

**SECTION 07 56 00
FLUID-APPLIED ROOFING**

SPEC WRITER NOTES:

1. Delete between // // if not applicable to project. Delete any other item or paragraph not applicable in the section and renumber the paragraphs.
2. This fluid applied system is intended for use over concrete roof decks.
3. When consideration is given to applying the system over substrates other than concrete, consult the manufacturer. Specifically, do not apply over cellular glass block insulation, or asphalt impregnated insulation materials.
4. Avoid applying synthetic rubber roofing over areas of high humidity.
5. When synthetic rubber roofing is to be applied over lightweight concrete fill, have Designer obtain and detail special requirements.

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section specifies a fluid applied roofing system consisting of a fluid application of multiple layers of neoprene and chlorosulfonated polyethylene (CSPE).

SPEC WRITER NOTE: Delete applicable paragraph when color is not selected in Section 09 06 00, SCHEDULE FOR FINISHES.

//1.2 RELATED WORK:

- A. Color of weather course: Section 09 06 00, SCHEDULE FOR FINISHES. //

1.3 QUALITY ASSURANCE:

- A. Manufacturer's Qualifications: Obtain products from single manufacturer or from sources recommended by manufacturer for use with fluid applied roofing and incorporated in manufacturer's warranty.
- B. Installers Qualifications: Work is to be performed by installer having three (3) years' experience for work relating to this section and approved in writing by fluid applied roofing manufacturer.

1.4 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Samples:

1. 150 mm (6 inch) square cured sheet of roofing system without backing, showing color, and texture.

2. System proposed for flashing and reinforcing.

C. Manufacturer's Certificates:

1. Installer approval.

2. Certificate stating that material utilized on the job will be of the same formulation as materials covered by the test report.

D. Manufacturer's Literature and Data:

1. Roofing system materials giving physical properties, wet mil thickness in relation to dry mil thickness, and other related information.

2. Manufacturer's printed instructions for application of roofing materials to be installed.

E. Test Reports: Test report from an independent commercial testing laboratory showing that neoprene and CSPE materials meet specified requirements.

F. Manufacturer warranty.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Deliver materials to job site in manufacturer's original factory sealed containers labeled to identify product, manufacturer and point of manufacture.

B. Observe precautions appropriate to flammable materials and "safety notes" included in roofing material manufacturer's printed instructions to installer before, during, and immediately following application of these materials.

1.6 JOB CONDITIONS:

A. Install fluid applied roofing only on dry surfaces free of water, surface condensation, rain, snow, ice, frost, dirt and debris.

B. Do not proceed when temperature of surfaces to receive roofing and flashing, is lower than 5 degrees C (40 degrees F).

C. Complete work on roof deck and install penetrations and projections through roof deck before roofing and flashing work is applied.

1.7 WARRANTY:

A. Construction Warranty: Comply with FAR clause 52.246-21 "Warranty of Construction".

B. Manufacturer Warranty: Manufacturer shall warranty their fluid applied roofing for a minimum of ten (10) // // years from date of

installation and final acceptance by the Government. Submit manufacturer warranty.

1.8 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. ASTM International (ASTM):
 - D3468/D3468M-99e1(2013).Liquid-Applied Neoprene and Chlorosulfonated Polyethylene Used In Roofing and Waterproofing
 - D412-06a(R2013).....Vulcanized Rubber and Thermoplastic Elastomers-Tension
 - D750-12.....Rubber Deterioration in Carbon-Arc Weathering Apparatus
 - D1149-07(R2012).....Rubber Deterioration-Surface Ozone Cracking in a Chamber
 - E96/E96M-13.....Water Vapor Transmission of Materials

PART 2 - PRODUCTS

SPEC WRITER NOTE: Make material requirements agree with applicable requirements specified in the referenced Applicable Publications. Update and specify only that which applies to the project.

2.1 ROOFING MATERIALS:

- A. Neoprene-Based Prime and Base Courses: A polychloroprene base with added resins, curing agents, pigments and solvents, which contain no oils or volatile plasticizers.
- B. Elastic Base Sheet: A cured, non-staining, polychloroprene (neoprene) base with inorganic filament reinforcement and added resin, curing agents, pigments, and solvents.
- C. Neoprene Based Fibered Sealer: A 100 percent polychloroprene (neoprene) ASTM D3468/D3468M base with inorganic filament reinforcement and added resin, curing agents, pigments, and solvents.
- D. CSPE Based Weather Course: A 100 percent chlorosulfonated polyethylene ASTM D3468/D3468M base with added curing agents, pigments, and solvents which contain no oils or volatile plasticizers. Color of weather course to be // as specified in Section 09 06 00, SCHEDULE FOR FINISHES // // white pigmented with Rutile type titanium dioxide.//

E. Neoprene and CSPE roofing materials are to meet the following requirements:

Property	Test Method	Base Course	Weather Course
Tensile Strength	ASTM D412	11.03 MPa (1600 psi)	3.45 MPa (500 psi) minimum
Elongation at 75 Degrees F (of original bench mark distance)	ASTM D412	400 percent minimum	400 percent minimum
Set at Break	ASTM D412	30-50 percent minimum	5-50 percent
Ozone Resistance 50 percent (of original bench mark distance) Elongation (1 week at approx. 2 parts per million ozone)	ASTM D1149	No Visible Cracking	No Visible Cracking
Accelerated Weathering (After 100 hours in Weatherometer)	ASTM D750	No Visible Change	--
Water Vapor Permeability	ASTM E96/E96M, Method B	0.30 perm	0.20 perm

2.2 CAULKING COMPOUND:

A. A non-staining, cold setting, flexible sealant having a polychloroprene or chlorosulfonated polyethylene base with added plasticizers, curing agents, pigments and which contains no volatile oils or other ingredients that will stain applied CSPE roofing.

2.3 REINFORCING TAPE

- A. Unwoven glass mat with nominal 0.46 mm (18 mils) film bonded with neoprene; or a 0.38 mm (15 mils) neoprene impregnated inorganic felt; or an untreated woven glass fiber tape, plain weave, weight 200 grams per square meter (6 ounces per square yard), thread count 42 by 32.
- B. In lieu of reinforcing tape, loose glass fibers embedded in liquid neoprene are as the reinforcing medium.

2.4 SOLVENT:

A. For use in job site preparation of neoprene primer, for cleanup and other related work, furnish a commercial grade xylene (xylol) or commercial grade toluene (toluol).

2.5 UNDERLAYMENT:

- A. Provide level coat and underlayment materials compatible with and as recommended by manufacturer of roofing materials.
- B. Provide level coat and underlayment materials when necessary to provide a suitable base for application of the roofing materials.

PART 3 - EXECUTION**3.1 PREPARATION OF SURFACE:**

- A. Verify that surfaces to receive roofing and flashing are in sound condition and free of projections, depressions, grease, oil, asphalt, tar, paint, wax, dust, or other debris that may prevent proper application of roofing.
- B. Allow concrete surfaces to cure a minimum of 28 days and clean free of waterproofing agents, form release agents, and curing agents that might act as bond breakers. Proceed only when maximum moisture content of the substrate as measured with a moisture meter is 16 percent.
- C. Report adverse roof deck conditions of any type in writing to Contracting Officer Representative (COR). Commencement of work constitutes acceptance of roof surfaces by installer as satisfactory for application of roofing and flashing.

3.2 CLEANING:

- A. Broom-clean surfaces to remove all dust, dirt, loose aggregate, and other foreign particles. Remove excessive alkaline efflorescence on concrete by flushing with 10 percent muriatic acid solution, then rinsing, and allowing to dry.

3.3 APPLICATION:

- A. Install roofing with tools and equipment approved by roofing material manufacturer. Wet film thickness of roofing materials to be as recommended by roofing material manufacturer to obtain the specified dry film thickness. Check wet film thickness frequently by use of a wet mil thickness gauge. Control application of fluid-applied material by maintaining careful balance at all times between material consumption and area covered. Apply quantity of coats to achieve minimum dry film thickness of neoprene and CSPE materials.
- B. Joint Treatment:
 - 1. Treat hairline cracks or other openings up to 2 mm (1/16 inch) in width with a brush coat of neoprene base fibered sealer.
 - 2. Openings larger than 2 mm (1/16 inch) but less than 6 mm (1/4 inch) fill and treat with a reinforcing tape as specified.

3. Cracks 6 mm (1/4 inch) and over treat as specified for expansion joints.

C. Expansion Joints:

1. Extend elastic base sheet used as expansion joint material a minimum of 203 mm (8 inches) from edge of expansion joint horizontally on to the deck.
2. Apply a slight loop or ridge to elastic base sheet which is centered over expansion joint.

D. Vent Pipes and Stacks: Apply elastic base sheet around projections through roof deck and extend it 101 mm (4 inches) horizontally and vertically around the projection; or use a premolded neoprene unit.

E. Drains: Cut elastic base sheet to fit around drains and extend the same sheet horizontally on deck a minimum of 1524 mm (60 inches) from edge of all drains. Do not clamp rings or strainers until 48 hours after entire roofing application is complete.

F. Priming: Immediately after substrate has been thoroughly cleaned and ready for application of the roof, prime concrete surfaces to receive roofing and flashing with neoprene or chlorinated rubber based primer.

G. Roofing:

1. Base Course: Over roof surfaces, including elastic base sheet, apply neoprene-based base course at a rate that will ensure a total dry mil thickness of neoprene materials of at least 0.36 mm (14 mils). Install material in number of applications as recommended by the manufacturer and allow to dry a minimum of 72 hours.
2. Weather Course: Apply CSPE based weather course at a rate and in the number of coats as recommended by the manufacturer to insure a total dry mil thickness of CSPE materials of at least 0.15 mm (6 mils).
3. The minimum total dry mil thickness of the combined neoprene and CSPE materials to be 0.5 mm (20 mils).

3.4 PROTECTION AND CLEAN UP:

- A. Keep completed roofing system free of non-essential traffic and unrelated work until at least 48 hours after completion of roofing application.
- B. Provide temporary support, such as insulation board, for materials and equipment stored on roof during application.
- C. Protect adjacent construction from disfiguration by run, spillage or overspray, and repair work defaced in this manner.

- D. Remove tools, equipment and surplus materials and clear roof area of debris on completion of work.

3.5 REPAIRS:

- A. Repair damage to roofing and flashing before work is complete. Patch breaks in surface with neoprene-based base course and CSPE-base weather course application to insure a continuous waterproof membrane complying with these specifications.

- - - E N D - - -