
National Park Service | U.S. Department of the Interior

NPS *UniGuide* Sign Standards

Visitor Information Sign System

VIS and Wayside Hardware Specification Manual



Office of NPS Identity | NPS *UniGuide* Sign Program
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VIS Hardware Base Material Options

VIS base hardware is available in three standard material options: weathering steel, galvanized steel, and painted aluminum. For painted aluminum bases there are three standard color choices.



Weathering Steel

Weathering steel is an excellent material option for many NPS sites. Over time, with exposure to the elements, the bases turn a golden brown.

The bases are virtually maintenance free and do not require painting once installed.

Weathering steel bases can last well over 15 years.

Bases shipped are not pre weathered. When they arrive the bases are black and begin the weathering process when exposed to the elements.



Galvanized Steel

Galvanized steel is an excellent choice for saltwater and other marine sites. Prior to final fabrication the base legs and frame are hot dipped galvanized which imparts a protective finish to the steel.

The bases are virtually maintenance free, show little if any sign of rust inhibition, and do not require painting once installed.

Galvanized steel bases can last well over 15 years.

When they arrive the bases have a shiny silver finish. Over time the bases patina to a dull grey.



Aluminum

Aluminum bases are a good all around choice for many NPS sites. Aluminum bases are primed and painted.

The bases are not maintenance free and do require occasional field cleaning and touch up to keep them looking good.

Aluminum bases are available in three standard paint colors. All bases are painted with a coarse spatter coat finish for added durability.

Standard Aluminum Paint Finish Colors



**NPS Dark Brown
Matthews Paint
MP63856 with
Spatter Finish**



**NPS Medium Grey
Matthews Paint
MP63850 with
Spatter Finish**



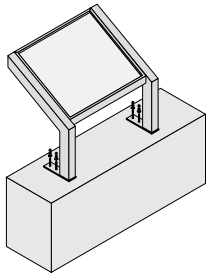
**NPS Brown
Matthews Paint
MP63848 with
Spatter Finish**

VIS Hardware Mounting Options

The chart to the right provides a basic overview of the hardware installation options available in the VIS system. Refer to the fabrication details for more information.

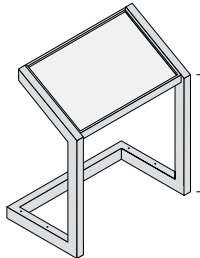
Cap Mount (CM)

Wall mounted bases use a modified baseplate that facilitates installation on low walls.



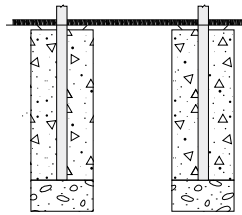
Sled Base (SB)

The sled base allows the frame and post to be free standing. For security the base can be mounted with threaded rods.



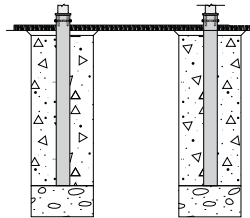
Direct Embedment (DE)

Direct embedment is the typical mounting method for all VIS hardware. Post depth is typically 30" to 36" and posts are secured with concrete.



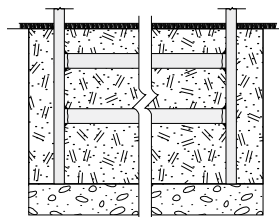
Direct Embedment Socket Mount (SM)

Socket mounting allows the VIS base to be removed. Oversized sleeves are secured in the ground and the base can slide in and out. This is an excellent choice for park areas with huge snowfall or flood conditions.



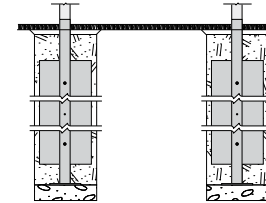
Direct Embedment Stabilizer Bars (SB)

Stabilizer bars are a mounting accessory for direct embedment. The bars are welded to each base leg and prevent racking due to loose and shifting soil. This is a good choice for seashore conditions.



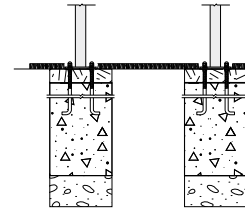
Direct Embedment Stabilizer Fins (SF)

Stabilizer fins are another mounting accessory for direct embedment. Plates are attached to each base leg. The fins allow installation of the base without the use of concrete.



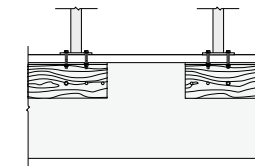
Baseplate Mount (BP)

Baseplate mounting allows installation with the base with a welded baseplate and j-bolt anchors. A good choice where deep footers are required or on existing concrete or hard surfaces.



