

BAFFLE WALLS

PART 1 - GENERAL

1.01 Scope: The Contractor shall furnish and install a flexible baffle wall in the areas shown on the Drawings. Sufficient material shall be furnished to cover all areas with one percent of length added to each panel to allow for shrinkage and wrinkles. The baffles wall shall be the Baffle Curtain as manufactured a by JPS Industries, Inc. or pre-approved equal.

1.02 Submittals: Submittals shall be furnished in 5-7 days after project is awarded.

1.03 Quality Assurance: The curtain manufacturer shall be experienced in the construction and installation of Baffle Walls. They shall have a minimum of 15 years experience with a curtain of this current design and a minimum of 15 similar installations that have been providing satisfactory service for a minimum of 5 years.

The manufacturer must have experience with cold weather applications and provide a list of installations in cold weather climates. This list shall include a description of the application, location, date of installation, name of owner and contact person. Manufacturers who cannot demonstrate cold weather experience through actual installations will not be approved.

The manufacturer shall submit a certificate stating the physical properties of the baffle material to be used, along with various test methods used to determine such properties. No material shall be approved that is not nylon based.

Upon request, the manufacturer shall provide samples of the skirt material which have been exposed to actual field conditions for a minimum of 10 years. Laboratory acceleration tests will not be accepted.

The manufacturer shall certify and demonstrate his ability to install curtains in near proximity to floating aerators or lateral aerators. The minimum distance acceptable shall be 1 foot per aerator HP. Manufacturers who cannot demonstrate this ability through actual installations in place for a minimum of 5 years without movement in upper or lower baffle wall position shall not be approved.

Fifty foot sections will be the maximum length accepted to expedite future upgrading or relocation.

PART 2 –PRODUCTS

2.01 Materials: Base material for the Baffle Wall skirt will be 3028 XR-5. Specifications are below.

**3028 XR5®
SPECIFICATIONS**

Base - Type	Nylon
Fabric - Weight	6.0 oz./sq.yd.
Finished Coated Weight	+2
ASTM D751	28.0 -1 oz./sq.yd.
Tongue Tear	
ASTM D751	90/70 lbs.
8" x 10" sample size @ 12"/minute	
Trapezoid Tear	
ASTM D1117	60/50 lbs.
Grab Tensile	
ASTM D751	600/500 lbs.
Strip Tensile	
ASTM D751 Procedure B	400/300 lbs./in.
Adhesion	
ASTM D751 Dielectric Seam	10 lbs./in.
Hydrostatic Resistance	
ASTM D751 Procedure A	500 psi
Dead Load	2" seam
Room Temperature	150 lbs.
160°F./71°C.	75 lbs.
Low Temperature	
ASTM D2136 LTC	Pass -30°F.
1/8" Mandrel 4 hrs	
Flame Resistance	
Method 5910 MFR	Not consumed within 2 minutes
Roll	Width
Specifics	Size
	58"
	100 yards
Bursting Strength	
ASTM D751	700 lbs.

We believe this information is the best currently available on the subject. It is offered as a possible helpful suggestion in experimentation you may care to undertake along these lines. It is subject to revision as additional knowledge and experience are gained. We make no guarantee of results and assume no obligation or liability whatsoever in connection with this information.

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All materials used in construction of the baffle shall be nylon based, certified to withstand chlorine, ultraviolet radiation, extreme temperatures, rips, abrasions, hydraulic shock and severe winds.

All materials used in the baffle wall construction which are subject to stress from flow or wind must have a uniform rate of linear expansion, preventing unequal movement of tension members and base materials.

All seams or splices shall be sewn to physically bond the base material scrim. Sewing shall also be used to bond the tension members with base material scrim. Any seams using only heat, or dielectric, sealing to bond the surface of the material will not be accepted.

All hardware used for construction shall be 304 stainless steel. This shall include, but not be limited to, all nuts, bolts, washers, grommets, end fasteners.

PART 3 – EXECUTION

3.02 Baffle Wall Construction: The baffle shall be manufactured from 28 ounce, nylon reinforced, 3028 XR-5 material. The nylon reinforcing shall be in both directions and every 4th stitch shall be a rip stop to prevent the continuation of any accidental tear.

All flow windows shall be reinforced with 3-inch nylon web and double lock-stitched with silicone treated nylon thread.

All seams, joints and tension members shall be double lock-stitched with silicone treated nylon thread to physically bond all material together.

The baffle wall shall conform to the lagoon side slopes and bottom, field measurements to be taken by the manufacturer prior to fabrication.

The baffle wall shall be fabricated in 50 foot maximum section lengths. Each 50 foot section shall have its entire perimeter, top, bottom and ends reinforced with nylon web strapping having a minimum tensile strength of 12,000 lbs. The nylon webs are tension members and have a uniform rate of linear expansion as the material, as they are nylon based. This design is essential in preventing excessive loading points and unnecessary wear.

