

Guide Specification for LG XPROgeo 301E & 401E

1.1 Scope of Work

Install flexible membrane liner in the drawings shown in this document. The job required shall be performed in accordance with the project drawings, these specifications and fabricator's approved shop drawings.

When installed, sufficient geomembrane panels should be supplied to cover all areas. The fabricators/installer of the liner shall allow for any anticipated shrinkage and wrinkles in the field panel.

1.2 Material

The lining material shall be LG XPROgeo 301E sold by GeoCHEM, Inc. . The following shall be the minimum information.

1.3 Physical specifications

Base fabric type	Polyester
Base fabric weight (ASTM D 751)	6.5 oz./sq. yd. (220g/sq. m)
Thickness of finished coated (ASTM D 751)	30 mils Min (0.75mm Min) or 40 mils Min (1.00mm Min)
Weight of finished coated (ASTM D 751)	30 ± 2 oz./sq. yd. (1,015± 70 g/ sq. m) or 38 ± 2 oz./sq. yd. (1,280±70 g/ sq. m)
Tear strength (ASTM D 4533, Trap tear)	44/55 lbs. Min. (200/250 N Min.)
Breaking yield strength (ASTM D 751, Grab, P'A)	550/550 lbs. Min. (2,450/2,450 N Min.)
Low temperature resistance (ASTM D 2136, 4 hrs-1/8", Mandrel)	Pass@-30 °F (Pass @ -35 °C)
Dimensional stability (ASTM D 1204, (212°F/100 °C) -1 hr)	1.5% Max each direction
Blocking resistance (ASTM D 751, (180 °F / 82t))	#2 Rating Max.
Dead load (ASTM D 751, 4 hrs) (seam length 2", 1" strap)	210 lbs. Min. (935N Min.) 105 lbs. Min. (477N Min.)
Adhesion heat seam (ASTM D 751, Dielectric Weld)	33 lbs./2"Min (150N/5cm Min)
Abrasion Resistance (ASTM D 3389, H-18 wheel 1 kg load)	2000 cycle before fabric exposure 30 mg/100cycle max. coating wgt. Loss.
Weathering resistance (ASTM G 153, Carbon-Arc)	10,000 hrs min. with no appreciable Changes or stiffening or cracking of coating
Wicking (ASTM D 751)	1/8" Max (0.3cm Max)
Water absorption (ASTM D 471, 7 days)	0.025kg/m2 max @ of / 21 t 0.14 kg/m2 max@212 of /100t
Hydrostatic resistance (ASTM D 751, Method A)	800 psi Min. (5.5Mpa Min.)
Seam shear strength (ASTM D 751, Grab P-A)	550 lbs Min. (2,450 N Min.)
Bursting strength (ASTM D 751, Ball tip)	650 lbs Min. (2,940 N Min.) 800 lbs typ. (3,630 N typ.)
Puncture resistance (ASTM D ⁴ 833)	250 lbs Min. (1,100 N Min.)

1.4 Required submittals

The bidder shall include and suggest shop drawings with a panel layout to cover the liner area indicated in the project requirements. Shop drawings shall indicate the direction of prefabricated seams and shall demonstrate panel sizes comply with the material quantity requirements.

Details of the shop drawing shall include to show the finishes of the panels at the perimeters of lined areas, the technical methods of sealing around penetrations, and method of anchoring.

Placement of the lining shall only be able to initiate until the shop drawings and details have been reviewed and approved by the client or his/her representatives.

1.5 Pre-fabrication details

All panel joints shall be thermal automatic high pressure welded, utilizing a two inch lap-seal construction with a tolerance of +/- a quarter of an inch on the lap.

A two-inch overlap welding by heat or RF welding is recommended. The surface of the welded areas must be dry and clean. Pressure must be loaded to the width of the seam on the top and bottom surface so that the area to be welded is in melt condition. The heat shall be applied high enough during the entire welding process so that a visible bead is shown from the both sides being welded. The bead insures that the material is in melting condition and a successful chemical bonding between the two surfaces is taken place.

The welded seam of 2 inches must hold a minimum of 210 lbs per inch dead load shear strength at 70°F and 105 lbs per inch at 160°F, as indicated in ASTM D751 procedure and specification 1.3 herein. Also, all welded seams must exceed 550 lbs. of seam shear strength per ASTM D 75 1 procedure and specification 1.3 herein.

1.6 Installation at the job site details

A two-inch overlap welding by heat or RF welding is recommended. The surface of the welded areas must be dry and clean. Pressure must be loaded to the width of the seam on the top and bottom surface so that the area to be welded is in melt condition. The heat shall be applied high enough during the entire welding process so that a visible bead is shown from the both sides being welded. The bead insures that the material is in melting condition and a successful chemical bonding between the two surfaces is taken place.

Installation of the pre-fabricated liners shall be performed by certified contractors or installers. An installer who is not trained or certified may install liner system only under the direction of a pre-fabricated authorized field assistance supervisor.

Prior to the placement of the liner, the installer will confirm that the ground or subgrade is to be adequately prepared for the placement of the liner. The lining shall be evenly covered over the prepared surfaces in order to have minimum handling and welding at the job site.

Fabrication at the job site should be avoided.

1.7 Inspection and testing of pre-fabricated seams

The pre-fabricated seams shall be monitored each linear foot of seam as it produced. Upon discovering any defective seams, the fabricator shall stop seaming of panels used and shall repair the seam, and determine and correct the cause of the defect prior to restart the seaming procedures.

The fabricator shall provide a quality control procedure to the client or his/her representative with the methodologies of inspection to the quality of pre-fabricated materials.

Prior to the installation of the panels, the fabricator of pre-fabricated panels shall provide the client, or his/her representative, with written certification that the pre-fabricated seams were inspected in accordance with section 1.5.

1.8 Pre-fabricated panel packaging and storage

Pre-fabricated panels shall be folded in certain length, or rolled, on a good conditioned pallet which can be trans-loaded by a forklift. Each panel shall be individually marked with panel size. Panels shall be stored in a dry area until they will be delivered to the job site, and be protected in order to prevent any damages to the panel during the course of moving.

1.9 Warranty

The lining material shall be warranted on a pro-rata basis for 10 years against weathering and chemical compatibility in accordance with GeoCHEM, Inc. warranty for LG XPROgeo 301E, 401E.

1.10 Manufacturer's contact

Any further information regarding to LG XPROgeo 301E & 401E, please contact GeoCHEM, Inc.. Tel. 206.973.2565.