ACRYDUR® RC 60 Mil Sand Broadcast Solid Color Flooring System Specification

PART 1 – GENERAL

1.1 WORK INCLUDED

A. Work described in this section includes surface preparation and installation of Methyl Methacrylate (MMA) Acrylic Floor Coating System.
B. See drawings for locations and quantities.

1.2 RELATED WORK - Specified elsewhere

A. Cast-in-place concrete (Section 03300)

1. See Paragraph 1.08 - Requirements for New Concrete.

B. Painting (Section 09900)

1.3 SYSTEM DESCRIPTION

A. The ACRYDUR® RC coating system shall be 60 mils of solvent-free, 100% reactive Methyl Methacrylate (MMA) based Acrylic liquid resin flooring system with appropriate Primer and Topcoat.
B. The coating system shall cure and be available to normal traffic in no more than 90 minutes at 68°F. after application of the final roller coat. It shall have a maximum water absorption value of 0.05 weight percent in accordance with ASTM D570. It shall be chemically resistant to a wide range of acids, alkalis, salts, fats, oils, and other chemicals.
C. See Paragraph 3.04 and/or 3.07 for number and thickness of each coat/layer in each system.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Acceptable manufacturer: Plasti Chemie International GmbH Falgardring 1 D-08223 Falkenstein +49 3745 74432-0 www.acrydur.net. Distributed by Plasti Chemie North America LLC. 400 5th Ave, S suite 301 Naples, FL 34102 , +1(305) 336-7635, http://www.plasti-chemie-america.com

2. No request for substitution shall be considered that would change the generic type of coating system specified (i.e., 100% reactive, Methyl Methacrylate based acrylic liquid). Equivalent materials of other manufacturer's may be substituted only on approval of the Architect or Engineer. Requests for substitution will be considered if submitted within 10 days after the execution of the contract. Requests shall include the respective manufacturer's technical literature for each product giving the name, generic type, descriptive information, recommended dry film thickness (DFT), Material Safety Data

Sheet (MSDS), and certified test reports showing results to equal performance criteria of products specified herein.
3. Manufacturer must show a minimum of 10 projects of equal size, and magnitude as this project.

B. Applicator Qualifications:

1. Pre-qualification requirements: Each bidder for this project shall be prequalified and approved by the material manufacturer at the time of bid submittal. Acceptability will include judgement on equipment, history, and financial strength. In no case will Plasti Chemie North America LLC. permit the application of any of its materials by untrained, non-approved Contractor or personnel.
2. Each approved applicator shall have been trained by the Manufacturer in all phases of surface preparation and application of the specified flooring system(s).
3. Each approved applicator must have five years experience of installing the specified flooring system and submit a list of five projects/references as a prequalification requirement. At least one of the five projects/references must be of the same type, equal size, quantity, and magnitude to this project as a prequalification requirement. Owner has the option to personally inspect the projects/references to accept or reject any of the Contractors prior to bid time as a prequalification requirement.

C. Subcontractor Qualifications:

1. The only approved and specified subcontractors for this resurfacing work shall be for shot-blast cleaning of the concrete substrate.

D. Acceptance Sample:

1. A minimum one-foot square representative sample of the specified flooring system shall be prepared by the Manufacturer's representative and submitted to the Owner prior to the bidding phase of the project. All bidders shall inspect the "acceptance sample" before submitting their bids.
2. The installed flooring system shall be similar to the acceptance sample in thicknesses of respective film layers, color, texture, overall appearance and finish.

E. Bond Testing:

1. Surface preparation efforts shall be evaluated by conducting Bond Tests at the site prior to application of the flooring system(s).
2. See paragraph 3.03 - B or consult with Material Manufacturer for specific procedure.

F. Pre-Job Meeting

1. Owner requires a Pre-Job Meeting with representatives of Owner, Contractor/Applicator, and Material Manufacturer in attendance. The agenda shall include a review and clarification of this specification, application procedures, quality control, inspection and acceptance criteria, and production schedules. Applicator is not authorized to proceed until this meeting is held or waived by Owner.

1.5 REFERENCE STANDARDS

A. ACI 308 - Standard Practice for Curing Concrete
B. ACI 302.1R-80 - Guide for Concrete Floor and Slab Construction
C. United States Department of Agriculture (USDA) and Food and Drug Administration (FDA) authorization for incidental contact with foodstuffs.

1.6 SUBMITTALS

A. Acceptance Sample: One foot square (1 ft. by 1 ft.) sample of the specified acrylic flooring system applied to hardboard or similar backing for rigidity and ease of handling.
B. Manufacturer's Literature: Descriptive data and specific recommendations for surface preparation, mixing, and application of materials.
C. Manufacturer's Material Safety Data Sheets (MSDS) for each respective product to be used.

1.7 DELIVERY, STORAGE, AND HANDLING

A. All material shall be delivered in original Manufacturer's sealed containers with all pertinent labels intact and legible.
B. Store materials in dry protected area between 25° and 80° Fahrenheit. Keep out of direct sunlight. Protect from open flame; keep all containers grounded.
C. Follow all Manufacturer's specific label instructions and prudent safety practices for storage and handling.

1.8 PROJECT/SITE CONDITIONS

A. Material, air, and surface temperatures shall be in the range of 25° to 85° Fahrenheit during application and cure, unless a special formulation is being used and Manufacturer has been consulted.
B. Relative humidity in the specific location of the application shall be less than 85% and the surface temperature shall be at least 5° above the dew point.
C. Conditions required of new concrete to be coated with MMA materials:

    1. Concrete shall be moisture cured for a minimum of 7 days at 70° F. The concrete must be fully cured for a minimum of 28 days prior to application of the coating system pending moisture testing.
    2. Surface contaminants such as curing agents, membranes, or other bond breakers should not be used.
    3. Concrete shall have a steel trowel finish of the concrete (a hard steel trowel or burnished finish is neither necessary nor desirable).
    4. Drains should be set to the concrete grade rather than raised to the finished grade of the topping.

D. Concrete shall have a moisture emission rate of no more than 5 lbs. per 1000 sq. ft. per 24 hour period as determined by proper Calcium Chloride Testing.

E. Foodstuffs are the responsibility of the Owner and shall have been removed from the area of application by the Owner or his representatives.
F. Vapor barriers and/or suitable means shall have been installed beneath grade slabs to prevent vapor transmission.

1.9 WARRANTY

A. Plasti Chemie North America LLC. warrants that materials shipped to buyers are at the time of shipment substantially free from material defects and will perform substantially according to Plasti Chemie North America LLC´s published literature if used strictly in accordance with Plasti Chemie North America LLC´s prescribed procedures and prior to expiration date.
B. Plasti Chemie North America LLC´s liability with respect to this warranty is strictly limited to the value of the material purchased.
C. Plasti Chemie Produktions GmbH and Plasti Chemie North America LLC. has no responsibility for the application and processing of products and is under no circumstances liable to any third party whatsoever.

1.10 SEQUENCING/SCHEDULING

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Plasti Chemie International GmbH Falgardring 1 D-08223 Falkenstein +49 3745 74432-0 www.acrydur.net. Distributed by Plasti Chemie North America LLC. 400 5th Ave, S suite 301 Naples, FL 34102 , +1(305) 336-7635, http://www.plasti-chemie-america.com

2.2 MATERIALS

A. ACRYDUR® RC Methyl Methacrylate (MMA) Acrylic Resin System:

1. Saturating Primer/Sealer Coat:
   Acrydur® 112/113
2. Coving (if required):
   Acrydur® 540/H with appropriate filler
3. Patching/Sloping (if required)
   Acrydur® 050/051 Polymer Concrete
4. Topping:
   Acrydur® 418 Body Coat with sand broadcast
5. Topcoat:
   Acrydur® 522 Topcoat Resin
6. Pigment: Color as selected by owner

2.3 PRODUCT PERFORMANCE CRITERIA

A. Acrydur® 112/113 Primer/Sealer

1. Percentage Reactive Resin:	100%
Percentage Solids	100%
2. Water Absorption, Wt. % (ASTM D570):	less than 0.6
3. Tensile Strength, psi (ASTM D638)	3550
4. Tensile Modulus, psi X 10 to the 5th (ASTM D638):	2.1
5. Coefficient of Thermal Expansion, in./in./deg. F (ASTM D696):	.000035
6. Electrical Resistivity (ASTM D257):	
Volume Resistance, ohm-cm:	10^{15}
Surface Resistance, ohm:	10^{12}
7. Water Vapor Transmission (DIN 53122), g/cm-hr-mm Hg X 10^{-9}:	1.4

