



SECTION 09 9600
SPECIAL COATINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Surface preparation and application of Industrial Coatings (IC) as indicated on the drawings.

1.2 DESIGN AND PERFORMANCE CRITERIA

- A. Provide nuclear decontaminable coating systems for low-level waste and TRU waste treatment and storage areas including application on wall, floor, and ceiling surfaces within the radiological laboratory areas as indicated as Industrial Coating (IC) on the A-7000 series, Room Finish Schedule.
- B. Provide Industrial coating systems with physical characteristics to ensure volatile organic compound (VOC) limit compliance.

1.3 SUBMITTALS

- A. Submit the following in accordance with Exhibit I.:
 - 1. Shop Drawings: Provide shop drawings illustrating location and extent of all Industrial coating systems.
 - 2. Schedule: Provide paint schedule identifying:
 - a. Surface preparation requirements
 - b. Number and thickness of coats (primer, 1st coat, 2nd coat, topcoat) for each coating type
 - c. Exposure condition (floor, wall, or ceiling application).
 - d. Appropriate application methods for each condition.
 - 3. Certifications: Submit testing agency certification that coating products meet nuclear decontaminability requirements.
 - 4. Catalog Data: Submit catalog data including VOC content and material safety data sheets (MSDS) on all finishing products, including name of proposed paint manufacturer for approval;
 - 5. Color samples for selection of colors by LANL.
 - 6. Installation Instructions: Submit manufacturer's instructions.



1.4 QUALITY ASSURANCE

- A. Work identified in this section shall be done under a Quality Assurance Program (QAP) as approved by the Owner and described in Section 01 4000, *Quality Requirements*.
- B. Industrial coatings selected for application on laboratory wall, floor, and ceiling surfaces shall meet the following requirements:
 - 1. Minimum Class B per NFPA 101.
 - 2. DOE-STD-1066 flame spread limits for interior finishes
 - a. Exposed interior wall or ceilings (including ceilings formed by the underside of roofs), and any factory-installed facing material, shall have a UL-listed/FM-approved flame spread rating of 25 or less and a smoke developed rating of 50 or less, per ASTM E-84.”
 - 3. Radiation resistant as determined by ASTM D 4082
 - 4. Decontaminable to at least 95 percent of total activity removed and certified for Nuclear Coating Service Level II

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the Site in sealed and labeled containers; inspect to verify acceptance.
- B. Container labeling shall include manufacturer's name, type of paint, brand name, brand code, VOC content, coverage, surface preparation, drying time, clean-up, color designation, and instructions for mixing and reducing.
- C. Store paint materials at minimum ambient temperature of 45 °F and a maximum of 90 °F, in a well ventilated area, unless required otherwise by manufacturer's instructions.
- D. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 °F for 24 hours before, during, and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is above 50 percent, unless required otherwise by manufacturer's instructions.
- C. Do not apply latex paints when temperatures are below 45 °F for interiors and 50 °F for exterior, unless required otherwise by manufacturer's instructions.

1.7 EXTRA STOCK

- A. Provide one extra gallon of each type, color, and surface texture to LANL.
- B. Label each container with color, texture, room locations, in addition to the manufacturer's label.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Select coatings that are radiation resistant as determined by ASTM D 4082 and decontaminable to at least 95 percent of total activity removed and certified for Nuclear Coating Service Level II.
- B. Select coatings that do not contain mercury, lead, hexavalent chromium, and cadmium.
- C. The industrial coating system, including sealers, patch compound, primer, and finish shall be the product of one manufacturer and as recommended by the manufacturer for compatibility.
- D. Select coatings that are compatible with exposure to strong acids (HCl, HNO₃) and strong bases (NaOH) as well as salt solutions (FeCl₃, MgCl₂, NaCl, NaNO₃) ranging from pH 2 to as high as pH 11.

2.2 ACCEPTABLE MANUFACTURERS

- A. Tnemec, 6800 Corporate Drive Kansas City, MO 64120-1372
- B. PPG Protective and Marine Coatings, One PPG Place
Pittsburgh, Pennsylvania
15272 USA

2.3 COATINGS AND ASSOCIATED MATERIALS

- A. Wall coatings:
 - 1. Tnemec Series 113 H.B. Tnemi-Tufcoat
- B. Floor coatings
 - 1. PPG PSX 700
- C. Primers and preparation
 - 1. Walls:
 - a. Tnemec Series 151-1051 Elasto-Grip FC
 - b. Tnemec Series 113 H.B. Tnemi-Tufcoat

2. Floors:
 - a. PPG Amerloc 400
 - b. PPG Amerlock Sealer.
 - c. PPG Nu-Clad 114A
 - d. aluminum oxide grit.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions under which coating will be applied for suitability to receive Industrial coatings before proceeding with coating application.

