

TENDER SPECIFICATION
FOR SUPPLY OF DRAINAGE COMPOSITE
(SEPARATION, FILTRATION AND DRAINAGE APPLICATION)

1.0 GENERAL

This work comprises supply of Drainage Composite conforming to the material specifications stated herein, as per the bill of quantity and schedule of supplies enclosed.

2.0 MATERIALS

2.1 General Requirements

Drainage Composite shall be made by thermo bonding a drainage core- Geonet comprises of two sets of parallel overlaid ribs integrally connected to have a rhomboidal shape made of High density polyethylene, stabilized by carbon black, black colour and nonwoven geotextile, working as separation, filtration and protection layer made of polypropylene Needle punched & thermally bonded. These engineered Geotextiles shall be stabilized to resist degradation due to ultraviolet exposure and shall be resistant to commonly encountered soil chemicals, mildew and insects, and shall be non-biodegradable.

Indigenously manufactured Drainage Composite should be preferred, considering advantages of shorter delivery periods, no inventory pile-up and rates being not affected by fluctuation of exchange rate of foreign currency.

A plant visit by the Engineer's representative to verify the manufacturer's quality control procedures and witness testing of products is also required prior to the dispatch of material.

2.2 Transportation, Storage and Handling

All rolls shall have a protective cover with a label or tag specifying name of the product, name of the manufacturer, roll number, date of manufacture and roll dimension.

Material shall be protected from sunlight, mud, dirt, debris, any other harmful substances or mechanical damage during transportation.

Rolls shall be stored in a secured area sufficiently elevated above the ground and adequately covered to protect them from the following: site construction damage, precipitation, prolonged exposure to ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, flames including welding sparks, high temperatures, and any other environmental conditions that may damage the physical property values of the Drainage Composite.

Any material, which is damaged during transportation, handling or storage and do not meet the minimum requirements of the specifications is liable for rejection by the Engineer.

2.3 Quality Control & testing

The quality management system of the manufacturer shall conform to the requirements of ISO 9001:2008 and In-house Laboratory should have certificate of GAI-LAP & NABL Accreditation ISO/IEC 17025:2005.

Manufacturer shall issue a test report stating minimum average roll values of material properties, at the time of shipment is made.

CE-certification (BTTG certification) should be required for supply of material.

Manufacturer shall submit the proof of supply and satisfactory performance for the quantity of 10000 Sqmt at least, for projects in India.

Contractor shall furnish proof of all above and it is mandatory.

2.4 Physical and Mechanical Properties

The Mechanical properties of Drainage Composite shall conform to Table-1 below:
Table-1.....

TECHDRAIN DRAINAGE COMPOSITE TDC 55130

TechFab drainage composite for planar drainage is manufactured by thermo bonding a drainage core - Geonet comprises of two sets of parallel overlaid ribs integrally connected to have a rhomboidal shape and nonwoven geotextile, working as separation, filtration and protection layer in accordance with Morth 704.2.1

	STANDARD	UNIT	VALUE	TOLERANCE
EXTERNAL FILTER - GEOTEXTILE				
Structure: Needle punched or thermally bonded non-woven geotextile				
Raw Material: Polypropylene				
Characteristic opening size O ₉₅	ASTM D 4751	micron	150	Maximum value
Perpendicular Water Flow	ASTM D 4491	L/m ² /s	100	± 30
DRAINAGE CORE - GEONET				
Structure: Sets of parallel ribs overlaid and integrally connected having a rhomboidal shape				
Raw Material: High density polyethylene, stabilized by carbon black, black colour				
TECHDRAIN GEOCOMPOSITE				
Thickness at 2 kPa	EN 9863-1	mm	5.0	Average value
Mass per unit area	EN ISO 9864	g/m ²	710	Average value
Static puncture resistance	EN ISO 12236	N	3000	Average value
Tensile strength MD	EN ISO 10319	kN/m	21	Average value
Tensile Elongation @ Break	EN ISO 10319	%	40	Typical value
Tensile strength CMD	EN ISO 10319	kN/m	16	Average value
In plane flow capacity MD	EN ISO 12958	l/(m.s)	l/(m.s)	Average value
	Gradient i -	1.0	1.0	
	Type of Contact	S/S	R/R	
	100 kPa	-	0.90	
	200 kPa	-	0.85	

Note : Transmissivity Measured value may vary between individual labs

MD – LONGITUDINAL DIRECTION
S/S – CONTACT TYPE SOFT/SOFT

CMD – TRANVERSE DIRECTIONS/S
R/R – CONTACT TYPE RIGID/RIGID

INSTALLATION

3.1 Site Preparation

The site shall be prepared by clearing, grubbing, and excavation or filling the area to the design grade. This includes removal of topsoil and vegetation.

3.2 Laying of Drainage Composite

The Drainage Composite shall be laid smooth without wrinkles or folds on the prepared subgrade and or prepared surface if shown in the drawings with the cross-machine direction oriented in the direction of traffic.

Adjacent rolls (only outer layer of geotextile & not inner core) shall be overlapped as shown on the drawings. Unless otherwise shown on the drawings or directed by the Engineer, the minimum overlap shall be 300 mm . The same process shall be followed for all roll ends.

On curves, the Drainage Composite may be cut to conform to the curves. The fold or overlap shall be in the cross direction of construction and held in place by pins.

Prior to placing subgrade or backfill material as per project requirements the installed Drainage Composite shall be inspected and approved by the Engineer. Any damages shall be repaired by covering the damaged location with a Drainage Composite patch, which extends an amount equal to the required overlap beyond the damaged area, as directed by the Engineer.

3.3 Placing and Compacting Subgrade Course

The subgrade shall be placed by end dumping onto the Drainage Composite from the edge of the Drainage Composite.

Movement of construction equipment directly over the Drainage Composite shall not be permitted.

Sudden breaking and sharp turning of construction equipment shall be avoided over the laid Drainage Composite.

Any ruts occurring during construction shall be filled with additional subgrade material, and compacted to the specified density

4 APPROVED MANUFACTURERS

4.1 Approved Manufacturers

- (1) Techfab (India) Industries Ltd.
712 Embassy Centre,
Nariman Point, Mumbai – 400 021
Phone: 022 – 2287 6224/6225
Fax: 022 – 2287 6218

5.0 DELIVERY

Delivery of TechDrain Drainage Composite shall be done according to the delivery schedule.

6.0 PAYMENT

6.1 Method of Measurement

TechDrain Drainage Composite will be measured by the Square Meter of material received at the owner's / contractor's store.

6.2 Basis of Payment

Payment for the supply of TechDrain Drainage Composite shall be made at the contract unit price per Square Meter, which shall be full compensation for the cost of materials, transportation, duties and taxes.

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