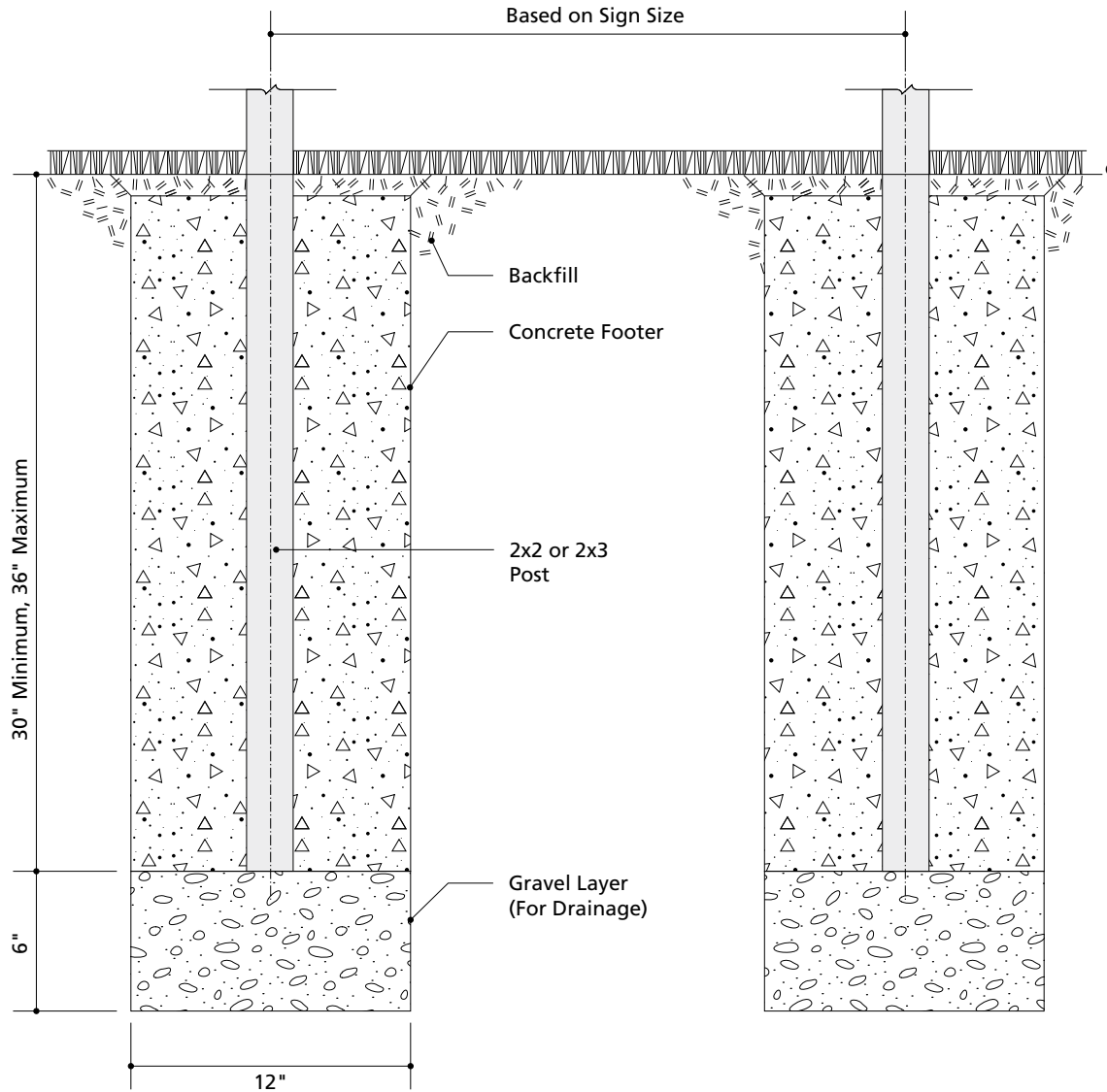
Deck Mount (DM)

Deck mount hardware uses a baseplate and anchors to install the base on wooden decks and walkways. Deck mounts are typically custom and site specific.



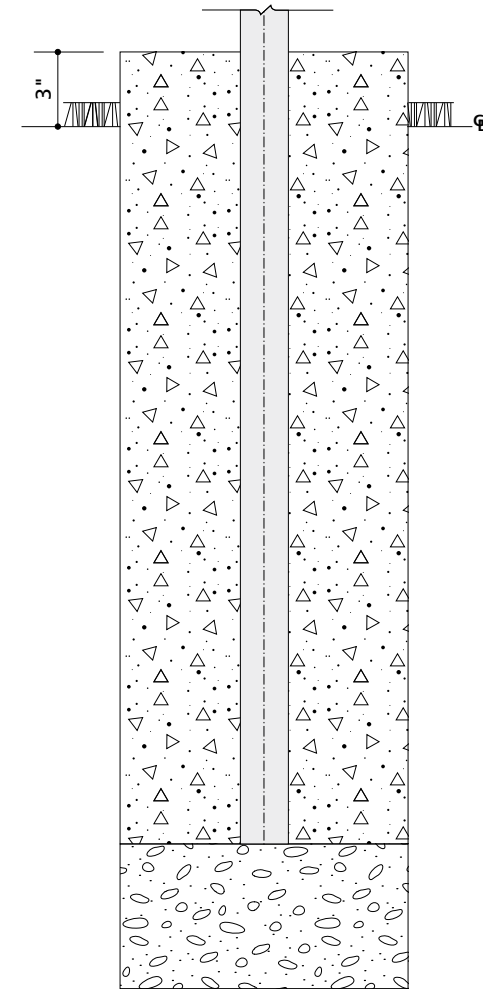
Installation Options

Direct Embedment (DE)



