

This specification works as a guideline and must be modified, as necessary, by the Designer of Record to provide the needs of the individual project. Any changes or improvements to the content of this specification can be made only with the written consent of the Designer of Record.

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:

1. Substrate board, mechanically fastened.
2. Cold fluid-applied membrane roofing system.
3. Acrylic elastomeric topcoat.

1.02 RELATED SECTIONS

- A. Division 0 and 1 – General Project Requirements
- B. Division 3 – Concrete Deck
- C.
- D. Division 6 – Wood Deck
- E. Division 6 – Wood Blocking and Curbs
- F. Division 7 – Sheet Metal Flashing and Trim
- G. Division 7 – Roof Accessories
- H. Division 7 – Joint Sealants
- I. Mechanical – Roof drains

1.03 REFERENCE STANDARDS

- A. The following standards and publications are applicable to the extent referenced in the text.
- B. Factory Mutual FMFM 4470

1.04 SUBMITTALS

- A. Comply with Division 1 requirements, unless otherwise noted.
- B. Product Data: Manufacturer's standard technical data for all products. Also including installation instructions.
- C. Shop Drawings: The Drawings were based on Neptune Coatings WetSuit System. If the Contractor proposes deviations from the drawings, or if one of the other pre-approved roofing systems is selected for installation, then and only then are shop drawings required. If shop drawings are submitted when not required, they will be returned without review or approval and will not become part of the documents. Required shop drawings shall include at least the same detailed conditions as shown

on the Drawings and shall be approved by the manufacturer before they are submitted to the Architect.

- D. Protection Plan: Submit both narrative and drawings of materials and methods necessary to protect areas of installed roofing from damage by subsequent construction activities. Refer to Part 3 of this Section.
- E. Samples: Submit clearly labeled samples of the following:
 - 1. Cold fluid-applied waterproofing membrane
 - 2. Reinforcing sheet
 - 3. All other roofing accessory products
- F. Proof of Quality Assurance Compliance (refer to Quality Assurance):
 - 4. Installer Certification: Submit a written statement, signed by the manufacturer, verifying that installer complies with the requirements specified herein.
 - 5. Installer Experience: Submit documentation, signed by the installer that shows compliance with requirements specified herein.
 - 6. Foreman/Crew Qualification: Submit a written statement and list of previous projects, signed by the installer, verifying that the installer complies with the requirements specified herein.
 - 7. Manufacturer's Review: Submit a written statement, signed by the Contractor, roofing installer, and manufacturer's representative, stating that the Architect's documents have been reviewed by the roofing manufacturer's regional manager, and that the representative agrees that the selected waterproofing system is appropriate for the Project. This submittal shall also be sent to the Owner.
 - 8. Installer Copied: Submit a copy of transmittals used to send to the installer a set of the Documents and the manufacturer's installation instructions.
 - 9. Sample of Manufacturer's Warranty: Submit a sample of the manufacturer's warranty which complies with requirements herein.
- 10. Documentation Photos: Submit by email or CD, all photo documentation required herein.

1.05 **QUALITY ASSURANCE**

- C. Installer Certification: The installer shall be a single company who has been trained and who is currently certified by the roofing manufacturer to install their products.
- D. Installer Experience: The installer shall have successfully completed at least three projects using waterproofing products of the same manufacturer as is specified herein.
- E. Foreman/Crew Qualifications: The lead foreman shall have a minimum of two years experience on a minimum of two projects of comparable size and complexity. The lead foreman shall be on site for the duration of the roofing installation. The crew shall also have experience installing the specified roofing system.
- F. Equipment: When product is spray applied, all spray equipment shall be supplied and/or approved by the roofing manufacturer.

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- G. ~~Manufacturer's Review: The roofing manufacturer shall review the Contract Documents with respect to the appropriateness of the use of their roofing system on this Project.~~
 - H. **Installer Copied:** Send a set of Contract Documents and a copy of the manufacturer's installation instructions to the installer.
 - I. **Source Limitations:** Obtain roofing system related products specified in this Section through one source, from a single manufacturer.
 - J. **Product Responsibility:** Installation of all products contained in this Section shall be the responsibility of the roofing installer to ensure undivided responsibility.
 - K. **Pre-Installation Conference:** Conduct a pre-installation conference at the Project site and include the Contractor, roofing installer, roofing manufacturer's representative, Architect, and Owner's representative. The Contractor shall provide advance notice to all attendees. The conference agenda shall include, but not necessarily be limited to the following:
 - 1. Review required submittals
 - 2. Tour areas of the Work
 - 3. Sequence of installation and construction schedule
 - 4. Substrate conditions
 - 5. Required testing
 - 6. Pre-detailing/special details
 - 7. Coordination of other trades
 - 8. Manufacturer's guidelines with respect to weather
 - 9. Observation procedures

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store materials for roofing work in accordance with the manufacturer's recommendations, as approved, and in accordance with the requirements herein specified.
- B. Deliver materials in manufacturer's unopened containers, fully identified with brand, type, class, grade, and all other qualifying and product information.
- C. Do not allow stored materials to freeze.
- D. Keep materials sealed until ready for use.
- E. Protect materials during handling and application to prevent damage or contamination.
- F. Materials which are determined damaged by the Owner's representative are to be removed from the site and replaced at no cost to the Owner.

