types of air contaminants encountered.

3.02 PREPARATION OF SURFACES

A. GENERAL SURFACE PREPARATION INSTRUCTIONS: All surfaces to be encapsulated should be properly prepared so that all are clean, dry, sound and deglossed at the time of application[v].

a. Clean to the extent required to remove existing deteriorated coatings and any other foreign matter, paying particular attention to areas found under structural components such as eaves, beams, archways, etc.

b. Thick and sharp edges of paint build-ups, runs and sags should be wet sanded smooth to achieve a feathered edge.

i. Note that depressions or "cratering" where loose paint was removed will contrast with areas where existing paint continued to adhere. An encapsulant will only partially smooth such surfaces. Also referred to as "step-ups and step-downs", these surface variations will not adversely affect performance of a lead provided the entire surface is coated with equal to or in excess of the required dry film thickness for the encapsulant used.

ii. Repair and wet sand smooth surface defects to the extent required by Owner, Client, Architect or Engineer.

iii. Always avoid dry sanding any lead-containing surfaces as this may increase lead exposure. Even limited dry sanding should only take place with proper containment, engineering controls, and particulate cleanup.

c. Fill minor surface voids (e.g., isolated hairline cracks) with appropriate foam, caulk or patching compound and smooth off to match adjacent surfaces. Review foam, filler or caulk before use to ensure the product will accept a water-based coating.[vi]

    i. Larger surface voids may require using spray foam to fill, and smooth off to match adjacent surfaces[vii].

d. High-Sheen/Gloss Surfaces: A good profile (roughened surface) must be developed on high gloss or smooth, sound surfaces in order for an encapsulant to sufficiently adhere to the substrate. To reduce sheen and provide a profile that permits encapsulant adhesion

    i. Wet sand gloss surfaces, and/or;

    ii. Wet clean and scour with detergent;

    iii. Utilize a commercially available liquid deglosser formulated to etch high-sheen surfaces. Use deglossers strictly in accordance with the manufacturer's instructions for that product.

    iv. Use an Adhesion or Bonding primer[viii]. Some surface preparation is still required, but such primers can be both effective and reduce dust generating activity when trying to scour a biting edge into high-gloss surfaces.

e. If cleaned and dry surfaces continue to exhibit loose particulate residues, such as chalking, dusting, attempt to remove post-cleaning residues with a HEPA vacuum.

f. Surfaces can continue to be dimensionally unstable after removal of deteriorated paint and proper cleaning, but may still be eligible for encapsulation. Common conditions in such situations can include minor spalling, chalking and "running edges" (chronic peeling at paint edges after each cleansing and clean water rinse cycle) along otherwise adhered paint systems. It can be possible to stabilize these situations by applying a surface stabilizing adhesive/primer[ix]. To determine if a a surface stabilizing adhesive/primer is a viable solution, test applications must be conducted as part of an Encapsulant Patch Test, in accord with Section 3.01.B.b of this specification.

g. Surface Drying After Cleaning:

    i. Allow surface to dry before applying an encapsulant.

    ii. The extent of drying after cleaning may be product specific, and specific guidance will be available from the manufacturer.

    iii. Some encapsulants may be applied when surfaces are damp to the touch. Check with the manufacturer.

B. SURFACE PREPARATION INSTRUCTIONS FOR ENCAPSULATION OF SPECIFIC SUBSTRATES:

A. WOOD

    i. Water-soluble Stains: Surfaces which exhibit water-damage, or highly-pigmented woods (including, but not limited to redwood, cypress, cedar, and/or knots in most wood substrates) rendered bare by deterioration of existing paint or by surface preparation should be primed with a stain-blocking primer[x].

ii. Rust: Wood substrates containing nails or other metal fixtures which may cause a migrating or "bleeding" rust stain should be spot-primed with a rust inhibiting primer.

iii. Rot (Wood Decay Fungi): Old, weathered wood that is moist and spongy is attributable to "damp" or "wet" rot. Areas that are dry and crumbly are referred to as "dry rot." Both dry and damp rot are caused by microorganisms that must be removed to prevent the rot from spreading. Cut away the rot affected wood plus several inches beyond the perimeter of the rot damage. Apply an EPA-registered disinfectant/sanitizer that includes fungicidal capability[xi] and instructions on the product label. Patch-in or plug removed areas with rot-free, new wood. Or replace entire components with rot-free replacements.