3.2 GENERAL REQUIREMENTS

- A. Comply with manufacturer's recommendations and instructions pertaining to the mixing, storing, applying, and using of products.
- B. Precautions shall be employed when cleaning surfaces and applying coatings to protect adjacent surfaces from over-spray, drips, and blast particulate from hitting or entering other building material, components, and equipment. Coating which is applied, over-sprayed, dropped, or otherwise permitted to get on any object or surface other than to which it is being applied, shall be removed at once, and the surfaces on which it was present shall be cleaned, as necessary, to remove all traces of soiling. All cleaning residues shall be containerized in accordance with 40 CFR Part 262.11 and managed as waste in accordance with 20.4.1 NMAC et sec. or 20.9.1 NMAC et sec. as applicable.
- C. Safety precautions shall be observed at the time of coating application. Applications and mixing of paint materials made in open air, and where ventilation is not limited, shall have sufficient precautions to prohibit smoking, sparks, and open flames within a radius of 50 ft. During the application of coatings, necessary precautions shall include proper ventilation, special fire precautions, measurements for control of solvent vapor concentrations, in accordance with 29 CFR 1926.55 and 29 CFR 1910.1000. Applicators, if required to use respiratory protection equipment, shall be trained according to the provisions of 29 CFR 1926.103 and 29 CFR 1910.134.
- D. Fumes shall not be allowed to build up. Areas where coating works are to be completed shall be ventilated to remove fumes. Concentration of combustible fumes shall be maintained below 10 percent of the Lower Explosive Limit.

3.3 SURFACE PREPARATION

- A. Perform surface preparation in accordance with coating manufacturer's product data sheets for each surface condition. The wall and ceiling surfaces shall be

generally smooth and ready to receive industrial coating system. The use of stippled surfaces is undesirable.

- B. Joints should be sealed or filled with silicone type materials to facilitate cleaning (or removal in the event that decontamination cannot be achieved). Service penetrations in walls and ceilings should be sealed and covered.

3.4 PAINT APPLICATION

- A. Perform coating application in strict accordance with the recommended application instructions of the coating manufacturer. Apply successive coats to wet film thickness recommended by the paint manufacturer to achieve the specified dry film thickness indicated on the manufacturer's published product data sheets.
- B. Wall coatings:
 - 1. Primer: Tnemec Series 151-1051 Elasto-Grip FC at 0.7 to 1.5 dry mill thickness (D.M.T.)
 - 2. Intermediate coat: Tnemec Series 113 H.B. Tnemi-Tufcoat at 4.0 to 6.0 D.M.T.
 - 3. Top coat Tnemec Series 113 H.B. Tnemi-Tufcoat at 4.0 to 6.0 D.M.T.
 - 4. At base of wall (floor to 12" up wall) apply
 - a. Primer: PPG Amerloc 400 per below
 - b. PSX 700 per below.
- C. Floor coatings:
 - 1. Prep-coat PPG Amerlock Sealer at 1.0 to 2.0 D.M.T.
 - 2. Prep-coat PPG Nu-Clad 114A to holes and cracks up to ¼ inch and other surface discontinuities
 - 3. Primer: PPG Amerloc 400 at 6.0 to 8.0 D.M.T.
 - 4. Broadcast aluminum oxide grit into primer while wet per manufacturers instructions.
 - 5. Top coat: PSX 700 at 5.0 to 8.0 wet mil thickness to obtain final coating of 10 to 15 D.M.T.

3.5 FIELD QUALITY CONTROL

- A. Surfaces that are to receive coatings shall be inspected and tested in a manner to physically measure the wet or dry film thickness. Nondestructive methods of testing are preferred; however, if destructive methods are employed, the test site shall be touched up to repair the finished surface to its original finished condition

after the destructive test is completed. Film thickness (either wet or dry) shall average no more or less than 20 percent of the specified thickness.

- B. Each coat of paint shall be inspected and tested by a qualified inspector/testing professional with periodic witnessing by the LANL Contract Administrator before application of succeeding coat. Maintain testing records at jobsite for inspection by LANL Contract Administrator.
- C. Test coating thickness with an approved type of low voltage dry mil gauge apparatus to measure the dry film thickness.

3.6 CLEANING

- A. During the progress of the Work, remove from the Site all discarded paint materials, rubbish, cans, and rags at the end of each work day and clean all coating equipment, brushes, sprayers, and related materials, as recommended by the manufacturer.
- B. Collect cotton waste, cloths, and materials that may constitute a fire hazard, place in closed metal containers, remove daily from the Site, and characterized in accordance with 40 CFR Part 262.11 and managed as waste in accordance with 20.4.1 NMAC et sec. or 20.9.1 NMAC et sec. as applicable.

END OF SECTION