B. Acrydur® 050/051 Polymer Concrete

1. Percentage of reactive resin	100%
2. Water Absorption, Wt. % (ASTM D570):	0.02
3. Tensile Strength, psi (ASTM D638)	1200
4. Tensile Modulus, psi X 10 to the 5th (ASTM D638):	1.2
5. Coefficient of Thermal Expansion, in./in./deg. F (ASTM D696) psi x10^{-6}:	18
6. Compressive Strength, psi (ASTM C39)	7,800
(ASTM C109)	9,200

C. Acrydur® 418 Resin.

1. Percentage of reactive resin	100%
Percentage of solids:	100%
2. Water Absorption, Wt. % (ASTM D570):	<0.1
3. Compressive Strength, psi (ASTM C109):	5,000-5,500
(ASTM D695):	6,000
4. Tensile Strength, psi (ASTM D638):	2,150
5. Flexural Strength, psi (ASTM L5600 MOD):	2700-2800
6. Coefficient of Thermal Expansion, in./in./deg. F (VDE 0304/1):	3.5
7. Electrical Resistivity, (ASTM D257) Volume Resistance, ohm-cm:	10^{14}
8. Chemical Resistance, ASTM D543:	
Effect of weak acids:	none
Effect of strong acids:	slight
Effect of alkalis:	none
Effect of salt solutions:	none
Effect of oil, grease:	none
Effect of sunlight (UV radiation):	none

D. Acrydur® 522 Topcoat Resin

1. Percentage Reactive Resin:	100%
Percentage Solids:	100%

2.	Water Absorption, Wt. % (ASTM D570):	0.05
3.	Tensile Strength, psi (ASTM D638):	3555
4.	Tensile Modulus, psi (ASTM D638):	210,000
5.	Coefficient of Thermal Expansion (ASTM D696) in./in./deg. F:	.000035
6.	Electrical Resistivity (ASTM D257):	
	Volume Resistance, ohm-cm:	10^{15}
	Surface Resistance, ohm: 1	0^{12}
7.	Water Vapor Transmission (DIN 53122) g/cm-hr-mm Hg X 10^{-9}:	1.43
8.	Chemical Resistance, ASTM D543:	
	Effect of weak acids:	none
	Effect of strong acids:	slight
	Effect of alkalis:	none
	Effect of salt solutions:	none
	Effect of oil, grease:	none
	Effect of sunlight (UV radiation):	none

2.4 PRODUCT INSTALLATION & APPLICATION CRITERIA

A. All ACRYDUR® Material Systems:

1. Pot Life at 68° F.: 10-15 minutes
2. Cure Time at 68° F.: 60 minutes
3. Recoat Time at 68° F.: 60-90 minutes

2.5 MIXES

A. Follow Manufacturer's prescribed procedures and recommendations.

PART 3 – EXECUTION

3.1 PREWORK INSPECTION

A. Examine all surfaces to be coated with MMA material systems and report to the Owner and/or Engineer any conditions that will adversely affect the appearance or performance of these coating systems and that cannot be put into acceptable condition by the preparatory work specified in Paragraph 3.03.
B. Do not proceed with application until the surface is acceptable or authorization to proceed is given by the Engineer.
C. In the event that Applicator has employed all acceptable methods of surface preparation and cannot remedy adverse conditions that would lead to failure of the installation, Applicator shall withdraw from the contract and Owner will be financially responsible only for preparation efforts.

3.2 GENERAL

A. Material storage area must be selected and approved by Applicator and Owner or his representative.
B. Owner will furnish ____ V ____ Phase electricity and water for use by Applicator.

C. If existing ventilation is inadequate, Applicator will provide sufficient ventilation to allow complete air exchange every five (5) minutes.
D. Owner shall provide means for disposal of construction waste.
E. Applicator will protect adjacent surfaces not to be coated with masking and/or covers. Owner's equipment shall be protected from dust, cleaning solutions, and flooring materials.