1-IO - 01 Direct Embedment

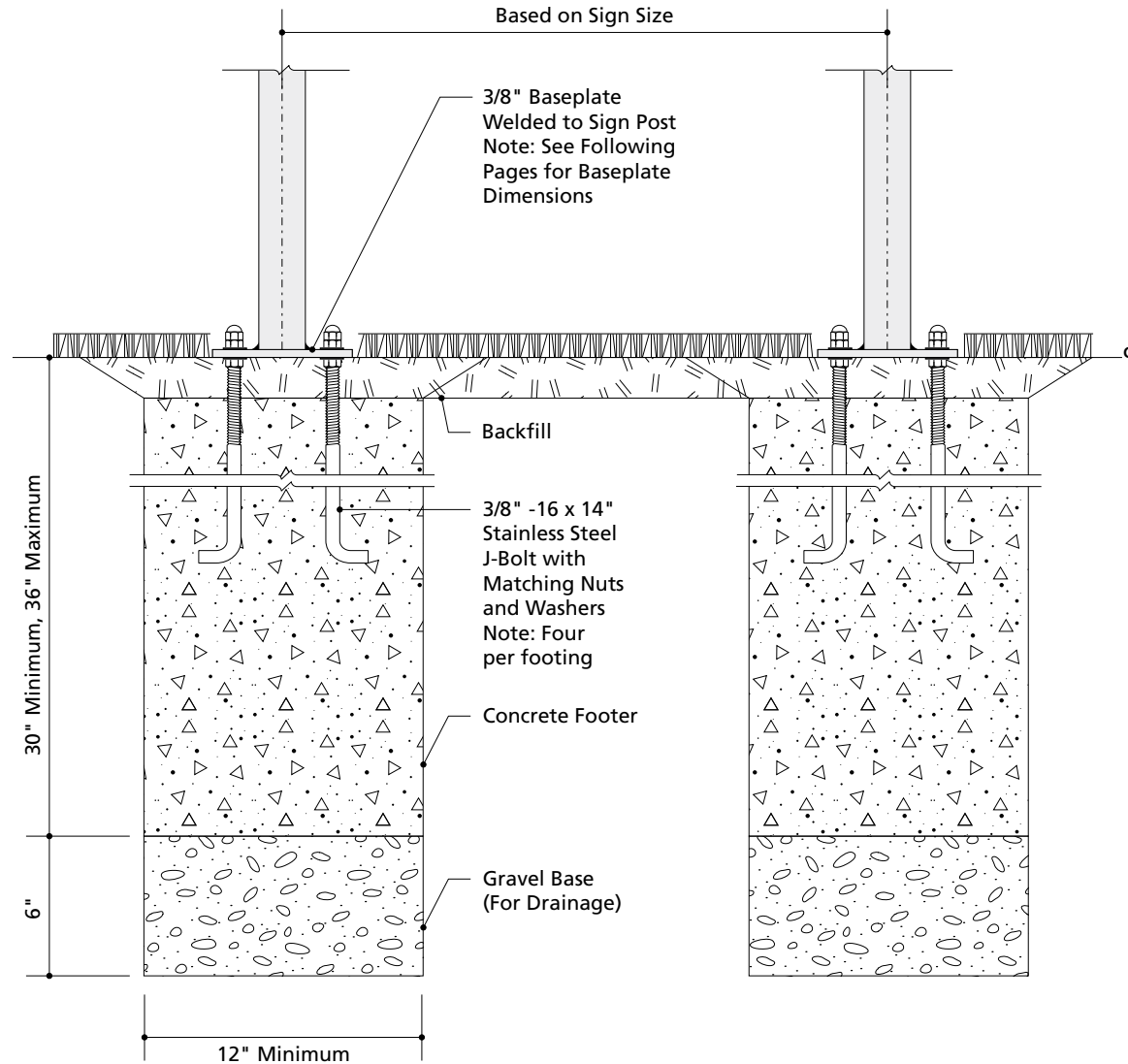
Scale: 1-1/2" = 1'-0"



2-IO - 01 Direct Embedment with Mooring

Scale: 1-1/2" = 1'-0"

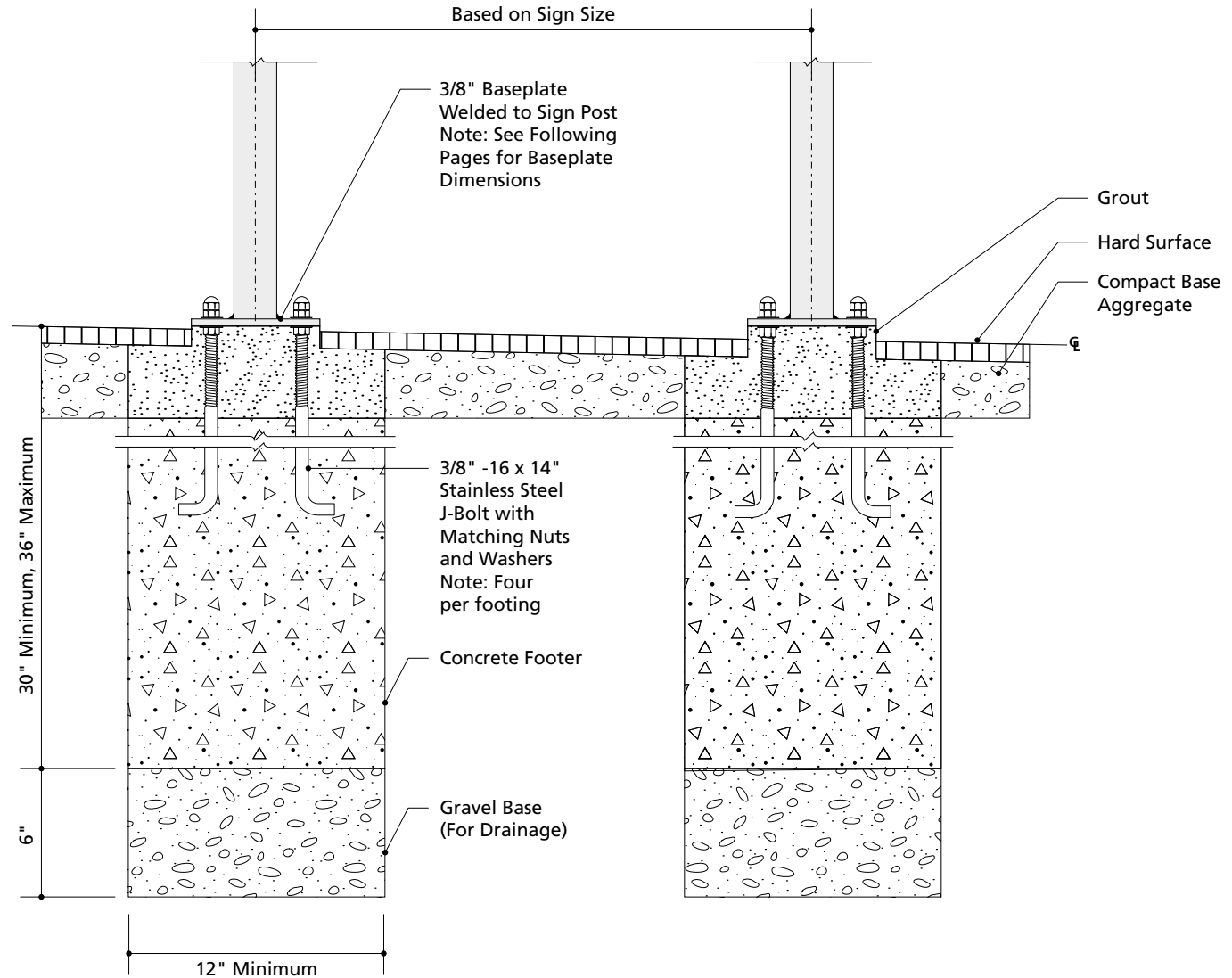
Upright Series Baseplate Mount (BP): Landscape



1-IO - 03 Baseplate Mount: Landscape, Elevation

Scale: 1-1/2" = 1'-0"

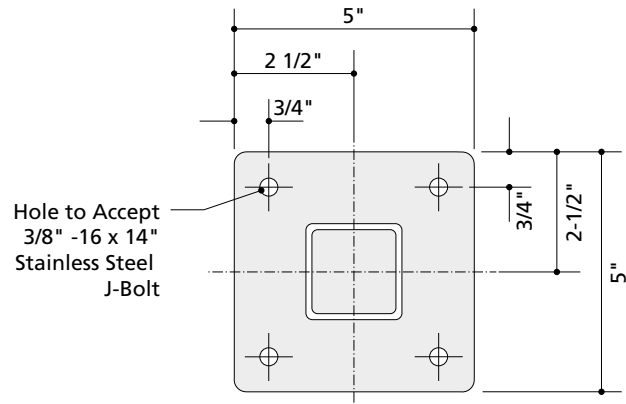
Upright Series Baseplate Mount (BP): Hard Surface



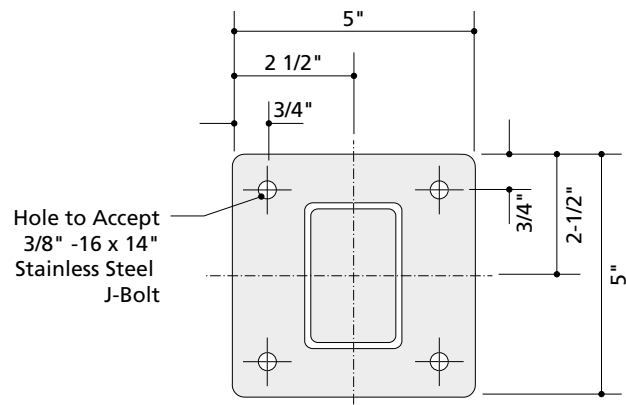
1-IO - 04 Baseplate Mount: Hard Surface, Elevation

Scale: 1-1/2" = 1'-0"

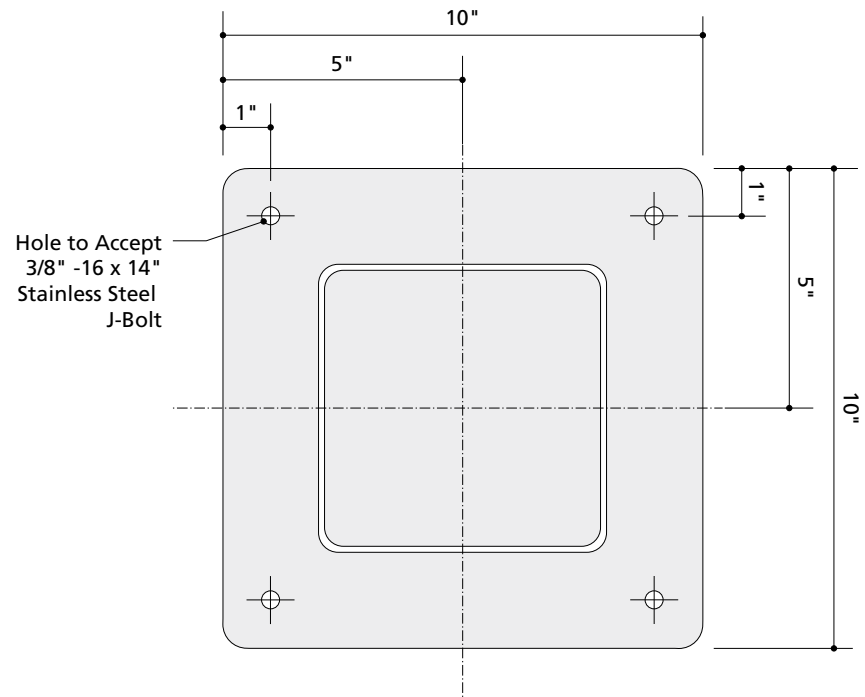
Baseplates



1-IO - 05 Baseplate Plan View, 2" x 2" Post
Scale: 3" = 1'-0"

