

CRAFS[®] SPECS & INSTALLATION

CORRUGATED RETENTION & FILTRATION SYSTEM

COMPONENTS

Components within each unit include:

- Vertical Filter Fabric
- Horizontal fabric and apron
- Vertical post sleeves

CRAFS[®] DIMENSIONS & FABRICS COMPONENTS

Standard dimensions:

- Width: 8' (distance between outside post sleeves on each end of unit)
- Height: 36" from apron to top edge of filter fabric

These "standard" dimensions have been selected based on typical project needs and performance requirements. Unit dimensions can be modified if site or performance conditions merit deviations.

Alternate fabrics can be substituted for the standard "monofilament filter fabric" as well as the standard 8 oz/sy non-woven apron if deemed necessary for special performance conditions, by the specifying engineer.

VERTICAL FILTER FABRIC

The vertical corrugated structure of CRAFS[®] is a woven monofilament "filter fabric" that provides the primary retention and filtration functions of the system. The fabric's pore size, porosity, and permeability must be balanced to provide adequate retention, while resisting total clogging of its pore structure to allow continued seepage through the system.

Strength and UV stability are critical to assure the integrity of the fabric structure during system installation and throughout its service life.

The minimum certifiable properties of this filter fabric are listed in Table 1 on the next page.

HORIZONTAL APRON

The CRAFS[®] apron is a horizontal blanket of heavy-weight non-woven fabric across the entire base of the system that is mechanically joined to the vertical corrugated filter fabric of the system.

The apron:

- provides dimensional stability to the vertical filter fabric system.
- allows linear "toe-in" of the CRAFS[®] structure.
- prevents passage of runoff beneath the corrugated filter fabric structure.

The mechanical connection between the filter fabric and the apron prevents the unfiltered passage of retained sediment runoff through the system.

The APRON extends upstream from the vertical support sleeves of the system's filter fabric to provide sufficient apron "toe-in" (per ASTM D6462 requirements, i.e., 6" vertical depth from ground surface to base of toe-in trench plus 6" horizontal at base of toe-in trench). See Table 1 on the next page for physical property requirements of the non-woven fabric of the CRAFS[®] apron.

UPSTREAM - DOWNSTREAM VERTEXES

CRAFS[®] corrugated structure has vertexes located at regular intervals along the upstream and the downstream edges of the system.

The spacing between all vertexes is typically uniform. Variance in spacing between vertexes may be specified in certain applications.

VERTICAL SUPPORT POST SLEEVES

Vertical "support sleeves" are fabricated into the vertical filter fabric component at each of the CRAFS[®] vertexes. These sleeves allow insertion of vertical support posts. Posts are driven into the ground until vertically stable, giving the entire structure in-place stability to resist the loads for sediment runoff and debris.

Support posts should be metal "T" posts driven into the ground per installation guidelines of ASTM D6482.

MECHANICAL CONNECTIONS

The vertical filter fabric and horizontal apron must be mechanically joined to assure system continuity and total retention and filtration of all sediment runoff seeping through the structure. Vertical support sleeves are also fabricated with mechanical connections. All mechanical connections must have at least 80% of the fabric's tensile strength as determined according to ASTM D4884 Standard Test Method for Strength of Sewn or Bonded Seams of Geotextiles.

CRAFS[®] SPECS & INSTALLATION (CONT.)

CORRUGATED RETENTION & FILTRATION SYSTEM

INSTALLATION

STEP 1 - APRON TOE-IN

The apron extends upstream from the vertical support sleeves of the system's filter fabric an adequate distance to provide sufficient "apron toe-in" per ASTM D6462 requirements (i.e., 6" vertical depth from ground surface to base of toe-in trench plus 6" horizontal at base of toe-in trench).

Note that CRAFS[®] toe-in is a linear alignment along the upstream vertexes of the system, similar to the linear alignment of a traditional silt fence installation. This linear alignment allows a simple connection between a silt fence on both sides of the CRAFS[®] units that will prevent unfiltered runoff escape between the two systems.



TABLE 1: CRAFS[®] FABRIC PROPERTY REQUIREMENTS

Fabric properties are for the standard CRAFS[®] components. The woven monofilament filter fabric is the vertical system component while the needle-punched non-woven fabric apron is the horizontal system component.

PROPERTY	TEST METHOD	UNITS	MARV: WOVEN MONFILAMENT FILTER FABRIC	MARV: NEEDLE-PUNCHED NON- WOVEN FABRIC APRON
AOS	ASTM D4751	US Sieve	#30	#80
FLOW RATE	ASTM D4491	gpm/sq ft	75	90
GRAB TENSILE	ASTM D4632	lbs	260 x 180	200 x 200
ELONGATION	ASTM D4632	%	15	50
MULLEN BURST	ASTM D3786	psi	175	
TRAPEZOID TEAR	ASTM D4533	lbs		80
UV RESISTANCE	ASTM D4355	%	80	70

STEP 2 - SYSTEM ALIGNMENT

1. Align the upstream vertexes of the CRAFS[®] units perpendicular to the flow direction of sediment runoff.
2. Be sure the apron's "toe-in fabric" is pointed in the upstream direction during installation.
3. Slide support posts through sleeves in the filter fabric.
4. Pull taught between the upstream vertexes to remove all slack in the apron at its upstream alignment.
5. Pull the apron's "toe-in" down vertically into trench and then horizontally across bottom of toe-in trench.
6. Hold upstream support posts vertical at back of toe-in trench, and drive posts through the apron's toe-in into the trench.
7. Drive stakes firmly into the ground in a vertical posture adjacent to the downstream side of the toe-in trench.
8. Center the downstream support posts between the two upstream vertexes and pull the diagonal walls of the retention chambers taught in the downstream direction while driving the support posts into place.
 - Care must be taken to provide adequate tension between the downstream posts (as done with the upstream posts).
 - Tension must be applied to the downstream posts, pulling against the resistance from the adjacent upstream posts, to eliminate any slack.

STEP 3 - TOE-IN BACKFILL

1. Backfill excavated soil into the toe-in trench.
2. Assure complete burial of the apron at the upstream edge of the CRAFS[®] system.
3. Firmly compact "toe-in" backfill to optimum density.
4. Check that backfill is at/above natural ground level.
5. Add and compact extra soil backfill if necessary to reach natural ground level or higher in toe-in trench.

CRAFS[®] is a patented corrugated retention and filtration system for sedimentation control (Patent: US 9677243).
If you have any questions, please contact our team at info@ferguson.com

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