3.3 PREPARATION

A. Surface Preparation – General

1. Concrete substrate must be clean and dry. Dislodge dirt, mortar spatter, paint overspray, and other dry surface accumulations and contamination by scraping, brushing, sweeping, vacuuming, and/or compressed air blowdown.
2. New concrete: See 1.08 - C for requirements.
3. Surfaces that are heavily contaminated shall be cleaned with the appropriate degreaser, detergent, or other appropriate cleaner/surfactant followed by thoroughly rinsing with fresh water to remove the accumulation prior to mechanical cleaning efforts. Mechanical cleaning will not remove such deposits, but only drive them deeper.
4. Concrete shall have a moisture emission rate of no more than 5 lbs. per 1000 sq. ft. per 24 hour period as determined by proper Calcium Chloride Testing.

B. Bond Testing

1. The applicator shall evaluate all surface preparation by conducting bond tests at strategic locations.
2. Mix six (6) ounces of the primer to be used in the application with #10-#12 mesh, dry quartz sand until an easily trowelable mixture is obtained. Add 10% by volume Acrydur® 50 W Powder Hardener and mix well. Apply palm-sized patties 1/8" to 1/4" thick.
3. After one (1) hour at (68° F.), patties must be cured tack-free and cooled to ambient temperature of concrete. Remove patties with hammer and chisel and examine fracture/delamination plane. Concrete with fractured aggregate must be attached to the entire underside of the patty.
4. If only laitance or a small amount of concrete is attached or if interface between patty and substrate is tacky, further substrate preparation is required.
5. If further surface preparation is required, bond tests shall be conducted again when this has been completed.
6. If no amount or kind of surface preparation produces satisfactory bond tests, the applicator shall report that to the Owner, Engineer, and Manufacturer.

C. Mechanical Surface Preparation and Cleaning

1. All accessible concrete floor surfaces shall be mechanically blast cleaned using a mobile steelshot, dust recycling machine such as BLASTRAC, as manufactured by Wheelabrator Corp., or approved equivalent. All surface and embedded accumulations of paint, toppings, hardened concrete layers, laitance, power trowel finishes, and other similar

surface characteristics shall be completely removed leaving a bare concrete surface having a profile similar to 40 grit sandpaper and exposing the upper fascia of concrete aggregate.

2. Floor areas inaccessible to the mobile blast cleaning machines shall be mechanically abraded to the same degree of cleanliness, soundness, and profile using vertical disc scarifiers, starwheel scarifiers, needle guns, scabblers, or other suitably effective equipment.
3. After blasting, traces or accumulations of spent abrasive, laitance, removed toppings, and other debris shall be removed with brush or vacuum.
4. Conduct Bond Tests to check adequacy of surface preparation. See Paragraph 3.03 - B (Bond Testing).
5. Application of the respective specified material system(s) must be completed before any water or other contamination of the surface occurs.

3.4 INSTALLATION

A. Application of ACRYDUR® RC Sand Broadcast Flooring System consists of:

1. Applying the primer/sealer
2. Applying coving (if required)
3. Performing patching and sloping with Acrydur® 050/051 (if required)
4. Re-priming mortar areas
5. Applying the pigmented resin with appropriate filler, then broadcasting with sand
6. Applying Topcoat

B. Time for curing (45 - 60 minutes) shall be allowed between each coat. Thicknesses are specified below and/or in Paragraph 3.07.

C. Open only the containers of component materials to be used in each specific application as needed. Refer to Manufacturer's data sheets for pot-life/temperature relationship to determine size of batches and mix ratios for each respective coat of the system.

D. Measure, add, and mix the initiator (ACRYDUR® 50W Powder Hardener) into the respective resin components in the proportions recommended by the Material Manufacturer. Pot life is short, so mix only as much material at a time as can be easily and efficiently applied.

3.5 PRIME COAT

A. Measure, add, and mix the i-component, and initiator (ACRYDUR® Powder Hardener) into the respective resin components in the proportions recommended by the Material Manufacturer.

B. Pour the mixture batches onto the floor surface and use 18" wide, 1/2" - 3/4" thick-napped, solvent-resistant paint roller to roll out the material at a rate of 100 sq. ft./ gal. to form a uniform, continuous film, ensuring that all crevices, cracks, other surface discontinuities have been saturated and coated. Use a paint brush to reach areas inaccessible to the roller. Work quickly and deliberately; the pot life is short (10 -15 minutes). Do not leave any "puddles"; roll out any such accumulations.

C. Allow the primer/sealer coat to cure.

D. If any of the concrete has absorbed all of the primer or if the concrete still has a dry look, reprime these areas before applying Wearcoat or Topcoat.