The 50 foot sections shall be joined together via 304 stainless steel bolts that are bolted through 304 stainless steel grommets, pressed into the nylon web reinforced ends located on 12-inch centers in the vertical direction.

The baffle wall will have a flotation system designed for the peak flow experienced in the lagoon. Peak flow up to 7 MGD will have 6" diameter by 26" long blow molded HDPE unit flotation system. These units are affixed to the baffle wall at the top, on either side of the wall every 3 feet. These floats shall be attached to the wall by means of 304 stainless steel bolts, washer and lock nuts. The floats shall be located along the top of the baffle wall in such a fashion that 6-inches of the wall are above water level at all times. Peak flow greater than 7 MGD, will require a flotation system with greater buoyancy. This system will consist of 25 foot segments of 6-inch HDPE pipe, sealed at the ends. This pipe is attached to the top of the baffle with a fabric shroud. The pipe flotation is located along the top in such a fashion that 6-inches of wall are above the water level at all times.

A hot-dipped galvanized chain shall be sewn into the bottom of the baffle to provide auxiliary ballast and positive bottom seal along the length of the baffle. This chain will be either 5/16-inch or 5/8-inch, dependent upon the conditions in the lagoon and the ballast needs. The ballast weight provided will be a minimum of 1.25 lbs. /ft to 3.85 lbs/foot respectively. These chains are for auxiliary ballast and bottom seal only, they shall not be connected in such a fashion that they act as tension members, as they do not have the same rate of linear expansion as the other base materials.

3.02 Mooring, Anchoring and Ballast: Auxiliary ballast is necessary to provide a positive bottom seal along the lagoon bottom where anomalies in depth can occur. Auxiliary ballast is also necessary to provide additional, equally dispersed weight along the bottom of the baffle. The auxiliary ballast is utilized to prevent short circuiting. Main ballast is necessary to prevent any movement due to flow, wind or aeration. Main ballast shall be either concrete cast weights or fabric bags filled with aggregate. The amount of weight varies between 500# and 1500# depending on the dynamics of the lagoon.

The fabric bags are necessary for lined lagoons to prevent chaffing to the liner, and are attached at grommet holes located at the reinforced ends of each baffle section, attached with ½-inch nylon tie ropes. The minimum weight of 500# per 50 foot section of baffle is used.

The concrete cast weights have 304 stainless steel eyes embedded in the concrete. These weights are attached at grommet holes located at the reinforced ends of each baffle section, attached with ½-inch nylon tie ropes. The minimum weight of 500# per 50 foot section of baffle is used.

Nylon tie ropes are used as they have the same rate of linear expansion as the baffle materials and have give to facilitate shock absorption. Specifically, curtains utilizing chain pressed on or attached to the baffle wall bottom as their sole means of ballast will not be acceptable. No metal fasteners or weights shall be left exposed in any manner that would damage any synthetic pond liner.

The baffle shall terminate at the bank side and be moored to an end pin. The end pin provided by the manufacturer will be 1 7/8-inch diameter by 5 feet long buried 4 feet in the ground. The baffle shall be moored to this pin with a stainless steel endplate and swivel collar should the lagoon be unlined. If the lagoon is lined, the manufacturer shall moor the baffle with a 12-inch nylon web, reinforced and pre-punched with grommets for attachment to the end pin. Any cables or chains as part of the mooring arrangement shall not be acceptable.

The maximum force on the end pin and mooring arrangement will not exceed 750#. This is only possible when the baffle wall is fabricated in sections to allow loading to be equally dispersed along the section seams and not all at end of the baffle at the mooring pin.

3.03 Inspection and Testing of Factory Seams: The fabricator shall perform 100% continuous visual inspection of each linear foot of seam as it is produced. Upon discovery of any defective seam, the fabricator shall stop production of panels used in his work and shall repair the seam, and determine and rectify the cause of the defect prior to continuation of the seaming process.

3.04 Size of Baffle Wall: The curtain shall be constructed to separate individual chambers over the total operating depth. The depth and length of curtain shall be in accordance with details show on the drawings, and must be verified by the manufacturer with field measurements provided by the manufacturer's field crew.

3.05 Installation: The baffle wall shall be installed as shown on the drawings by the manufacturer's field crew, which provides a 24 month 100% warranty on the installation by the manufacturer's field crew. Installation will take place while the lagoon is full and at the intended operating level. Dry installations shall not be acceptable.

3.06 Report: The manufacturer's field supervisor will provide a basic installation report when installation is complete. Report is to include: manufacturer's field rep name and contact information, duration of time on site and official start-up date of the baffle's completed installation. The baffle's material and installation warranty are valid for 730 days from the start-up date.

3.07 Warranty: The baffle wall shall have a material/craftsmanship warranty. The warranty shall be 100% for 24 months. Installation warranty shall be 100% for 24 months. Any warranty less than 24 months shall not be acceptable.