B. CONCRETE, MASONRY, STUCCO, BRICK, CONCRETE BLOCKS, ETC.:

i. After cleaning, it can be possible to install the lead encapsulant without further surface preparation or priming. Depending on the manufacturer, the encapsulant may be self priming (for adhesion, not stain-blocking) atop the existing paint system, as well as cementitious substrates rendered bare in spots. The remaining points in this section address common complications that the installer needs to understand and be able to recognize.

ii. Remove surface dust or chalk that can recur after cleaning.

iii. Remove efflorescence (a growth of salt crystals on a surface caused by evaporation of alkali/salt-laden water). Efflorescence indicates the presence of alkaline surface residues that may interfere with the adhesion of any topically-applied coating.

1. Since alkaline residues may persist after ordinary cleansing, check suspect areas with pH indicator pen suitable for detecting surface pH in the 1-12 range. Follow the manufacturer's instructions for the proper use of pH indicator pen, and use distilled water whenever possible to avoid analysis biased by acidic tap water.

2. If a highly-alkaline surface pH is detected, apply a manufacturer-recommended acid wash solution designed to neutralize alkaline surface conditions[xii]. Rinse neutralizer residue with clean water and permit the surface to dry. Retest pH after neutralization, and repeat process as necessary before encapsulation.

iv. If surfaces continue to spall and/or exhibit chalk after thorough and repeated cleaning, apply a masonry conditioner[xiii] to bind up loose surface particulate matter. Consider an Encapsulant Patch Test to determine whether a masonry conditioner or other primer coat is necessary.

v. Surfaces which exhibit water-damage, discoloration, or highly-pigmented bare brick or masonry substrates should be primed with a stain-blocking primer[xiv]. Some masonry conditioners can also block some potential migrating stains.

vi. For below-grade applications to cementitious substrates such as concrete, the Architect or Engineer may direct contractor to conduct multiple Encapsulant Patch Tests, and observe tests for a longer than normal evaluation period. Below-grade applications can be impacted by hydrostatic pressure and water-vapor transmission through substrates on the perimeter of a foundation. Generally, lead encapsulants do not efficiently permit moisture to migrate through the encapsulant film.

vii. Brick (especially, red, brown) can contain iron and other mineral compounds which can migrate into an encapsulant topcoat creating a bleeding stain similar to a rust stain. Bare brick, especially dark color brick, may need to be sealed with a stain blocking primer or masonry conditioner.

viii. Previously applied waterproofing/damproofing membranes, mastics and coatings can be hydrophobic and interfere with the adhesion of an encapsulant.

C. PLASTER, GYPSUM WALLBOARD
   a. All surface defects shall be filled, wet sanded and spot primed with a masonry conditioner, stain blocking primer, or equivalent sealant/undercoat.
   b. Gypsum wallboard exhibiting "nail-popping" shall be repaired, filled, wet sanded and spot-primed with a 100% acrylic rust-inhibiting universal surface primer prior to encapsulating.

D. SURFACE ASSESSMENT & PREPARATION FOR METAL SURFACES: Note: The proper encapsulation of lead-based painted metal surfaces will require the determination of the degree of deterioration, the expected severity of exposure, and any information available on the type of coatings previously used.

   a. Degrees of Deterioration of Painted Steel Surfaces: Use the ASTM Method D160 or "SSPC Guide to Visual Standard No. 2 for evaluating Degree of Rusting on Painted Steel Surfaces". The degree of rusting shall be correlated as follows:

Sound Paint System	9 - 10
Slight to Moderately Deteriorated Paint System	6 - 8
Severely Deteriorated Paint System	0 - 5

   b. Ferrous Metal: The surface preparation of any ferrous metal depends not only on its condition, but also on the severity of the environment. For descriptive purposes, two will be referred to in this specification: Severe Exposures and Domestic Atmospheric Exposures.

      i. Severe Exposures: Circumstances that affect the coatings to extremes are marine atmospheric conditions, immersion, brackish water exposure, chemicals, and similar severe environments. This would include sewage treatment plants, water tanks, etc. If the steel was not properly prepared on the previous painting, such preparation must be accomplished before applying an encapsulant. Specifically, sharp edges, protruding welds, and weld splatters must be ground smooth before application of an encapsulant.

