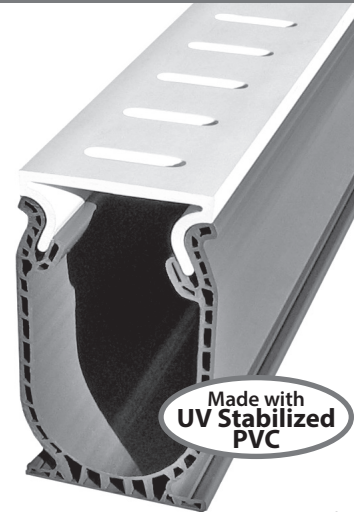
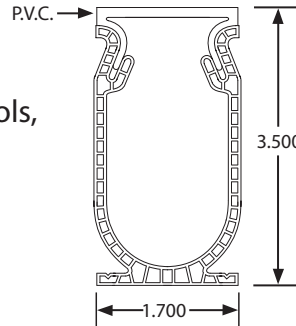


FRONTIER DECK DRAIN

“ Removable Top Drain”

Frontier Deck Drain is a removable top drain that features a double wall base and snap in top (PVC). When installing this drain the tops are staggered past the joints making the joints very rigid. Because the tops are removable, this drain is easy to clean and the tops can be replaced if ever damaged. Frontier Deck Drain is used in many residential and commercial swimming pools, patios and other pedestrian traffic areas.



Patented

FLOW RATE:

Drain Calculations

Assumptions/ Constants:

Gradient - Slope (S) 1 in 200 (0.5%)	0.005 ft/ft, Contains UV inhibitors
Surface Roughness (Mannings n)	0.009 Plastic (PVC & ABS)
Rainfall Intensity (I) (TxDOT Manual)	5.8 in/hr for 10 year storm with time of concentration = to time of duration of 20 min.
Runoff Coefficient (C) (TxDOT Manual)	0.95 For concrete city streets 0.9 - 0.95 - i.e. all concrete pool deck

DRAIN NAME	Area A (ft ²)	Wetted Perimeter P (ft)	Hydraulic Radius R (ft)	Velocity V (ft/s)	Capacity - Q			Catchment Area - A			Length (ft)
					(cfs)	(liters/sec)	(gal/min)	(Acre)	(ft ²)	(m ²)	
FRONTIER DECK DRAIN	0.029	0.573	0.051	1.602	0.046	1.3	20.8	0.008	367	34	1

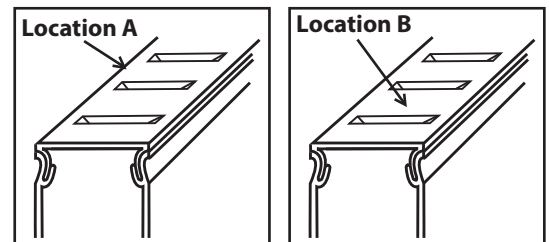
Notes/Equations:

- Above Catchment area based upon 1 foot, 1 meter, etc of the drain section.
- $R = A/P$
- $v = (1.49/n) * (R)^{(2/3)} * (S)^{(1/2)}$
- $Q = vA$
- $A = Q/CI$

LOAD TESTING:

FRONTIER DECK DRAIN	DEFLECTION TO HORIZONTAL LINE		PUNCTURE/PERMANENT DEFORMATION MORE THAN 1/2"	
	LOCATION A	134 psi	LOCATION A	922 psi
	LOCATION B	161 psi	LOCATION B	906 psi

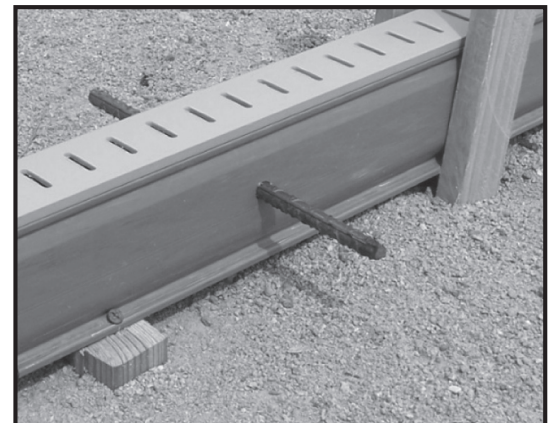
Impact Figures:



Cartons includes: 80' Base, 80' Top Cap, 8 Couplers and 4 End Adapters.

Recommended Stabilization:

To protect the drain from movement of the concrete, it is recommended to drill and pin the base of the drain midway, using a coated or non-metallic rigid reinforcement material. This dowel may be part of the reinforcement of the concrete slab but short bars are also effective, as their purpose is to hold the concrete apart, stabilizing the base of the drain.



Project Information	Contractor Information	Architect Information
Name:	Name:	Name:
Address:	Contact:	Contact:
	Phone:	Phone:
	Fax:	Fax: