

Post Anchors and imbeds are to be designed to insure a solid connection between the Imbed, Anchor and Post.

All post anchors shall have 3 components:

- 1) A steel anchor plate minimum 16"X16" with , on each corner, 4 -1"x 3 feet long Rebar or 2"x2"angle iron steel legs welded on the plate and connected to the Rebar cage.
- 2) A separate post plate shall be welded with minimum of 3 side legs, 3"x 5" 3/8" steel to the anchor plate.
- 3) The post anchor plate shall be of 304 Stainless Steel, minimum dimension 17" (500mm) x 9" (248mm) with removable (one screw) cover plate for 2 post anchor bolt slots and 2- 1" concrete vent holes .

Note: Dimensions will change after project engineering depending on Post height and loading criteria.

MATERIAL SPECIFICATIONS:

Anchor Plate:

Mark: A2

En 10088-2-numeric mark: 1.4301

AISI: 304

Reh :220 MPa

Rm : 550-750 MPa

Surface Anchor Plate: Type 304 Stainless Steel

Anchor Support Imbed Assembly ASTM A-36

Hot Dipped Galvanized ASTM A-123

Welding Stainless to Carbon Steel AWS D1.6 1999 Structural Welding Code Stainless

D1.6M 2007 Requirements for Welding Stainless Steel Structural Assemblies/Components

Including Stainless to Carbon Steels ; Annex F (Informative) Suggested Filler Metal For Various Combinations Of Stainless Steels and Other Ferrous Base Metals

3/ Anchor Bolts and Nuts:

All bolts (2 per Post) shall use and meet this minimum specification and are to be certified and x-rayed .

Finished bolts shall be of Grade 5 Titanium conforming to ASTM B 348, "Standard Specifications for Titanium and Titanium Alloy Bars and Billets. The finished bolts conform to ASTM F468M, " Standard Specifications for Nonferrous Bolts, Hex Cap Screws and Nuts.

DIN 188, M30 x 100, class 5.6 or better

Size minimum: M30 x 100

Strength class minimum: 5.6

Cross section: 561 mm²

Tensile strength: 140 ksi

Testing strain: 280 MPa

ReH: 300 MPa

Rm: 500 MPa

4/ End Brackets connected to concrete walls:

All end brackets to receive the aluminum beams to connect to a concrete wall shall be stainless steel and have connecting stirrups welded every 2 feet to the back side of the end bracket. These stirrups shall surround rebar per the installation drawings and be welded to the concrete wall rebar cage.



The water sealing shall be achieved with one seal on the " Dry Side

", allowing the hydrostatic pressure on the " Wet Side "to press the aluminum beam against the rubber seal for a 100 % zero leakage water tight seal. The sliding bracket guides shall be a minimum of 1/8 " away from the back of the end bracket to allow water to fill the aluminum beams for added down pressure and strength. A stainless cover plate shall be provided to protect the rubber seal and sliding bracket assembly from dirt, dust and ice when not in use.

1) Stainless Steel Type 304 ASTM F593-02(2008) e1—Standard Specifications for Stainless Steel Bolts, Hex Cap Screws and Studs

MATERIAL SPECIFICATIONS:

Entire assembly shall be Stainless Steel Type 304

Cover Plate shall be Stainless Steel Type 304 and screws are stainless, Type 304

Rubber Seal: See Section 7

Stainless steel:

Mark: A2

EN 10088-2-numeric mark: 14301

ASI: 304

ReH: 220 MPa

Rm: 550-750 MPa

Aluminum:

ISO/EN: EN-AW-6060 T66

DIN: AlMgSi0, 5

Numeric mark: 3.3206

AISI: 6060

ReH: 150 MPa

Rm: 19 MPa

5 / Posts:

All posts shall be a welded steel fabrication, engineered by a structural engineer to meet the specific wall load requirements. A "ONE SIZE FITS ALL" approach is not acceptable.

The posts shall use a two bolt anchor design. Posts shall be designed for a minimum safety factor of 1.5 plus. Posts yielding over six feet height flood protection shall have, for added strength and safety, a steel brace attachment.

The Brace calculation shall be performed by the structural engineer.

Allowable Stress: 263 MPa

Calculated Post Stress: 154.5 MPa

MATERIAL SPECIFICATIONS:

Steel Welding ASTM A-36, Hot Dipped Galvanized ASTM A -123 engineering calculations.

Post shall be welded with different Steel Plate thickness to meet the engineering standards.

Rubber Seal: See Section 7

Back brace pins and security retainer clips shall be Type 304 Stainless ASTM F593-02(2008) e1 Standard Specifications for Stainless Steel Bolts, Hex Cap Screws and Studs

6/ Beams or Stop Logs.

All beams shall be manufactured of high strength extruded aluminum with a specified profile to accommodate stacking and include two formed channels for connecting the rubber seals without gluing to make seal replacement as easy as possible. All beams shall have 2 rubber seals for a 100% watertight seal. Just position the beam seal side down. Beams shall be symmetrical to assure a “not end to end “stacking simplicity.

Beam Dimension Specification:

With: 100 mm

Height: 185 mm

Circumference: 1249.4 mm

Area: 3006.77 mm

Square moment: 5295000 mm²

Square moment: 13277000 mm²

MATERIAL SPECIFICATIONS:

Beam shall be an Aluminum extrusion ASTM B221M Alloy 6060, 6063

Seals: Two extruded/molded seals shall be retained in special formed channels on the beam bottom. This eliminates the need for adhesives as well as makes replacement if necessary much simpler. See Section 7.

6 / Hold Downs:

Hold Downs shall secure the aluminum beams once they are stacked in the wall and add down pressure to the water filled beams for water tight sealing of the bottom beam to ground surface and to the intermediate beam seals in the stack. Hold Downs shall be of simple carbon steel design, hot dipped galvanized, to make it easy to accommodate varying wall heights on a post. The assembly shall lock onto the post or end bracket with secure lugs. Just position the assembly at the top of the post or end bracket and spin down the wing nut to apply down force on the aluminum beams.

MATERIAL SPECIFICATIONS:

ASTM A-36 Hot-dipped, galvanized ASTM A-123

7 / Rubber Seals

The rubber Seals in the end brackets, posts and in the aluminum beams shall be a common design to simplify replacement and inventorying of spare parts.

The design shall not require adhesives or cements that make replacement when needed difficult. The special shape seal shall be pressed into the grooves in the beams and posts, securely locking them in place without adhesives. All rubber seals shall meet this qualification or better.

Type	EPDM	EPDM micro porous
Hardness	60-70 Sha	30 Sha
Specific mass	1,4 g/cm ³	0,7 g/cm ³
Temperature range	-30 / +100 °C	-30 / +100 °C
Strength	7 N/mm	1 N/mm
Ductility	350%	150%

9 / Buy America:

All flood protection components used for projects in the USA shall meet all “BUY AMERICA” requirements for US sourcing where Federal Stimulus and/or private funding require such.

10/ Certification:

Certification of Materials guaranteeing Materials and Components meet all applicable standards for the materials be used in the flood protection project shall be supplied before delivery to the jobsite.

11/ Submittals and Assisting to the client

The company shall assist the client with recommendations in selecting a contractor, obtaining permits, provide inspection in the construction phase, train personal for the installation, recommend storage areas, recommend spare parts, and provide flood control manuals.

12/ Warranty

EKO Flood USA LLC is warranting all removable barrier parts and rubber sealers and strip components for 5 years from date of the finished installation.