         1. Grease, rust, scale, dirt and dust must be removed as follows:

            a. Remove rust and scale by wet wire brushing and wet sanding. Always avoid dry wire brushing or sanding any lead-containing surfaces as this may increase lead exposure.

            b. Remove dust, dirt, oil and grease. Clean surfaces using a manufacturer-approved degreasing surface cleaner which is free-rinsing, and does not require a neutralizer[xv].

            c. Perform a water-break test per Section 3.02 Subsection A.d of this specification to determine if oil and grease have been removed. Repeat if necessary. Apply phosphoric acid solution. Let set as recommended by acid etch manufacturer. Rinse with clean water. If water "beads-up" on the surface, oil and/or grease is still present and cleaning process must be repeated before applying

         2. When cleaned ferrous metal surfaces are thoroughly dry, immediately apply a manufacturer-approved rust inhibiting metal primer[xvi] to prevent "flash" rusting.

      ii. Domestic Atmospheric Exposures: These conditions are less severe and generally dryer than those explained under the "Severe Exposure" section above. Investigate the soundness of any existing coatings to determine the amount of surface preparation that is necessary and desirable. If the steel was not properly prepared on the previous painting, it must be accomplished before applying an encapsulant. Specifically, sharp edges, protruding welds, and weld splatters must be ground smooth before repainting. Grease, rust, scale, dirt and dust are required to be removed as follows:

1. Remove rust and scale by wire brushing and wet sanding. Always avoid dry wire brushing or sanding any lead-containing surfaces as this may increase lead exposure.
2. Remove dust, dirt, oil and grease. Clean surfaces using a manufacturer-approved degreasing surface cleaner which is free-rinsing, and does not require a neutralizer[xvii].
3. Perform a water-break test per Section 3.02 Subsection A.d of this specification to determine if oil and grease have been removed. Repeat if necessary. Apply phosphoric acid solution. Let set as recommended by acid etch manufacturer. Rinse with clean water. If water "beads-up" on the surface, oil and/or grease is still present and cleaning process must be repeated before applying
4. When cleaned ferrous metal surfaces are thoroughly dry, immediately apply a manufacturer-approved rust inhibiting metal primer[xviii] to prevent "flash" rusting.

c. Galvanized Metals: Remove all oil, grease, dirt, loose or scaling paint, mil scale and other foreign matter by wire brushing and wet sanding. Always avoid dry wire brushing or sanding any lead-containing surfaces as this may increase lead exposure. Surface oil should be wiped off with mineral spirits and a clean rag. Perform a water-break test per Section 3.02 Subsection A.d of this specification to determine if oil, grease and residual mineral spirits remain on the substrate. When thoroughly dry apply a manufacturer-approved rust inhibiting metal primer[xix] to any areas where galvanization has been lost due to exposure and/or cleansing, and encapsulants would be applied directly to bare metal. Previously painted galvanized substrates may not need to be primed except for spot areas where the encapsulants would be applied directly to bare metal.

d. Copper:

   i. Copper will readily accept encapsulants and preparation requirements entail only a thorough cleaning. Perform solvent degreasing as above, followed by application of a "tie-coat" adhesion enhancing primer.

   ii. Lead-coated copper and similar cladding and ornamental materials can be encapsulated. However, specialized cleaning and application of a vinyl butyral wash primer (or similar) requires a separate specification available from Fiberlock.

e. Aluminum:

   i. Remove rust and scale by wire brushing and wet sanding. Always avoid dry wire brushing or sanding any lead-containing surfaces as this may increase lead exposure.

   ii. Wash all areas to be encapsulated with manufacturer approved lead-specific surface cleaner[xx]. Clean to the extent required to remove existing deteriorated coatings and any other foreign matter, paying particular attention to areas found under structural components such as eaves, beams, archways, etc. Cleaner should be mildly acidic (pH 5-6), TSP-free (no trisodium phosphate) free-rinsing, and does not require a neutralizer. In some cases, a degreaser may also be needed to remove stubborn oils, grease and similar contaminants. Under certain circumstances, it may be necessary to develop a profile by mechanical means such as power tool cleaning.

   iii. When cleaned aluminum metal surfaces are thoroughly dry, immediately apply a manufacturer-approved rust inhibiting metal primer[xxi] to prime rust post cleaning on ferrous metal architectural components (such as nail &/or screw heads, fasteners, etc.), and to prevent "flash" rusting.

   iv. To ensure adhesion, prime entire lead painted and bare aluminum surface that is required to be encapsulated, to achieve proper bond. Primers utilized shall be water-based, urethane modified, acrylic primer-sealers [xxii].

3.03 APPLICATION OF COATINGS

A. ENCAPSULANT

a. Apply encapsulant only after the surface has been examined, assessed, prepared, cleaned, primed and dried, as outlined in the surface assessment and preparation sections of this specification (sections 3.01 and 3.02). Application of encapsulant to surfaces that are not clean, dry, sound, deglossed and properly primed as described will void all warranties.

b. Apply encapsulant at a wet mil film thickness that will yield the recommended minimum dry mil film thickness at which the submitted testing to ASTM E 1795 documents compliance with performance requirements mandated in regulations (see Submittals Section 1).

c. Wet mil film thickness should be measured throughout any encapsulation project using a wet mil gauge

i. Wet film thickness gauges are available upon request and at no charge from the manufacturer of the lead paint encapsulant.

ii. Another method to assure that a minimum dry film thickness is achieved, is to tape a panel (Also called a "coupon) with a predetermined thickness, to the area being coated so that it receives the same treatment as the surrounding area. Once the film dries the panel should be measured again using a micrometer or dial caliper. Subtract overall thickness from the panel thickness to determine the dry film thickness.

B. TOPCOAT FOR ENCAPSULANT: The lead paint encapsulant product specified (see Section 2, Basis of Design) in this document is serviceable as the final finish, even in occupant direct contact areas, for many environments and applications. However, not all encapsulants for lead paint can serve as a finish, and any product submitted should be checked to see if/when a performance-related topcoat is required on vertical and overhead (non-friction, non-impact) substrates. Note that a protective material against premature wear is always required by any encapsulant for lead paint used on floors, surfaces receiving friction, and surfaces receiving regular impact or traffic. A topcoat may also be utilized for decorative priorities, such as when a different gloss level or appearance is required for architectural aesthetics.

a. SEVERE ENVIRONMENTS[xxiii]: [RESERVED FOR PROJECT SPECIFIC INFORMATION – Contact Fiberlock or the MasterWorks Design+Specification team to develop and customize this section.

b. OPTIONAL TOPCOATS FOR DECORATIVE OBJECTIVES: The following section includes topcoats deemed compatible with the lead encapsulant, and general recommendations.

i. GENERAL GUIDE TO TOPCOATING OF ENCAPSULANT:

1. Verify manufacturer recommends high-quality 100% acrylic latex paint. While almost any latex or solvent-based paint can be used to topcoat over lead encapsulants, 100% acrylics typically yield the best adhesion, performance and aesthetics. Ceramic reinforcement can provide beneficial durability without adding a step or expense.

2. When possible, recommend specifying paint with a high binder content such as a high-gloss, semi-gloss or satin finish as opposed to a flat.

3. Manufacturers of encapsulants generally suggest avoiding paints made with vinyl acrylic binders.

4. Lacquers, epoxy and urethanes containing strong active solvents should never be applied as a topcoat over encapsulants, except/unless pre-approved by the encapsulant manufacturer

5. Encapsulants applied at 18 or less wet mils should air dry for eight to sixteen hours in ambient conditions at or above 50°F and 50% relative humidity before applying an acrylic latex topcoat. Solvent type (oil-based) topcoats may be

applied only after encapsulants have cured for a minimum of ten to fifteen days at the conditions listed (unless otherwise recommended in writing by the manufacturer).

i. SPECIFIC TOPCOAT SUGGESTIONS: The following product-specific paint topcoat recommendations are provided to the specifier as suggestions when considering finish options atop the encapsulant:

a. High-Gloss (Historic Precedent at the Moffett Site): EVERLIFE WATERBORNE HIGH GLOSS ENAMEL (See Basis for Design)

b. Other Recommendations for Finishes (alternatives, less than high gloss):

i. Exterior Acrylic Paint for Wood and Gypsum: 100% acrylic exterior latex house paint for use on primed wood and gypsum soffits:

i. CALIFORNIA: Ultra 2010, 100% acrylic, Exterior Series: 400 Flat, 401 Low-Luster, 402 Semi-Gloss.