1.07 PROJECT CONDITIONS

- A. **Structural Capacity:** Do not overload structure during application and storage.

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- ~~B. Unforeseen Conditions: If unusual or concealed conditions are discovered, stop work and immediately notify, in writing, the Owner's representative and membrane manufacturer.~~
- C. Drains: Verify that drain lines are unblocked before starting work. Report in writing any such blockages to the Owner's representative and membrane manufacturer.
- D. Odors: Take necessary precautions when working around air in-takes. Odors could be a disturbance to the Owner and building occupants. It is the installer's responsibility to coordinate equipment to be turned off and on with the Owner if necessary. Application of membrane must be conducted in well ventilated areas. Respirators shall be worn at all times during spray application.
- E. Weather Conditions:
1. Do not apply roofing in rain, snow, mist, or fog.
 2. Do not apply roofing if the ambient temperature, substrate temperature, or relative humidity does not meet the manufacturer's requirements.
 3. Do not proceed with roofing when weather forecasts are unfavorable.

1.10 WARRANTY

- A. Manufacturer's Warranty: Submit to the Architect for transmittal to the Owner, two copies of the manufacturer's _____ year material warranty.
- B. Installer's Warranty: Submit to the Architect for transmittal to the Owner, two copies of an unqualified warranty for a period of _____ years on all materials, workmanship, and water tightness, signed by the roofing installer and the Contractor. Defects in the installation because of materials or workmanship shall be properly corrected during the warranty period at no cost to the Owner. Upon written notification within the warranty period of any such defects, the necessary repairs and replacement shall be properly made at the convenience of the Owner.

PART 2 PRODUCTS

2.01 COLD FLUID APPLIED ROOFING MANUFACTURER

- A. Acceptable Manufacturer: Neptune Coatings
- 972 Golden Gate Terrace
Grass Valley, Ca. 95949
Phone: 800-967-7659
Web: www.neptunecoatingscorp.com
Fax: 530-477-4316

2.02 MATERIALS

- A. Roofing Membrane:
1. WetSuit System
 2. Description of Membrane: Cold fluid-applied, water-based, quick cure, seamless roofing membrane.
 3. Membrane Thickness: 60 dry mils thick minimum.



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1. Properties: Membrane system (cold applied) with the following characteristics:
 - a. FM 4470: Pass
 2. Fluid component (cold fluid-applied material)
 - a. WetSuit, WetSuit 1-Part, WetSuit Trowel and Fiber Trowel, Undercover; Neoprene rubber, water-based, solvent free material by Neptune Coatings with the following characteristics:
 - (1) Elongation, ASTM D412: 1,582%
 - (2) Solids: 68%
 - (3) Curing: 80% cured in first three seconds
 - (4) UV resistant
 - (5) Flexibility: Down to minus 15°F
 - (6) Reflectance: 0.8

 - (7) Emittance: 0.9
 - (8) Viscosity: 500 cps at 70°F
 - (9) Color: Black
 3. Reinforcing sheet:
 - a. Invisilink: Soft finished, stitch bonded, polyester mesh by Neptune Coatings with the following characteristics:
 - (1) Tensile strength, ASTM D1682: 57 lbs.
 - (2) Trapezoidal tear strength, ASTM D1117: 16 lbs.
 - (3) Elongation, ASTM D1682: 61-63%
 - (4) Mullen burst, ASTM D3786: 176 lbs.
 - (5) Weight of fabric: 3 oz/sq. yd.
 - (6) Average thickness: 0.025 inch
 - (7) Color: White to yellow-white
 - (8) Maximum VOC: 0
 - (9) H.M.I.S Ratings:
 - (10) Flammability rating: 0
 - (11) Health: 0
 - (12) Reactivity: 0
 - (13) Protective equipment:
 - b. Pre-detailing products: Approved manufacturers for use with corresponding cold fluid-applied roofing system.
 4. WetSuit 1-Part, Undercover or WetSuit Trowel reinforced with Invisilink, or WetSuit Fiber Trowel by Neptune Coatings.
- B. Flexible Flashings, Detailing, and Pre-Striping:**

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1. ~~Undercover medium viscosity, water based coating to be used only underneath other WetSuit products.~~

C. Reflective Surface Coating:

1. Thermo Manufacturing surface coatings: Solar Shield, Super Prep, Sun Stop, or approved equal.

D. Primers

1. Contact Neptune Coatings for approved primers for asphalt, single ply and concrete surfaces. **Not required for all applications.**

E. Miscellaneous: Adhesives, sealants, terminations, and other related materials per manufacturer's recommendations to provide a complete roofing system.

2.03 ACCESSORIES

- A. Substrate Board
- B. Fasteners and Plates for Substrate Board: Per manufacturer's recommendations to meet building codes and uplift requirements.
- C. Sheet Metal Flashing and Trim: Refer to Division 7 – Sheet Metal Flashing and Trim for requirements.
- D. Sealants for Sheet Metal Flashing: Refer to Division 7 – Joint Sealants for requirements.
- E. Cant Strips

PART 3 EXECUTION

3.01 GENERAL

- C. Work performed under this Section shall be in accordance with the Contract Documents, and the manufacturer's recommendations. In the event of conflict, the stricter requirement shall prevail.

3.02 Protection

- D. Protect finish surfaces from damage resulting from spillage, dripping, and dropping of materials. Do not allow products such as animal fats, petroleum, solvents, etc. to come in contact with the membrane or the substrate. Any exposure to questionable materials or chemicals must be notified to the manufacturer for compatibility and impact to the membrane system. Prevent roofing materials from entering or clogging drains and water conductors. Repair and restore or replace other work which is soiled or damaged in connection with performance of the waterproofing work.

3.03 SUBSTRATE INSPECTION

- A. Before the installation of any new materials, the roofing contractor shall thoroughly examine all surfaces for any deficiencies. Upon determination of any deficiencies, the Owner, Architect or General

Contractor shall be given written notice and corrections will be made.

- E. The roofing contractor shall not proceed with the installation of the WetSuit System until all surface deficiencies and unsatisfactory conditions have been corrected.

3.04 SUBSTRATE PREPARATION

- A. Moisture and Adhesion Testing
1. Surfaces shall be pressure washed clean to immaculate condition, dry, smooth, and free of voids and free of laitance. Unapproved curing compound, form release agents, petroleum distillates, animal fats and other contaminants are not allowed to come into contact with any approved substrate.
Contact Neptune Coatings immediately if encountered.
 2. Verify the substrate is visibly dry and free of moisture. Moisture meters, infra-red scanning, or capillary moisture tested by plastic sheet method according to ASTM D-4263, may be necessary.
 - a. Prior to beginning the membrane installation, apply a test patch of WetSuit One and Two Part to the prepared substrate to verify adhesion and bond. Follow The Adhesion Test Technical Data sheet by Neptune Coatings. It may be necessary to prime or shot blast the surface to provide adequate adhesion.
 - b. All surface areas shall be approved by Neptune Coatings prior to the application of the WetSuit System.

3.05 PRE-DETAILING

- B. General:
1. Refer to the Drawings for pre-detailing details.
 2. Pre-detailing shall precede system membrane application.
 3. All pre-detailing components shall be fully bonded to one another.
- C. Construction Joints, Cracks, or Board Joints (1/8" to 1/4"):
1. Centered on the joint or crack, sandwich a 6" wide strip of Invisilink reinforcing sheet between two 8" wide, 50 wet mil layers of Undercover fluid component.
 2. The edges of the two fluid components shall be well bonded together so as to seal off the reinforcing sheet.
- D. Construction Joints, Cracks, or Board Joints (greater than 1/4"):
1. Contact Neptune Coatings Corp.
- E. Expansion Joints (1" or less)

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1. ~~Install a compressed backer rod or other compressible expansion joint system~~ into the joint.
 2. Centered on the joint, sandwich a strip of reinforcing sheet (6" wide plus joint width) between two 50 wet mil layers of the Undercover fluid component (8" wide plus joint width).
 3. The edges of the two fluid components shall be well bonded together so as to seal off the reinforcing sheet.
- F. Expansion Joints (greater than 1"):
1. Contact Neptune Coatings Corp.
- G. Inside and Outside Corners:
1. Outside Corners: Follow same procedure as described for construction joints and cracks while centering detail on the corner.
 2. Inside Corner: Follow the same procedure as above over a pre-installed cant strip.
- H. Penetrations and flashing:
1. If there is any movement between the pipe and the structure, stabilize the pipe with structural mortar or other appropriate means.
 2. Clean all new metal to remove oils and residue.
Prime with Asphaltic Primer.
 3. Adhesive Layer: Set flashing in 80-100 mil wet layer of Undercover
 4. Apply a 30 wet mil layer of the Undercover fluid component 4" up the pipe and 4" out onto the structure.
 5. Cut a doughnut shaped target piece of the Invisilink reinforcing sheet having an undersized hole and slip it down over the pipe, including it into the fluid component. The reinforcing sheet should extend up the pipe about 3/4 inches.
 6. Sandwich the reinforcing by applying a second 70 wet mil layer of the Undercover fluid component.
 7. Alternate: WetSuit Fiberated Trowel.
 8. Alternate #2: Chemlink E-Curb by Advanced Architectural products.
- I. Drains:
1. Clean all new metal to remove all oils and residue. Prime with Asphaltic Primer.
 2. Adhesive Layer: Set drain in 80-100 mil wet layer of Undercover, when substrate is porous (wood, concrete)
 3. Sandwich a doughnut shaped target piece of Invisilink reinforcing sheet between two 50 wet mil layers of the Undercover fluid component around the drain bowl. The reinforcing and both fluid component layers should extend all the way into the drain lock ring. The saturated Invisilink reinforcing sheet should extend 16" out from the perimeter of the drain.
 4. When the WetSuit Membrane system is installed over the pre-detailing, it should also extend all the way into the lock ring.