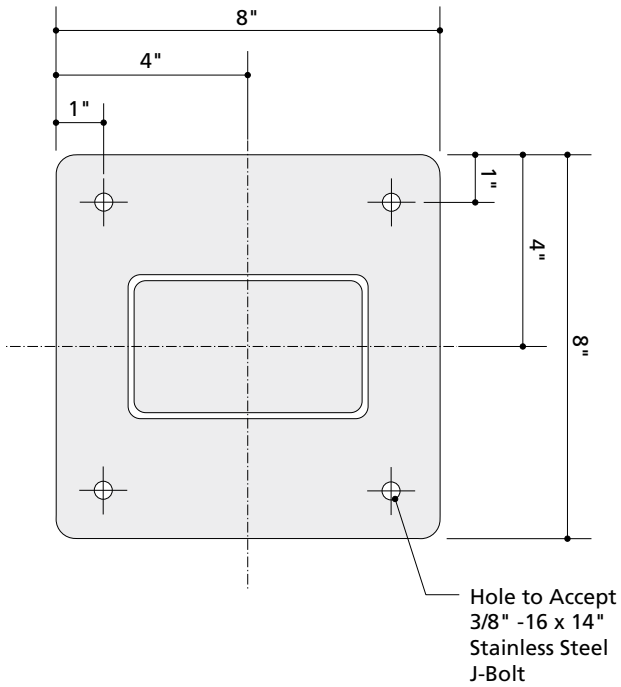


2-IO - 05 Baseplate Plan View, 2" x 3" Post
Scale: 3" = 1'-0"

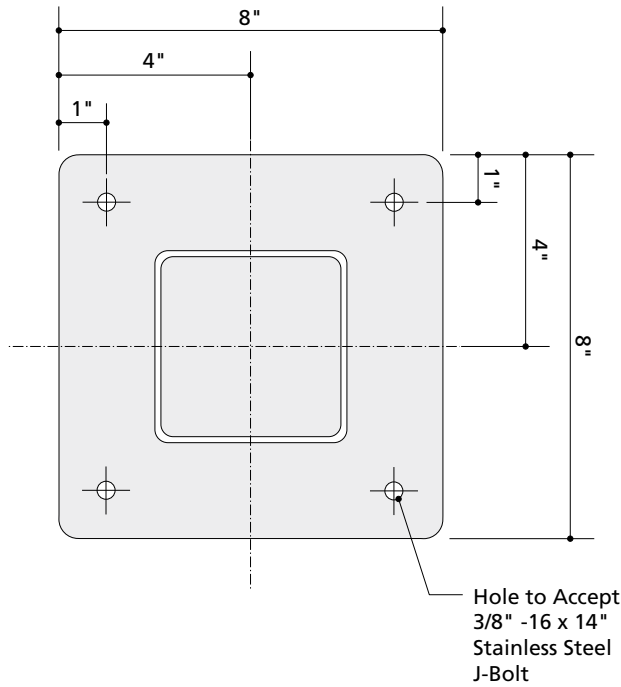


3-IO - 05 Baseplate Plan View, 6" x 6" Post
Scale: 3" = 1'-0"

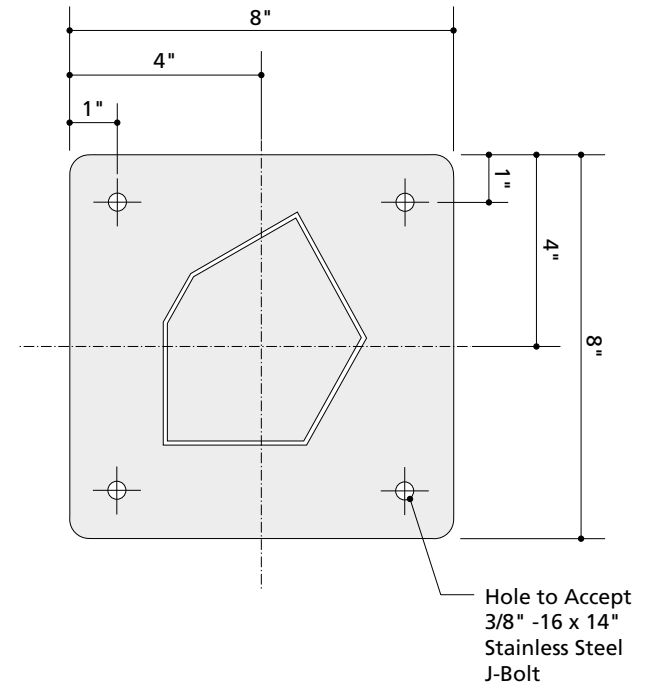
Baseplates



1-IO - 06 Baseplate Plan View, 3" x 5" Post
Scale: 3" = 1'-0"



2-IO - 06 Baseplate Plan View, 4" x 4"
Scale: 3" = 1'-0"



3-IO - 06 Baseplate Plan View, UP Tri Post
Scale: 3" = 1'-0"

Section VII

Specifications

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General Requirements



The Visitor Information System (VIS) consists of a standard group of post-and-frame components and accessories that are fabricated from aluminum or steel and mechanically assembled. Refer to the VIS Sign Fabrication Drawings for specific details and fabrication guidelines.

Frames

The VIS System includes a fabricated panel capture frame with a removable cap and a structural core panel. The frame is designed to contain and capture the graphic panel on all four sides. Frames can be configured for one or two-sided display.

Frames fabricated in aluminum utilize an NPS standard “F” extrusion welded to a solid sheet aluminum core panel for structural rigidity. The frame features a removable top extrusion secured with tamper proof hardware to allow installation and removal of graphic panels.

Two-sided frames utilize a break-formed channel system with floating internal core panels for structural rigidity. The top channel is removable and secured with tamper proof hardware.

Frames fabricated from steel (including one and two-sided structures in weathering and galvanized material) utilize a break-formed channel system with floating internal core panels for structural rigidity.

Posts

The VIS system features aluminum and steel tubular posts. Posts material for upright and low profile bases includes tubular aluminum and carbon steel in 2" x 2", 2" x 3" sizes, and 1/2" x 2" bar stock. Carbon steel can be galvanized for marine environments.