1. Tint bases: Pastel, Deep, Medium, Neutral.

ii. CALIFORNIA: Ultra High Build, Crosslinking 100% Acrylic, Exterior. Series 801.

iii. CALIFORNIA: Fres-Coat Exterior, Series: 450 Flat, 455 Low-Luster, 471 Semi-Gloss.
1. Tint bases: Pastel, Deep, Medium, Neutral

ii. Interior Latex Semi-Gloss Paint: Ready mixed, latex enamel for use on primed interior wood items and plaster, with anti-fungal agent additive, applied with a dry film thickness not less than 1.5 mils per coat:

iv. CALIFORNIA: Ultra Aquaborne Ceramic Interior, 100% acrylic Semi-Gloss. Series 757.

1. Tint bases: Pastel, Deep, Medium, Neutral. Superhide White.

v. CALIFORNIA: Verde 100% Acrylic, Premium Interior Semi-Gloss. Series 763.

1. Tint bases: Pastel, Deep, Medium, Neutral. Superhide White

2. This product meets odor testing standards in order to achieve Green Wise Certification by the Coating Research Group Inc. CRGI Test Method 78. Based upon ASTM D6886 testing. Product meets or exceeds current OTC VOC standards (www.otcair.org).

vi. CALIFORNIA: CalPro Low VOC Acrylic Interior Semi-Gloss. Series 658.

1. Tint bases: Pastel, Medium.

2. This product meets odor testing standards in order to achieve Green Wise Certification by the Coating Research Group Inc. CRGI Test Method 78. Based upon ASTM D6886 testing. Product meets or exceeds current OTC VOC standards (www.otcair.org).

iii. Interior Eggshell Latex Paint for Drywall: Ready mixed, acrylic latex paint, gloss as indicated, with anti-microbial additive to provide a mildew- and odor-resistant coating, applied with a dry film thickness not less than 1.5 mil per coat:

vii. CALIFORNIA: Ultra Aquaborne Ceramic Interior, 100% acrylic eggshell. Series 755.

1. Tint bases: Pastel, Deep, Medium, Neutral. Superhide White.

viii. CALIFORNIA: Verde 100% Acrylic, Premium Interior Eggshell. Series 731.

1. Tint bases: Pastel, Deep, Medium, Neutral. Superhide White

2. This product meets odor testing standards in order to achieve Green Wise Certification by the Coating Research Group Inc. CRGI Test Method 78. Based upon ASTM D6886 testing. Product meets or exceeds current OTC VOC standards (www.otcair.org).

ix. CALIFORNIA: CalPro Low VOC Acrylic Interior Eggshell. Series 657.

1. Tint bases: Pastel, Medium.

2. This product meets odor testing standards in order to achieve Green Wise Certification by the Coating Research Group Inc. CRGI Test Method 78. Based upon ASTM D6886 testing. Product meets or exceeds current OTC VOC standards (www.otcair.org).

c. Interior Latex Paint for Ceilings: Ready mixed, flat finish, acrylic latex paint specifically formulated for ceilings; with anti-microbial additive to provide a mildew- and odor-resistant coating, applied with a dry film thickness not less than 1.5 mil per coat. Must be anti-spatter, non-yellowing, lap resistant and self-priming.

b. CALIFORNIA: Diamond Acrylic Ceiling White. Brightest White. Series 541.

c. CALIFORNIA: Malibu Low VOC Acrylic Ceiling White. Series 248.

i. This product meets odor testing standards in order to achieve Green Wise Certification by the Coating Research Group Inc. CRGI Test Method 78. Based upon ASTM D6886 testing. Product meets or exceeds current OTC VOC standards (www.otcair.org).

d. Interior Semi-Gloss Latex Paint for Baths and Kitchens and Trim: Ready mixed, acrylic latex paint, gloss as indicated, with anti-microbial additive to provide a mildew- and odor-resistant coating, applied with a dry film thickness not less than 1.5 mil per coat:

d. CALIFORNIA: Ultra Aquaborne Ceramic Kitchen & Bath, 100% acrylic with Nanokote technology imbues mold & mildew resistance plus high scrub resistance. Tintable White.

i. Eggshell (045 series)

ii. Satin (046 Series)

iii. Semi-Gloss (047 Series)

e. CALIFORNIA: Ultraplate Trim & Cabinet Enamel. Specifically to form a factory-like satin finish with specially formulated leveling, combined with adhesion and durability. Adheres to difficult surfaces. Satin Finish. Urethane-enhanced acrylic, tintable white, Series 529.

3.03 METHODS OF APPLICATION

A. Airless Spray: Encapsulants can be successfully applied with most major brands of airless spray equipment.

a. Typical settings for airless spray equipment (for encapsulant):

(Reversible) Tip Orifice	Tip Fan Size	Operating Air Pressure	Airless Hose ID	Min. Pump G.P.M.	Hose Length
0.021" to 0.025"	521	1800 - 2000 psi	1/4"	0.50	50' - 100``

b. Technique of Spraying - For best results, apply encapsulants in sweeping strokes always keeping the tip of the gun parallel to the surface at a distance between 12" to 18" inches.

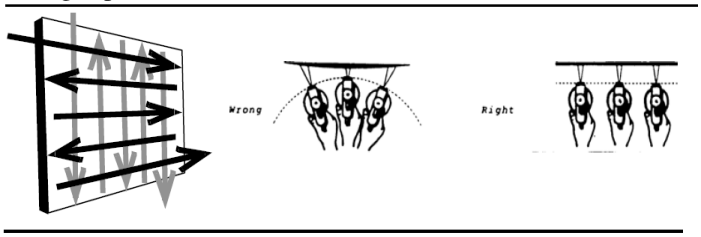

Figure 3. Proper spray application of L-B-C Lead Barrier Compound

c. The speed at which the product is applied depends on the system used.

d. Normally a slow to moderate sweeping stroke of first horizontal followed by vertical passes will afford the desired results.

e. If necessary, an angular mist coat may be applied to even out irregularities.

B. SPECIAL NOTE FOR SPRAY APPLICATION OF ENCAPSULANTS CONTAINING ANTI-INGESTANTS (DOES NOT PERTAIN TO BRUSH OR ROLLER APPLICATION)

a. Per this specification, the Architect/Engineer require that the encapsulant contain a non-toxic, bitter tasting anti-ingestion agent.

b. When sprayed, anti-ingestion agents have a strong bitter taste even in low concentrations.

c. There is no health hazard even if the temporarily airborne particulate is ingested or inhaled. It may cause slight irritation to the nose, mouth and/or throat and therefore as a result, will leave a bitter taste in the mouth. To avoid this discomfort, it is recommended that exposure to the airborne mist be avoided.

d. When areas to be sprayed abut inhabited spaces, rooms or offices should be closed off. The following procedures can be implemented to assure ventilation in the area to be sprayed and yet prevent airflow containing bitter-tasting mists from affecting adjoining rooms. Place an 18-24" fan (air flow pointed outward) turned on "high" in an open window of the room to be sprayed. Open a door to an adjoining area by no less than 2 inches. This will allow adequate air flow away from inhabited areas and yet allow persons to walk back and forth from the application area to the adjoining rooms.

C. Roller: For best results apply with a 3/8" - 1/2" nap roller (manufacturer recommendations may vary).

D. Brush: Apply liberally and uniformly with a polyester or nylon brush.

3.04 CLEANING

A. Remove debris promptly from work area and dispose of properly.
B. Remove spilled, splashed, or splattered coating materials from all surfaces
C. Do not mar surface finish of items being cleaned
D. Remove masking, draping, and other protection from adjacent surfaces
E. As a work area is completed, Installer shall conduct a final wipe down/wash with manufacturer approved lead-specific surface cleaner[xxiv]. [See page 16 WET CLEANING – FINAL WASH, Section 3.01, e, D "Final Wet Cleaning".