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5. ~~Refer to manufacturer's recommendations for proper curing process prior to installation of roof membrane.~~
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3.06 **MEMBRANE INSTALLATION**

A. General:

- a. Stir materials during application in accordance with manufacturer's instructions to avoid product separation.
- b. Spray fluid component as a continuous, monolithic and seamless membrane of uniform thickness, beginning at the lowest point and terminating at the highest point.
- c. In the event the membrane is applied too thin, contact Neptune Coatings Coatings for recoat guidelines.

F. Horizontal and Vertical Application:

- a. Prior to application, create a grid across the roof with spray paint, allocating one drum of material per section of the grid.
- b. Apply WetSuit One or Two Part membrane in a single monolithic coat to a minimum 60 mil dry.
- c. Perform cut-outs to check mil thickness and retain samples. Three (3) cutouts are to be taken per 1000 square feet.
- d. After the WetSuit membrane has cured, apply WetSuit Trowel to any visible voids.
- e. Refer to manufacturer's recommendations for proper membrane terminations.

D. Reflective Surface Coating where applicable:

1. Thermo Manufacturing: Solar Shield, Super Prep, Sun Stop, or approved equal.
2. Refer to manufacturer's recommendations for Reflective Coating installation guidelines and installation procedures.

3.07 **ACCESSORY INSTALLATION**

- A. Substrate Board: Adequate number and type of fasteners shall be used to comply with the board manufacturer's minimum requirements and applicable codes and maintain structural integrity.
- B. Sheet Metal Flashing and Trim: Refer to Division 7 – Sheet Metal Flashing and Trim for requirements
- C. Sealants for Sheet Metal Flashing: Refer to Division 7 – Joint Sealants for requirements.

3.08 **FIELD QUALITY CONTROL**

- A. General: Monitor the installation of the final layer of work under this section as well as any subsequent installation to insure no damage is done to the waterproofed areas.
- B. Photographic documentation: Take field quality control photographs of areas to receive membrane before start of work; during surface preparation; pre-detailing; and membrane system application; and at completion of work.
- C. Water Test:
 - 1. Verify that the structure can support the dead load weight of the water test prior to testing.
 - 2. To verify the proper, watertight installation of the roofing membrane, conduct a water test following the completion of the roof membrane installation and prior to subsequent roofing assemblies.
 - 3. Water test to be an average of 2" deep ponded water, in place for a minimum of 24 hours.
 - 4. If leaks should occur, the water shall be drained completely and the roof membrane installation repaired. Following membrane repairs proceed with additional water tests until successfully completed.

3.09 **PROTECTION**

- A. Temporary Protection: Refer to manufacturer's recommendations for protecting roof membrane prior to and during subsequent construction activities.

Neptune Coatings products are intended for use by qualified professional contractors, not consumers, as a component of a larger construction assembly as specified by a qualified design professional, general contractor or builder. They should be installed in accordance with those specifications and Neptune Coatings instructions. Neptune Coatings . disclaims all, and assumes no, liability for on-site inspections, for its products applied improperly, or by unqualified persons or entities, or as part of an improperly designed or constructed building, for the nonperformance of adjacent building components or assemblies, or for other construction activities beyond Neptune Coatings control. Improper use of Neptune Coatings products or use as part of an improperly designed or constructed larger assembly or building may result in serious damage to Neptune Coatings products, and to the structure of the building or its components. **NEPTUNE COATINGS DISCLAIMS ALL WARRANTIES EXPRESS OR IMPLIED EXCEPT FOR EXPLICIT LIMITED WRITTEN WARRANTIES ISSUED TO AND ACCEPTED BY BUILDING OWNERS IN ACCORDANCE WITH NEPTUNE COATINGS WARRANTY PROGRAMS WHICH ARE SUBJECT TO CHANGE FROM TIME TO TIME.**