3.6 COVING (If Required)

A. Surface Preparation

1. If concrete walls are to be painted prior to installation of cove base, the bottom portion of the walls shall remain un-coated to the height of the cove base to insure a proper bond to the concrete wall.
2. If walls are constructed of a non-compatible material or if a coating exists, a backer board of ¼" plexiglass or ½" cement board cut to the desired height of the cove base needs to be installed. The top of the backer board should be cut at a 45° angle to create a "beveled" edge.
3. If a backer board needs to be installed it shall be fastened using a high grade construction adhesive as well as counter sunk screws or concrete masonry anchors.

B. System Description

1. Cove base shall be installed according to manufacturers recommendations and shall be one of two systems:

   1) CB Filler Cove Base consisting of "spooned in" radius and brush on body coat.
   2) Trowel-On Cove Base consisting of a trowel applied radius/base mix with a termination strip installed at the top of the base.

2. Cove base will receive a broadcast and top coat consistent with flooring system.

3.7 PATCHING/SLOPING (If Required)

A. Measure, add, and mix the 050/051 Resin and Powder Component, and nessecary aggregate (if required) in the proportions recommended by the Material Manufacturer.
B. Use mixture to repair any damaged concrete, or to slope any areas as needed.
C. Once cured, material must be re-primed with Acrydur® 112/113 before topping system is applied.

3.8 BODY COAT

A. Apply (pigmented) Acrydur® 418 Resin and s/l filler with clean rollers at a rate of 60-70 sq.ft./gal. in the same way as the Primer/Sealer was applied as described in Paragraph 3.04.01.
B. Immediately and uniformly broadcast 30-50 mesh sand into the wet material. Even broadcasting is best achieved by throwing handfuls of the broadcast material towards the ceiling and allowing it to "rain" down. Or by incorporating the use of a back pack type blower unit.
C. Allow the topping to cure.
D. Remove excess sand by sweeping, "blow-down", then vacuum prior to next coat.

3.9 TOP COAT

A. Apply Acrydur® 522 resin and pigment with clean rollers at a rate of 100 - 125 sq. ft./gal. in the same way as the Primer/Sealer was applied as described in Paragraph 3.04.01.

3.10 SECOND TOPCOAT (if required)

A. Apply with clean rollers at a rate of 100 - 125 sq. ft./gal. in the same way as the Primer/Sealer was applied as described in Paragraph 3.04.01.
B. Allow topcoat to cure.

3.11 FIELD QUALITY CONTROL/INSPECTION

A. Applicator shall request acceptance of surface preparation from the Engineer before application of the prime/seal coat.
B. Applicator shall request acceptance of the prime/seal coat from the Engineer before application of subsequent specified materials.
C. All work not acceptable to the Architect, Engineer, or Owner must be corrected before consideration of final acceptance.

3.12 CLEANING

A. Applicator shall remove any material spatters and other material that is not where it should be. Remove masking and covers taking care not to contaminate surrounding area.
B. Applicator shall repair any damage that should arise from either the application or clean-up effort

3.13 COATING SCHEDULE

A. Primer shall be Acrydur® 112 or Acrydur® 113 (for damp substrates). Application rate shall be 100 SQ. FT. per gallon (approx. 12 mils), the substrate must be pore closed after priming, if not – reprime!
B. Patching/sloping material shall be Acrydur® 050/051
C. Body coat shall be pigmented Acrydur® 418 with s/l filler 1:1 applied by roller at a rate of 60-70 SQ.FT. per gallon.
D. Topcoat shall be pigmented Acrydur® 522 applied by roller at a rate of 100 SQ. FT. per gallon.

Specifier Note: This product guide specification is written according to the Construction Specifications Institute (CSI) Format, including *Master Format*, *Section Format*, and *Page Format*, contained in the CSI *Manual of Practice.*

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the drawings

Delete all “Specifier Notes” when editing this section.

Specifier Notes: This section covers Acrydur high-performance coating systems for commercial facilities.

This specification is only a guide listing various coating system options for various environments and should not be used as a final specification. Additional coating systems not listed in this specification are available, and may be more appropriate for your coating application. To finalize this specification, please contact www.plasti-chemie-america.com

Most coatings specified contain organic solvents. Consult Plasti-Chemie North America LLC. for compliance to local VOC regulations.

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