3.05 FINISH SCHEDULE/PROTECTION

A. Apply encapsulant and encapsulant/primer/topcoat systems to all areas shown on the drawings or specified in the Room Finish Schedule. Finish Schedule can be summarized (for propery prepared surfaces) as follows:
   a. Exterior Walls
      i. GripTack Primer, 1 coat
      ii. LBC, Custom Color Encapsulant, 1 coat airless sprayer or 2 coats brush/roller
   b. Interior Walls
      i. Adhesion Primer (# coats per label instructions)
      ii. LBC, Custom Color Encapsulant, 2 coats airless sprayer or 4 coats brush/roller
   c. Basement Walls Interior
      i. IAQ 9000 Mold-Resistant Waterproofer, 2 coats[xxv]
   d. Interior and Exterior Gloss Trim and Woodwork
      i. Adhesion Primer (# coats per label instructions)
      ii. LBC, Encapsulant, 2 coats airless sprayer or 4 coats brush/roller
      iii. Everlife, Custom Color Finish, Waterborne Acrylic Enamel
   e. Interior and Exterior Ferrous Metal (Minor and Post-Prep Flash Rusting)
      i. FixRust Alkyd Phenolic Red Oxide Metal Primer (#F500)
      ii. LBC, Encapsulant, 2 coats airless sprayer or 4 coats brush/roller
      iii. Everlife, Custom Color Finish, Waterborne Acrylic Enamel

3.06 WARRANTY

A. Installer shall provide Owner, through Architect/Engineer, with an acceptable form of warranty against defects in workmanship for a period of one (1) year from date of substantial completion.

B. Issuance of manufacturer warranty shall be a condition precedent to receipt by Fiberlock Area Manager of completed and signed warranty documentation.

C. Extent of ENCAPSULANT warranty shall be limited to the repair or replacement of defective surfaces at no additional cost of materials to the Owner during the warranty period of 20 years. Manufacturer may choose instead of replacing product to reimburse for current product value for quantity necessary to effect repairs. The warranty shall not include any remedy for defects caused by abuse, improper maintenance or operation, or by normal wear, tear and usage

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END OF SECTION

END NOTES (INCLUDES SUPPLEMENTARY SYSTEM PRODUCTS)
This section is provided as an aid to the specifier or project designer/manager.
This section may be included or excluded in the project specific specification at their discretion.

[i] Historic Colors of America is a joint venture of Historic New England and the California Paints brand of ICP Group. For more information see https://www.icpgroup.com/masterworks-capaints-historic-colors-america-may2019/ and https://www.californiapaints.com/find-my-color/

[ii] Historic Colors of America is a joint venture of Historic New England and the California Paints brand of ICP Group. For more information see https://www.icpgroup.com/masterworks-capaints-historic-colors-america-may2019/ and https://www.californiapaints.com/find-my-color/

[iii] See https://nchh.org/resource-library/Vermont_Cleaning_Paper.pdf. HOW MUCH CLEANING IS ENOUGH? AN EVALUATION OF ALTERNATIVE POST-LEAD HAZARD INTERVENTION CLEANING PROCEDURES By: Sherry Dixon, A, Ellen Tohn,B, Ron Rupp, C, Scott Clark, DA, National Center For Lead-Safe Housing.

[iv] Example: Piranha NexStrip products are a system of chemical paint removers manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755). For more information: http://www.fiberlock.com/lead/removers.html

[v] Deglossing can be accomplished through leadsafe abrasive practices, chemical etching/deglossing, and/or use of a bonding/adhesion primer.

[vi] Paste Wood Filler/Surfacing and Repair Compound: Ready-To-Use, Professional Grade, Long Open Time, Easily Sanded. Designed for filling interior and minor exterior surface imperfections in previously painted or primed plaster, wallboard and wood. Such as: FIXALL: Spackle PRO, Ready-To-Use (RTU) surfacing compound, F689 Series

[vii] For additional information and guidance regarding Handi-Foam products available for encapsulation projects, contact ICP ADHESIVES located at 2775 Barber Road, Norton, OH. (330) 753-4585 https://www.icpgroup.com/icp-adhesives/

[viii] Adhesion Primer Recommendation: https://www.rustoleum.com/product-catalog/consumer-brands/xim/bonders/advanced-technology-uma-white

[ix] Example: Grip-Tack Multi-Purpose Adhesive & Demolition Lockdown manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 6408-5 (Five-Gallons)).

[x] Example: Power Block Interior/Exterior Stain-Blocking Primer manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 5450-5 (Five-Gallons)).

[xi] Example: ShockWave RTU manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 8316-1-C4 (Gallons)).

