

Articulating Concrete Block Mats:

A Solution to Severe Erosion Control Applications

2018 TEAM Conference

March 8, 2018

Shear Strength

Erosion Control Product	Approx Shear Strength
■ Blown Straw	0 lbs/sf
■ ECBs	<2 lbs/sf
■ Sod	1-3 lbs/sf
■ TRMs:	
NAG P300 (vegetated / unvegetated)	8 lbs/sf / 3 lbs/sf
American Excelsion Recyclax (vegetated)	8 lbs/sf
NAG SC250 (vegetated / unvegetated)	10 lbs/sf / 3 lbs/sf
Propex LL450 (vegetated / unvegetated)	10 lbs/sf 5 lbs/sf
NAG C350 (vegetated / unvegetated)	12 lbs/sf / 3.2 lbs/sf
Propex LL300 (vegetated / unvegetated)	12 lbs/sf 5.5 lbs/sf
NAG C550 (vegetated / unvegetated)	14 lbs/sf / 4 lbs/sf
Propex Pyramat-HP (vegetated / unvegetated)	16 lbs/sf 6 lbs/sf
Flexamat	19 lbs/sf
■ Hard Armoring:	
6" Riprap	2.5 lbs/sf
12" riprap	4 lbs/sf
24" riprap	8 lbs/sf
Tri-Lock (6" block)	10 lbs/sf
Cable Concrete (2.5" block)	10 lbs/sf
36" Riprap	12 lbs/sf
Armorflex (4.5" block)	15 lbs/sf
Armorlock/Geolink (4" block)	16 lbs/sf
48" Riprap	16 lbs/sf
Cable Concrete (4.5" block)	20 lbs/sf
Cable Concrete (5.5" block)	25 lbs/sf
Armorflex (9" block)	30+ lbs/sf
Cable Concrete (8.5" block)	30+ lbs/sf
Cable Concrete (8.5" oversize block)	35+ lbs/sf

The Old Favorite ... Rip-Rap



Drawbacks to Rip-Rap

- Durability
- Aesthetics
- Maintenance
- Undermining
- Safety issues
- Availability
- Accessibility issues



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‘South Dakota Riprap’



‘North Dakota Riprap’



Which do you prefer?



Concrete + Vegetation

=

Permanent Erosion

Protection!

Bioengineering at it's best!



There's Concrete Under There?



Types of Concrete Armament

■ Cable-tied Block



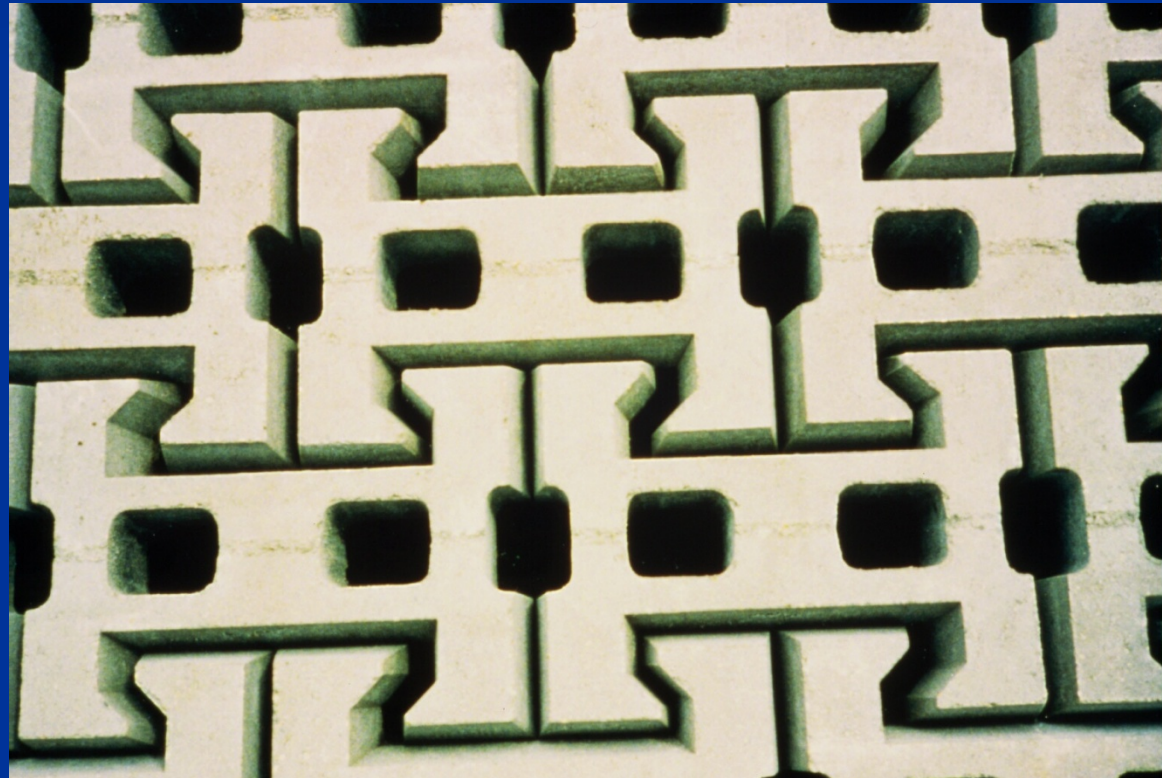
Types of Concrete Armament

■ Cable –tied Block



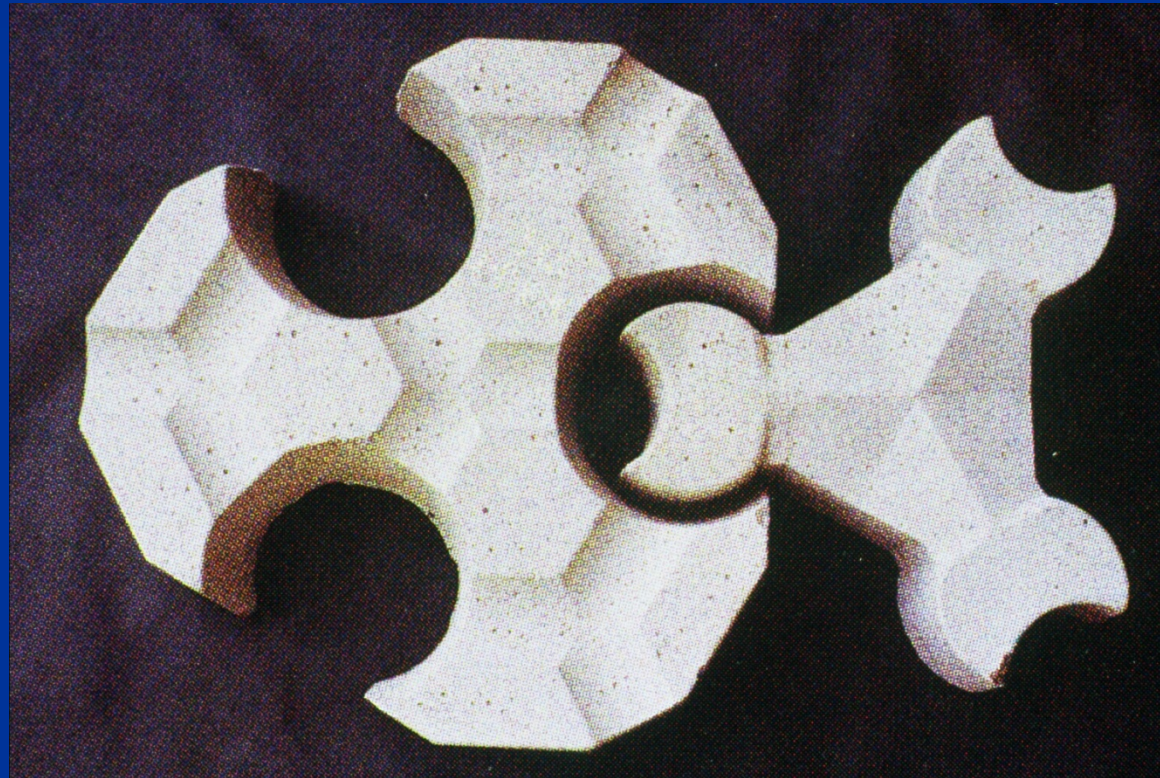
Types of Concrete Armament

- Interlocking Block



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Types of Concrete Armament

■ Geogrid-tied Modules



Types of Concrete Armament

■ Grout-filled Blanket



Cable-tied Mat Installation

small mat



Cable-tied Mat Installation large mat



Cable-tied Mat Installation Supersize Me!



Typical Block Installation



Typical Block Installation



Unique Mat-on-a-Roll



Where does this stuff work best?

Concrete Armoring
can handle a wide variety
of erosion control
applications

Lakeshore Protection



Lakeshore Protection



Shoulder Protection



Shoulder Protection



Shoulder Protection



Shoulder Protection



Box Culvert Protection



Apron Protection / Stilling Basin



Culvert Outlet at Pond



Small Apron Outlet Protection



Large Apron Outlet Protection



Apron Outlet Protection



Culvert Outlet



Bridge Protection



Bridge Protection



Bridge Protection



Bridge Protection



Bridge Protection



Drainage Channel



Drainage Channel



Drainage Channel



Drainage Channel



Spillway Protection



Spillway Protection



Streambank Protection



Streambank Protection



Streambank Protection



Riverbank Protection



Riverbank Protection



Access Road/Low Water Xing



Pond Access Road



Access Road



Access Road



Access Road



Submerged Access Road



Access Road



Heavy Duty Access Road



Creek Crossing



Tire Wash



Boat Ramp



Boat Ramp



Boat Ramp



Benefits of Concrete Armament

- Durability – engineered to handle 100 yr event
- Aesthetics – can be vegetated or unvegetated
- Maintenance – none; if vegetated, can be mowed
- Accessibility – pedestrian and vehicle friendly
- Safety – no rocks for kids to throw or climb on
- Simple installation – with geotextile fabric



QUESTIONS?