Panels

Sign panels are inserted into the frame in the front of the core panel. The sign frames accommodate a variety of graphic panel types including porcelain enamel, fiberglass embedment, polycarbonate embedment, high pressure laminate, digitally printed adhesive vinyl on aluminum substrates with protective overlaminates, or computer cut retro-reflective sheeting. The frame system can accommodate panel thicknesses from .090 up to .125.

Signs and sign assemblies shall be manufactured using materials and fabrication processes as described in these specifications and in the companion technical drawings.





Dimensions

Inch dimensions are used for legend size and all related dimensions including layout grids, panel sizes, post lengths, mounting height, and post drilling for connection of panel to post. All hardware, machine parts (cast caps, mechanical fasteners, connection details), and materials (tube, dimensional lumber) are specified in inches.

Note: Panel dimensions described in this manual are nominal. Nominal sizes are used for ease of specification. Fabricated panels shall be undercut by 1/16" on each side. For example a specified, nominal 24" x 36" panel, shall be fabricated to a finished size of 23-7/8" x 35-7/8". Frames shall be fabricated to allow an expansion tolerance of 1/16" on all sides.

Material Options and Substitutions

All materials shall be new and of first quality. Materials shall meet or exceed the standards and specifications herein or by reference. All materials and fabrication methodology shall comply with this specification or be an "approved equal".

A limited number of materials have been specified by manufacturer's trade name. These products are specified as examples and not to limit use of alternative products and suppliers that are of equal or superior quality.

Function

These specifications are provided as a guideline for the fabrication, assembly, and installation of VIS signs for the UniGuide Program of the National Park Service. Material and fabrication specifications are provided for each structure.

All signs shall be fabricated to the specifications described in this chapter. Additional instructions and requirements including modifications to structures and details shall be provided within individual contracts that describe the performance of specific sign fabricators and suppliers.

Sign Identification Codes

Signs within the VIS system are identified by a series of reference code numbers that indicate the type of sign, sign panel/frame size, material mounting type, mounting accessory, and accessory. Refer to the Overview section of this manual for a description of the VIS Code System.

Reference Standards

American Society for Testing and Materials standard specification for Aluminum and Aluminum Alloy Sheet and Plate (ASTM- 6061-T5 extruded shapes with Type 2: Black anodized finish, and 3003-H16, 3003-H14, 2024-T3, 6061-T6, and 5052-H34 aluminum plate).

American Society for Testing and Materials standard specification for Stainless Steel tube and structural shapes (ASTM- 316L and 18-8).

American Society for Testing and Materials standards for Weathering Steel ASTM-588 (A-847 as a tube product).

American Society for Testing and Materials, and American Institute for Hollow Structural Sections standards (HSS) for ASTM-500; Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.



American Society for Testing and Materials standard specification D-523 for paint gloss and D-4587 for accelerated weathering cycles for paint.

American Society for Testing and Materials: Standards for threaded steel rod and “J” bolts

Structural Engineering

All structures have been engineered to meet typical conditions for all national parks. Special conditions that are outside these parameters are to be engineered on a site specific basis.

Quality of Materials

All materials shall be new and of first quality. Materials shall meet or exceed the standards and specifications herein or by reference. Factory seconds shall not be accepted. All materials shall comply with this specification or approved equal.

UniGuide Engineering

The following criteria have been used as the standards governing material specifications, assemblies and footings for all NPS VIS signs unless otherwise specified or engineered.

Wind Pressure : 20 PSF ***

Soil: 1-TSF (2 KSF)-Minimum * **

Frost Depth : 36" Maximum unless otherwise noted

Concrete: 3000 PSI. / 28 days

- * For all direct embedment footings, backfill in 6" lifts tamped to 95% compaction.
- ** Subgrade materials are assumed to be organic free sand/ gravel/silt, or mixture of same, with bearing capacity of 1-TSF (2 KSF) min, subject to inspection.
- *** Exceptions include sign placements along the Gulf of Mexico and in the region of Cape Hattaras, with installations engineered site specific to the location.

If these criteria are not adequate for a specific sign location, modifications shall be made to conform to the specified site conditions in order to maintain structural integrity. Modifications may include, but are not limited to, thicker panels, larger dimension sign posts, additional structural bracing or components, or larger footing configuration and additional steel rebar.

The design of the structural requirements of special one-of-a-kind signs shall conform to the basic assembly specifications for similar sign types. The modified assembly shall fulfill the requirements of local criteria for wind pressure, soil, and frost depth.

Materials Overview



This section covers material specifications for all components used in the UniGuide Visitor Information System.

Aluminum

Aluminum Frame Extrusions

Extruded aluminum (6063-T6 or 6063-T6/T651), NPS standard “F” channel extrusion. Refer to Chapter VI for drawings and additional information.

Extruded aluminum (6063-T6 or 6063-T6/T651), NPS standard angle top frame extrusion. Refer to Chapter VI for drawings and additional information.

Extruded aluminum (6063-T6 or 6063-T6/T651), NPS standard angle bracket extrusion. Refer to Chapter VI for drawings and additional information.

Aluminum Posts

2" x 2" x 3/16" wall tubular aluminum (6063-T6) posts for upright and lowprofile assemblies.

3" x 2" x 3/16" wall tubular aluminum (6063-T6) posts for upright and lowprofile bases, and 24" x 36" double and triple inline assemblies.

1/2" x 2" aluminum barstock (6063-T) for upright and low profile assemblies.

4" x 4" x 1/8" wall tubular aluminum (6063-T6) posts for 24" x 36" and 36" x 48" upright quad post assemblies.

3" x 5" x 1/8" wall tubular aluminum (6063-T6) posts for 36" x 48" double and triple inline assemblies.

6" x 6" x 1/8" wall tubular aluminum (6063-T6) posts for 36" x 48" upright quad assemblies with roof structure.

1/4" flat sheet aluminum (2024-T3 or 7075-T3) for trailside assemblies.

Aluminum Core Panels

3/16" flat sheet aluminum (2024-T3 or 7075-T3) core panel for upright and low profile bases.

Aluminum Break-formed C-Channel

.125" sheet aluminum (2024-T3 or 7075-T3) for breakforming C-channels and angles for two-sided frame applications

Aluminum Baseplates

3/8" plate aluminum (2024-T3, 7075-T3) for machined drilling of baseplates for base mounting with j-bolts. See drawings in Section VI for base plate details.

Aluminum Hardware

3/8" pop rivets to attach aluminum frame to post legs.

Stabilizer Fins

6" x 6" x 1/4" sheet aluminum (2024-T3 or 7075-T3) for bottom of embedment hole to mitigate settling of tubular aluminum upright and low profile posts (as specified).

1/4" x 10" x 24" 1/4" sheet aluminum (2024-T3 or 7075-T3) to stabilize embedment of tubular aluminum uprights and low profile posts.



Weathering Steel

Weathering Steel Posts

2" x 2" x 1/8" wall tubular weathering steel (A-847) for upright and low profile bases.

2" x 3" x 1/8" wall tubular weathering steel (A-847) for upright and low profile bases, and 24" x 36" double and triple inline assemblies.

1/2" x 2" barstock (A-847) for upright and low profile bases.

4" x 4" x 1/8" wall tubular weathering steel (A-847) for 24" x 36" and 36" x 48" upright quad post assemblies.

3" x 5" x 1/8" wall tubular weathering steel (A-847) for 36" x 48" double and triple inline assemblies.

6" x 6" x 1/8" wall tubular weathering steel (A-847) for 36" x 48" upright quad assemblies with roof structure.

1/8" weathering steel plate (A-847) for fabricated posts for upright tri-side assemblies.

1/4" weathering steel plate (A-847) for trailside assemblies.

Steel Core Panels (Painted)

1/8" steel plate (A-36) for painted core panel.

Weathering Steel Break-formed C-Channel

1/8" weathering steel plate (A-847) for breakforming C-channels and angles for two-sided frame applications for upright assemblies and frames for low profile assemblies.

Weathering Steel Baseplates

3/8" weathering steel plate (A-847) for welded baseplates for assemblies with tubular uprights and bar stock uprights.

Steel Hardware

3/8" pop rivets to attach steel frame to post legs.

Stabilizer Fins

6" x 6" x 11-gauge steel plate (A-847) for bottom of embedment hole to mitigate settling of tubular steel uprights (as required).

1/4" x 10" x 24" steel plate (A-847) to stabilize embedment of tubular steel uprights.

Stabilizer Bars

1/2" steel plate (A-847) for stabilizer bars to prevent post rack and torque (as specified).

Galvanized Steel

Galvanized Steel Posts

Note: at the election of the contractor, A-847 material can be galvanized in-lieu of A-500-B material.

2" x 2" x 1/8" wall tubular steel (A500B) for upright and low profile bases.

2" x 3" x 1/8" wall tubular steel (A500B) for upright and low profile bases, and 24" x 36" double and triple inline assemblies.



1/2" x 2" barstock (A500B) for upright and low profile bases.
4" x 4" x 1/8" wall tubular steel (A500B) for 24" x 36" and
36" x 48" upright quad post assemblies.

3" x 5" x 1/8" wall tubular steel (A500B) for 36" x 48" double
and triple inline assemblies.

6" x 6" x 1/8" wall tubular steel (A500B) for 36" x 48" upright
quad assemblies with roof structure.

1/8" steel plate (A36) for galvanized fabricated posts for
upright tri-side assemblies.

1/4" steel plate (A36) for galvanized trailside assemblies.

Steel Core Panels (Painted)

1/8" steel plate (A-36) for galvanized core panel.

Galvanized Steel Break-formed C-Channel

1/8" steel plate (A36) for for breakforming C-channels
and angles for two-sided frame applications for upright
assemblies and frames for low profile assemblies.

Galvanized Steel Baseplates

3/8" steel plate (A36) for welded baseplates for machined
drilling of baseplates for base mounting with j-bolts. See
drawings in Section VI for base plate details.

1/4" x 2" steel plate (A-36) welded baseplate straps for wood
upright assemblies.

Steel Hardware

3/8" pop rivets to attach steel frame to post legs.

Stabilizer Fins

6" x 6" x 11-gauge steel plate (A-36) for bottom of
embedment hole to mitigate settling of tubular steel
uprights (as required).

1/4" x 10" x 24" steel plate (A-36) to stabilize embedment
of tubular steel uprights.

Stabilizer Bars

1/2" steel plate (A-36) for stabilizer bars to prevent post rack
and torque (as specified).

Hardware

Frame Rail Attachment

1/4-20 x 1" stainless steel socket head cap screws (with
stainless steel washer; see below) for rail attachment to
upright (McMaster Carr 92196A542).

Inline

10-24 x 1.5" button head, socket head stainless steel bolts to
hold cover panel on fabricated upright for inline (McMaster
Carr 92949A251) with No.12 stainless steel flat washer
(McMaster Carr 92141A013).

Wall Mounted Assemblies

1/4"-20 x 1" stainless steel round head screw (McMaster Carr
91783A533) with stainless steel flat washer (McMaster Carr
92141A029) and wall anchor for attaching assembly.



Stabilizer blade

3/8" x 3" zinc plated hex head machine bolt (McMaster Carr 91236A636), with galvanized washer and offset washers for mounting stabilizer blade.

