

The enclosed specifications are designed to summarize the activities and responsibilities of all the principal parties to a roofing project. Oftentimes, the guide specification will function as the primary bid document when authorizing a roofing contract. These detailed instructions are intended to govern both the application itself and the process of awarding the work and issuing a warranty. Since no two roofs are exactly alike, further adjustment of the specification may be required. The enclosed guide specifications are typically used as a model for initial review purposes, then customized with Truco personnel prior to the solicitation of bids.

Smooth BUR Restoration

This document provides sample specifications, product data and application guidelines for the installation of rubber coatings for the repair and restoration of smooth surfaced built up roofs such as modified bitumen, rolled roofing and other asphaltic roofing systems.

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PART ONE - GENERAL

1.01 DESCRIPTION

A. General: Provide all labor, materials, equipment and tools as required to repair and coat existing smooth surfaced asphalt roof area with new materials as specified.

B. The installation is to provide a fully adhered, seamless rubber roof with system wide use of a reinforcing fabric.

1.02 QUALITY ASSURANCE

A. Qualifications of Manufacturer

1. Provide primary roof coating product from a single manufacturer which has successfully marketed and supplied the products for not less than ten years. Provide secondary accessory materials only as recommended and approved by manufacturer of primary materials.

2. Primary products shall include spray, brush, and trowel grade coatings, polyester membrane, and rust conditioning materials.

3. Products primary and secondary shall be manufactured in United States of America.

B. Qualifications of Contractor

1. The Contractor shall use adequate numbers of qualified workers who are thoroughly trained in the crafts and techniques required to properly install the type of roof coating proposed for use and other work required to complete the work specified.

2. A single installer (roofing contractor) will perform the work. The installer must be trained and certified by product manufacturer, and show written evidence of his authorized status.

3. The installer will own or have access to the equipment necessary, and shall meet all safety, insurance, and technical requirements of the building owner and local, state and federal regulatory agencies.

C. Warranty

1. The Contractor shall coordinate all necessary inspections, corrections, re-inspections (if any), and certifications with the coating manufacturer as required.

2. Warranty requirements apply only to roof coatings to be applied to smooth BUR roof areas as described in base bid of this section.

3. Warranty period is for 10 years, and shall start at date of substantial completion.

1.03 PRELIMINARY ROOF INSPECTION

A. Upon award of bid proposal, the roofing installer and manufacturer's representative shall tour the roof area. Manufacturer's representative will record and submit any disputes or concerns governing the installation of the roof system. The installer will complete and submit the manufacturers "Pre-Job Notification/Project Approval Report" along with pre-application photos depicting the overall roof area and details representative of the installation.

1.04 PRELIMINARY PROJECT REVIEW

Provide and review the following documentation to all parties directly concerned with the work, including manufacturer, owner, property manager, architect or roofing consultant:

A. Moisture scan, infrared or nuclear, along with core samples and roof diagram indicating any areas with entrapped moisture. Upon review of pre-application photos, Core samples may be determined to be sufficient for applications less than 200 roofing squares with good slope (2/12 or more).

B. Specification, including product data, warranty terms, and installation guidelines.

C. Material Safety Data Sheets,

D. Product Liability Insurance, and

E. Safety requirements.

F. Evaluation of the roofing material's physical properties and performance characteristics as verified by an independent, accredited testing agency.

G. Installer's Certificate of Authorization, signed by manufacturer.

H. "Pre-Job Notification/Project Approval Report" signed by the manufacturer, including details of special interest and any remedies proposed by manufacturer, its representative, or installer to address unusual requirements beyond the purview of this specification.

I. Review Project Contract, including installer's logistical requirements such as water and electrical access, material storage area, designated work areas for ground to roof delivery of materials, personnel, etc. Determine work parameters required for a timely, efficient installation with minimal effect on the facilities normal operations.

J. Provide a schedule estimating the project's expected completion date. Consider the possibility of a delay due to poor weather conditions or other external factors. Establish provisions for addressing primary waterproofing concerns in lieu of a completed installation when nearing the winter season.