[xii] Example: Piranha Neutralizer manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 5710-1-C4).

[xiii] Example: Powerstone Plus Masonry Conditioner/Primer manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 5489-5 (Five-Gallons)).

[xiv] Example: Power Block Interior/Exterior Stain-Blocking Primer manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 5450-5 (Five-Gallons)).

[xv] Example: RECON Heavy Duty Cleaner degreaser manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 3027-1-C4 (Gallons)).

[xvi] Example: Power Rust Stop 100% Acrylic DTM (direct-to-metal) Primer manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 5493-5 (Five-Gallons)).

[xvii] Example: RECON Heavy Duty Cleaner degreaser manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 3027-1-C4 (Gallons)).

[xviii] Example: Power Rust Stop 100% Acrylic DTM (direct-to-metal) Primer manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 5493-5 (Five-Gallons)).

[xix] Example: Power Rust Stop 100% Acrylic DTM (direct-to-metal) Primer manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 5493-5 (Five-Gallons)).

[xx] Example: LeadSafe lead dust cleaner manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 5496-1-C4 (Gallons) or 5496-Q-C12 (Quarts)).

[xxi] Example: Fixall _____ – (quick drying rust inhibiting acrylic latex flat primer/finish for use over new or sound rusty ferrous metal surfaces), manufactured by FIXALL, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: F_____ (Five-Gallons)).

[xxii] Examples: see recommendations under deglossing

[xxiii] Scrubtough by ScuffMaster – can be ideal for performance in school hallways, hospital corridors and similar surfaces expected to receive incidental abuse and frequent cleaning involving some chemicals and/or abrasives. For more information, see https://www.scuffmaster.com/scrub-tough/ ScuffMaster is a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located in Eagan, MN. (800-898-0219).

[xxiv] Example: LeadSafe lead dust cleaner manufactured by FIBERLOCK, a brand of ICP BUILDING SOLUTIONS GROUP (BSG); located at 150 Dascomb Road, Andover, MA. 01810. (800-342-3755) www.fiberlock.com (Product ID: 5496-1-C4 (Gallons) or 5496-Q-C12 (Quarts)).

Xxvi For basement mold and lead remediation; and moisture control via liquid applied waterproofing: A separate specification should be developed for this subsection of the

AVAILABLE TRAINING AND CONTINUING EDUCATION:

ICP BUILDING SOLUTIONS GROUP provides product training via Masterworks. The management teams and field representation for each brand will designate on a project-by-project basis the Masterworks curriculum necessary to be qualified for a specific project, or accredit the approved applicator via onsite or remote instructor-lead training. Hands-on instruction may be required at the discretion of the authorized ICP-brand representative.

Note that training from manufacturer does not replace other training mandated by federal, state or local regulation. Concerning lead paint activities, the contractor is responsible for potential requirements such as EPA lead-safe remediator training (RRP), and/or state-issued lead abatement licensing for firms, supervisors and workers.

The MASTERWORKS DESIGN+SPECIFICATION team of the ICP Building Solutions Group has prepared this overall specification.:

a. Web: https://www.icpgroup.com/programs/masterworks
b. Email: masterworks@icpgroup.com
c. Phone: 800-342-3755 or 978-623-9980

- The effective encapsulation of any abatement project is contingent upon the competence of the applicator.
- The effective success of any project is contingent upon the competence of the applicator.

- If encapsulated surfaces are damaged, repair and re-encapsulate immediately to prevent exposure to the lead hazard. HUD, EPA and several state governments recommend periodic and/or annual examination of all encapsulated surfaces for damage.

- This specification does not fully describe all the limitations, warnings and precautions related to the products described herein.

- Reference should be made to the Technical Product Data Sheets for complete technical information on all products manufactured by Fiberlock and FixAll, both brand divisions of ICP BUILDING SOLUTIONS GROUP (BSG).

- Safety Data Sheets (SDS) should be referred to for health and safety information. Copies of all SDS sheets can be obtained by visiting our website at www.leadsafe.com or https://www.fiberlock.com/safety-technical-data-sheets/

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To obtain a custom specification for your project or organization, contact the Design+Specification Team at ICP BUILDING SOLUTIONS GROUP (BSG) by email to masterworks@icpgroup.com

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