Anchor bolts and baseplate attachment

3/8"-16 x 14" stainless steel (18-8) "J" bolts (McMaster Carr-91615A140), with stainless steel hex nut (McMaster Carr-91849A031) for leveling and heavy duty stainless steel 1" dia. washer (McMaster Carr-98019A200) for mounting with concrete footing.

3/8"-16 threaded stainless steel rod (18-8) (McMaster Carr-98920A031) cut for 3.5" positive embedment, or standard 3/8" x 5-1/8" HILTI-HVA rod with chisel point and embedment mark.

HILTI-HVA adhesive anchor system (or equal) for 3/8" x 3-1/2" embedment.

3/8" flat washers (McMaster Carr 92141A031) and hex nuts (McMaster Carr 91845A031), thin nuts (McMaster Carr 91847A031), and stainless steel (304) finishing acorn nut (McMaster Carr-92994A031) for baseplate attachment.

3/8"-16 x 2" stainless steel button head socket cap screw (McMaster Carr-92949A632) with companion washer (McMaster Carr-98019A200) for attachment of baseplate to mounting stem.

3/8"-16 stainless steel (18-8) heavy hex nut welded to bottom of stem footing baseplate for mounting bolt attachment (McMaster Carr-91849A031) Bolts for mounting to deck.

3/8" x 4" zinc plated hex head lag screw (McMaster Carr-91478A640) to attach baseplates to wood decks.

3/8" x 3" zinc plated hex head machine bolt (McMaster Carr 91236A636), washers and hex nuts to through bolt baseplates to wood decks.

3/8" x 4" zinc plated carriage bolt (McMaster Carr-93548A636), washers and hex nuts to through bolt supporting "L" brackets to wood decks.

3/8" x 8" zinc plated carriage bolt (McMaster Carr-93545A652), washers and hex nuts to through bolt C.1 upright to face of deck joist.

Bulletin Cabinet

- 0.5" x 1.375" aluminum "L" shape frame assembly (2-screws, backing plate, tapped front plate) hardware (Nielsen 2400).
- (304) stainless steel continuous hinge with drilled holes. plain finish, 0.040 thick, 1-1/16" open wide (McMaster Carr 1658A417) for bulletin cabinet.
- #4-40 x 3/16" long (18-8) stainless steel flat head Phillips machine screw, with undercut head (McMaster Carr 91771A111).



- 3/16" – (18-8) stainless steel flat, socket head machine screw, 8-32 thread (McMaster Carr 92210A192) Accessories.
- 1-1/16" x 0.040" thick aluminum continuous hinge (McMaster Carr 1581A66) for trash bag dispenser.
- 8-32 x 1/4" stainless steel low head socket cap screw (McMaster Carr 93615A317) for keyhole attachment of folder holders and campsite permit display.
- 10-32 x 2" alloy steel, flat socket head screw (McMaster Carr 91253A018) with 1/2" plate washer and nut to secure for trash bag dispenser.
- 0.1875" clear polycarbonate sheet material for bulletin cabinet face.
- 0.1875" CRL vinyl glazing gasket for clear 3/16" polycarbonate sheet of bulletin display cabinet (0752C).
- Vinyl weather stripping for bulletin cabinet door (specification to be determined).
- 0.1875" and 0.1" acrylic sheet (clear and black) for brochure dispenser, campsite permit display, and camp registration display.

Paint

All aluminum VIS bases, posts, and frame components shall be primed and painted

Cleaning and Preparing the Metal

The surface of all aluminum post and frame components shall be properly prepared to ensure strong adhesion of the primer and topcoat. All oil, dirt, rust, metal burrs and any foreign materials shall be removed. All components shall be free of defects. All welded joints shall be ground smooth and clean. All dust or residue from abrasive cleaners or solvent cleaners shall be removed. A light scuffing/sanding shall provide "tooth" for the primer to adhere to the metal surfaces.

Prior to primer application, apply a generous portion of 45-330SP Speed Prep Cleaner, (or approved equal) to all metal surfaces. Application of the cleaner shall be in strict accordance with *Matthews Product Bulletin MPC111*, or in strict accordance with the manufacturer's application procedures and recommendations.

Primer Application

Aluminum posts and frames that will be installed in coastal locations or other environments with corrosive conditions shall be primed with Matthews White Epoxy Primer 274-908SP and hardener 274-909, (or approved equal). The primer coats shall be applied in strict accordance with *Matthews Product Bulletin MPC125*, or in strict accordance with the primer manufacturer's application procedures and recommendations.

Color Finish Topcoat

Unless otherwise specified on approved drawings a gloss spattercoat textured finish shall be the standard for all NPS VIS aluminum bases. Paint application shall be applied in two parts: the first top coat color application followed by a second spattercoat textured color finish. The spattercoat finish shall be medium coarse and applied per approved samples. The color topcoat finish shall be Matthews VOC MAP, (or approved equal). Apply in strict accordance with *Matthews Product Bulletin MPC107*, or in strict accordance with the paint manufacturer's application procedures and recommendations.

Satin Polyurethane Finish

After application of the color topcoat, all aluminum post and frame components shall be finished in Matthews Satin Clear MP281-228 (or approved equal). The satin polyurethane finish shall be applied in strict accordance with *Matthews Product Bulletin MPC180*, or in strict accordance with the paint manufacturer's application procedures and recommendations.

Paint Color Finish

All paint colors used on NPS VIS bases are custom mixed colors with specific formulas. All colors have been matched utilizing Matthews Paint. All bases shall be painted using Matthews Paint or approved equal. Where approved equals are supplied the final colors shall be matched and approved prior to application.

NPS Brown

Matthews Paint, MP63848 w/Spattercoat.

NPS Medium Grey

Matthews Paint, MP63850 w/Spattercoat

NPS Dark Brown

Matthews Paint, MP63856 w/Spattercoat