1.05 FACTORY MUTUAL

A. Upon request, provide component materials which have been evaluated by Factory Mutual for flame-spread and are rated as Class "A" materials over metal substrates. (Flame spread must be in accordance with ASTM #E108-87, Uniform Building Code test method 32-7)

1.06 INSTALLATION PARAMETERS:

A. Emergency spot repairs can be made in the winter or during inclement weather. However, extensive repairs or system installations should not be considered unless the following conditions are met:

1. Surface must be clean and dry prior to application of coatings.
2. Do not begin work if surface temperature is above 140 degrees Fahrenheit or below 40 degrees Fahrenheit, or when the dew point is less than 5 degrees Fahrenheit above the surface temperature.
3. Do not apply over silicone, coal tar or plasticized membranes. For questionable substrates, contact manufacturer's technical department.
4. Do not apply Tru-Ply Acrylic adhesive/primer if weather conditions will not allow for proper curing.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Deliver only approved materials to the job site. Deliver materials in original sealed containers with seals unbroken and labels legible and intact.

B. Materials shall be delivered in sufficient quantities so as not to cause delays in work.

C. Store and handle materials in a manner which will ensure that there is no possibility of contamination. Store in a dry, well-ventilated, weather-tight place, at temperatures between 50 degrees and 80 degrees F. Do not stack pallets more than two (2) high. Do not subject existing roofing to unnecessary loading. In all cases, the storage and handling of materials shall conform to the requirements of the manufacturer and all applicable safety regulatory agencies.

D. Material containers shall not be removed from the job site until final completion and/or until so authorized by the owner. All waste materials and debris shall be cleaned up daily.

E. Any damaged materials or materials not conforming to the specified requirements shall be rejected by the owner. Rejected materials shall be immediately removed from the job site and replaced at no additional cost to the owner.

1.08 EQUIPMENT:

A. Roof coatings are most effectively applied using solvent resistant nap rollers or airless spray systems. Conventional air atomized spray systems can be used, but over-spray and drift are more pronounced.

Recommended Airless Spray Equipment, gasoline driven:
Graco 4030 Roof Rig - 4050 psi and 3 gal/m capacity
Graco GH 533 - 3000 psi and 2 gal/m capacity
Magnum 4000 - 4000 psi and 3 gal/m capacity

B. Use only approved, high pressure, static grounded, solvent- resistant spray hose with the following minimum inside diameters:

Maximum material hose length:

1. 50 ft. - 3/8" ID
2. 250 ft. - 1/2" ID

C. Spray tips - Reversible, self-cleaning tip with an orifice diameter of .025 to .031 with 10" fan pattern; a .035 tip is used when spraying the Brush Grade Seam Sealer.

D. Spray pressure - 3000 psi at pump and 1700 psi min. at spray gun.

PART TWO - PRODUCTS

2.01 RUBBER ROOF COATINGS

A. Rubber roof coating products physical specifications and minimum performance criteria shall be in accordance with the following schedules:

1. NEOPRENE FLASHING CEMENT

TEST ASTM RESULT

Elongation at 77 deg. F. ASTM D412 400%
Recovery from 100% Elongation 100%
Tensile Strength ASTM D412 600 psi Min.
ADHESIVE BOND Aluminum Q-Panels
Method A D3359-90 5-highest rating
Method B D3359-90 5-highest rating
PLIABILITY @ 0 deg.F.-180 deg. bend D2823-90
1 inch mandrel no cracking or separation
1/4 inch mandrel no cracking or separation
WATER VAPOR PERMEABILITY E96-80 0.15 perms

2. BRUSH GRADE SEAM SEALER

TEST ASTM RESULT

Elongation @ 77 deg. F. ASTM D412 600%
Elongation @ 32 deg. F. ASTM D412 300%
Recovery from 100% Elongation 100%
Tensile Strength ASTM D412 1500 psi
Viscosity ASTM D562 135-143 K.U.

3. BASE COAT

TEST ASTM RESULT

Dry film thickness @ 77 deg. F. 7 mils
Elongation @ 77 deg. F ASTM D412 200%
Elongation @ 32 deg. F ASTM D412 100
Tensile Strength ASTM D412 200 psi

4. RUBBER FINISH COATING

TEST ASTM RESULT

Dry film thickness @ 1 gal/100 sq.ft. 6 mils
Elongation @ 77 deg. F. ASTM D412 600%
Elongation @ 32 deg. F. ASTM D412 300%
Recovery from 100% Elongation 100%
Tensile Strength ASTM D412 1500 psi
Shore A Hardness ASTM D2240 70
Viscosity ASTM D562 105-110 K.U.

2.02 TRU-PLY ADHESIVE/PRIMER

A. An acrylic bonding adhesive used to secure reinforcing fabrics to smooth surfaced asphalt.

TYPICAL PROPERTIES

% solids 60%
Tensile Strength ASTM D 412 1000 psi
Interply Adhesion ASTM D 903 20 pli (+/-2)
Surface Tack minimal
Dry Time 2-3 hours @ 70°, 50% rh

2.03 POLYESTER MEMBRANE

A. Reinforcing membrane shall be composed of warp knit, 100% polyester yarn fibers offering an excellent combination of high strength and elongation to accommodate unusual stress forces from thermal shock or building movement.

TYPICAL PROPERTIES

Tensile Strength ASTM D1682 90 lbs. (41 kg.)
Elongation ASTM D1682 45%
Trapezoid Tear Strength ASTM D1117 22 lbs. (10 kg.)
Ball Burst Strength ASTM D3787 180 lbs. (82 kg.)

2.04 MANUFACTURER

A. The following roof coating manufacturers have been approved for this project. No substitutions by secondary, indirect manufacturers will be allowed.

1. Truco, Inc.
4301 Train Avenue
Cleveland, OH 44113
(800) 227-4569

B. Other manufacturers requesting approval must submit acceptable information certifying that they are the direct manufacturer from raw material into the specified product and meet the performance criteria required.

PART THREE - EXECUTION

3.01 SURFACE INSPECTION

A. Roof surfaces shall be clean, dry, structurally sound, stable and well secured.

B. The roof surface shall be free of excessive ponding water. Roof surfaces which pond 48 hours after a rain shall be considered unacceptable. All water shall be allowed positive drainage from the roof.

C. Inspect condition of flashing details adjacent to protrusions, penetrations, roof-mounted equipment, curbs, walls, parapets, drains and roof edge to ensure that details are acceptable and will maintain a weather-tight installation after being properly detailed and coated.

D. Determine moisture content of existing substrate insulation and deck. A moisture content of 10% or greater indicates a potential problem. Work shall not proceed until cause is verified and condition is corrected.

3.02 SURFACE PREPARATION

A. All surfaces shall be clean and dry, and free of any dirt, dust, oil, surface chemicals or other contaminants, which may interfere with optimum adhesion. Mineral surfaced modified bitumen membranes shall be swept clean so as to remove all loose or partially embedded minerals. Care shall be taken to preserve the integrity of the existing asphalt membranes whenever possible.

B. All modified bitumen roofing surfaces shall be cleaned using Tru-Clean Cleaner. Dilute at the rate of 1 part concentrate to 10 parts water. Apply the diluted Tru-Clean mixture under low-pressure spray at the rate of 200 square feet per gallon. After allowing the Tru-Clean to sit for 15 to 20 minutes, rinse thoroughly with fresh water under high pressure (minimum 2,000 psi) to remove the solution from the roof and achieve a "jet black" clean surface. Heavy deposits of dirt or contamination may require agitation with a stiff-bristle broom or similar mechanical scrubber. Allow the roof to dry thoroughly.

C. Any unsound areas in the roof deck or insulation, including blisters, delamination, deterioration, excessive moisture content, etc. shall be repaired or replaced. All blisters, delaminations, wrinkles and loose areas shall either be cut away and removed or cut open and nailed flat to the deck.

D. If the roof has been coated with aluminized asphalt, prime with Tru-Ply sealer

applied by airless spray at the rate of 300 to 400 square feet per gallon to eliminate potential "leafing".

E. Reinforce repaired areas by liberally applying a coat of Tru-Ply around the repaired area using a brush or roller. While the Tru-Ply is still wet, embed an appropriate-size piece of Tru-Ply fabric into the material, totally covering the repaired area. Work the fabric into the Tru-Ply applying additional material as necessary to encapsulate the reinforcing fabric. Repaired areas can also be reinforced by liberally applying a heavy coat of Super Seam Sealer around the repaired area using a brush or roller to a thickness of 60-80 dry mils.

F. Roof deck areas shall have positive slope to drain. Tapered insulation, cant strips, spray-applied polyurethane foam or other similar materials shall be used to build up affected roof surfaces as necessary to provide adequate drainage.

G. Severely deteriorated flashings shall be removed and either replaced or repaired utilizing spray-applied polyurethane foam. Seal reglet counterflashings with Rubber Flashing cement or equivalent caulk. (Tru-Lastic)

H. All cracks, splits, voids or holes larger than 1/8" in width shall be filled and leveled with Rubber Flashing cement or equivalent caulk.

I. Reinforce all split seams, roof termination points, openings, around the the base of all vents, pipes and other protrusions, as well as HVAC units and other roof mounted equipment with either TRUCO fabric embedded into Tru-Ply Primer with Super Seam Seal. Apply Tru-Ply Primer liberally around the area to be detailed. Embed an appropriate size strip of TRUCO Fabric into the wet primer. Work reinforcing fabric into the primer using a brush, roller or soft-bristled broom so as to eliminate air pockets, wrinkles and gaps, applying the additional material as necessary to totally encapsulate the fabric. If using Super Seam Seal, apply a heavy coat with a brush or roller to a thickness of 60 to 80 dry mils over and around the affected area.

3.03 ELASTOMERIC COATING APPLICATION

A. All roof preparation materials shall be allowed to fully dry prior to full roof surface application of the coating system.

B. Immediately prior to application of coating system, all dust, dirt and other contaminants shall be blown off the roof surfaces to be coated using high-pressure compressed air.

C. At the drip edges, fasten all metal flanges and reinforce the area with either TRUCO fabric embedded into the Tru-Ply Primer, or by using Super Seam Seal as previously described.

D. Apply Tru-Ply to a small section of roof where the fabric reinforcement will begin. Embed and encapsulate the end of the TRUCO fabric roll so that it is anchored at that point. Roll out 4 to 10 feet of fabric at a time and either spray apply or pour Tru-Ply Primer evenly over the top side at the rate of 1.5 to 2 gallons per 100 square feet, allowing the fabric to conform to the surface contours. Work the Tru-Ply evenly throughout fabric using a soft-bristle broom so that it is totally encapsulated, eliminating any air pockets, wrinkles or gaps. Take extra care to ensure that edges of the fabric are well saturated and adhered. Overlap consecutive passes of Tru-Ply fabric a minimum of 3 inches on each side. Saturate fully as porosity and texture will determine the amount of Tru-Ply required to encapsulate reinforcing fabric. Allow the Tru-Ply Primer to dry thoroughly prior to applying TRUCO coatings.

E. Materials can be poured onto the surface area in 2 gal/square increments, or airless equipment can be used to deliver coatings to the roof. In either case, initial base coat of elastomeric rubber coating (#7145) will be back rolled over the Tru-ply surface using a solvent resistant, medium nap roller.

F. Allow base coat to cure overnight prior to application of finish coat #7140 at a coverage rate of 1.5 gallons per roofing square. Finish coat can be applied by spray applied unless evidence of pinholing exists, in which case a back-rolled approach will be necessary.

G. On roofs with heavy foot traffic, mark walkways by applying a coat of off-white finish coat at a rate of 1 gal/sq. While wet, broadcast 3M #11 Ceramic roofing granules into the coating to the point of refusal.

H. Make note of any vents, stacks or other metal protrusions which exhibit signs of corrosion. Coat entire metal surface with finish coat to inhibit rust from leaching on to the roof surface.

3.04 Inspection & Warranty Approval

A. Upon completion of the fluid applied roofing system, the manufacturer or authorized manufacturer's representative, Applicator, Owner and/or Owner Representative shall make a final inspection to verify the dry mil thickness of the roof assembly and to determine that the system meets the manufacturer's requirements for warranty approval. The contractor shall notify all relevant parties in advance of said inspection.

B. As a condition of the project's completion and acceptance, deliver a complete and signed copy of the warranty from the coating manufacturer.