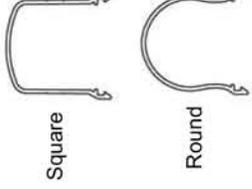


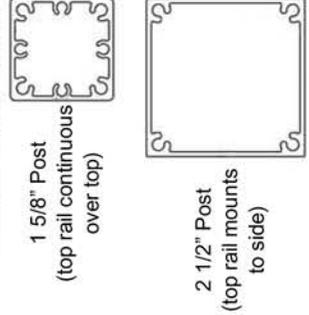
**Top Rail Options:**



Square

Round

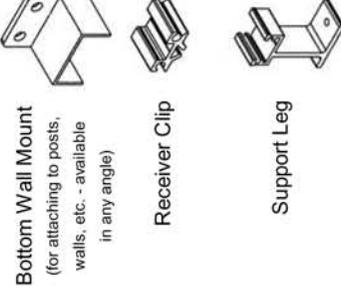
**Standard Post Options:**



1 5/8" Post  
(top rail continuous  
over top)

2 1/2" Post  
(top rail mounts  
to side)

**Bottom Attachments:**

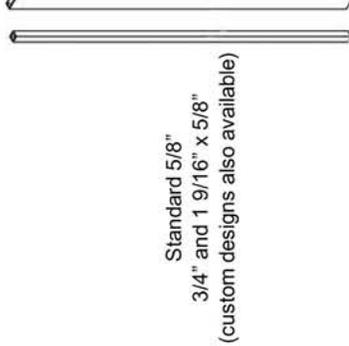


Bottom Wall Mount  
(for attaching to posts,  
walls, etc. - available  
in any angle)

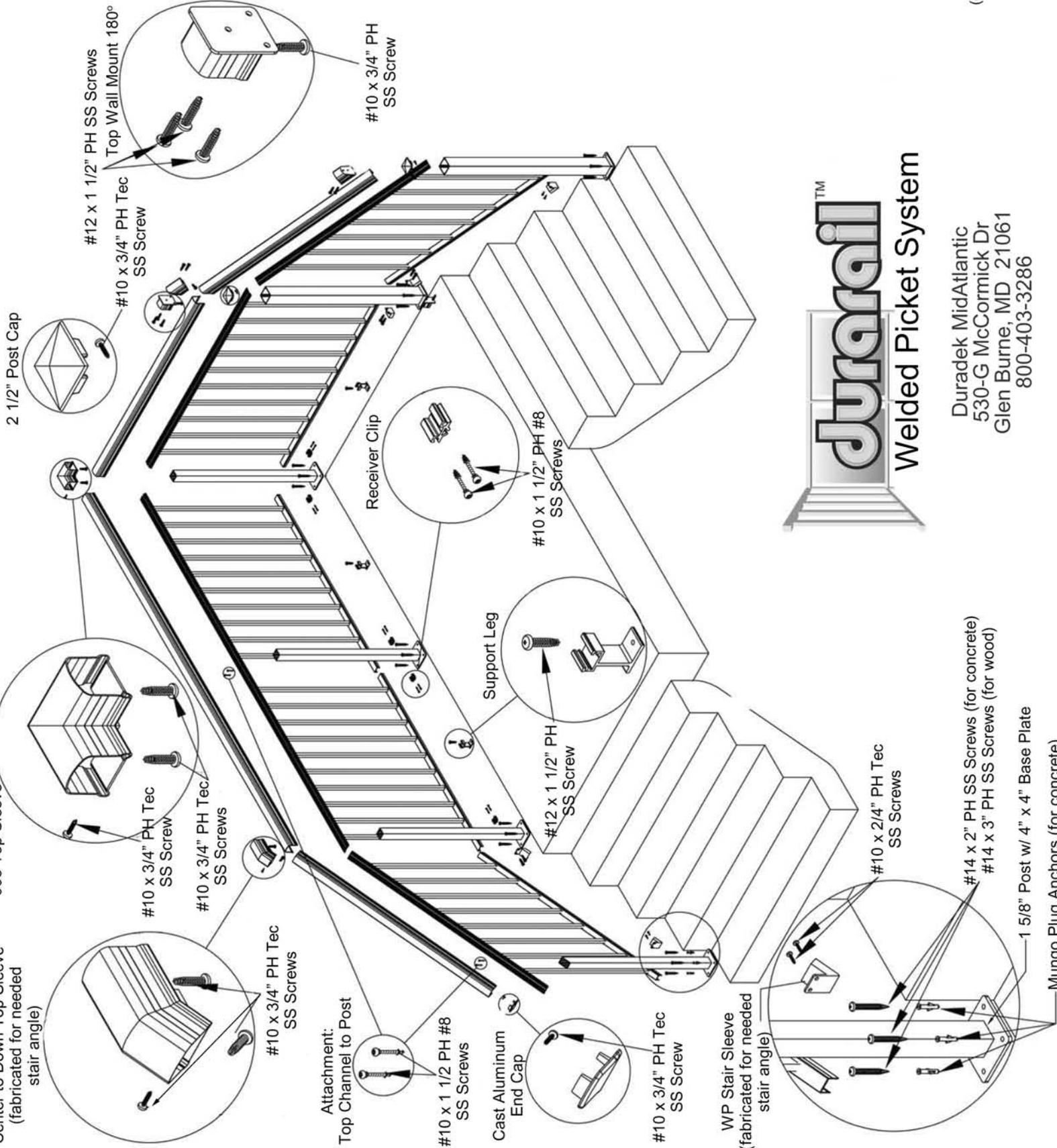
Receiver Clip

Support Leg

**Picket Options:**



Standard 5/8"  
3/4" and 1 9/16" x 5/8"  
(custom designs also available)

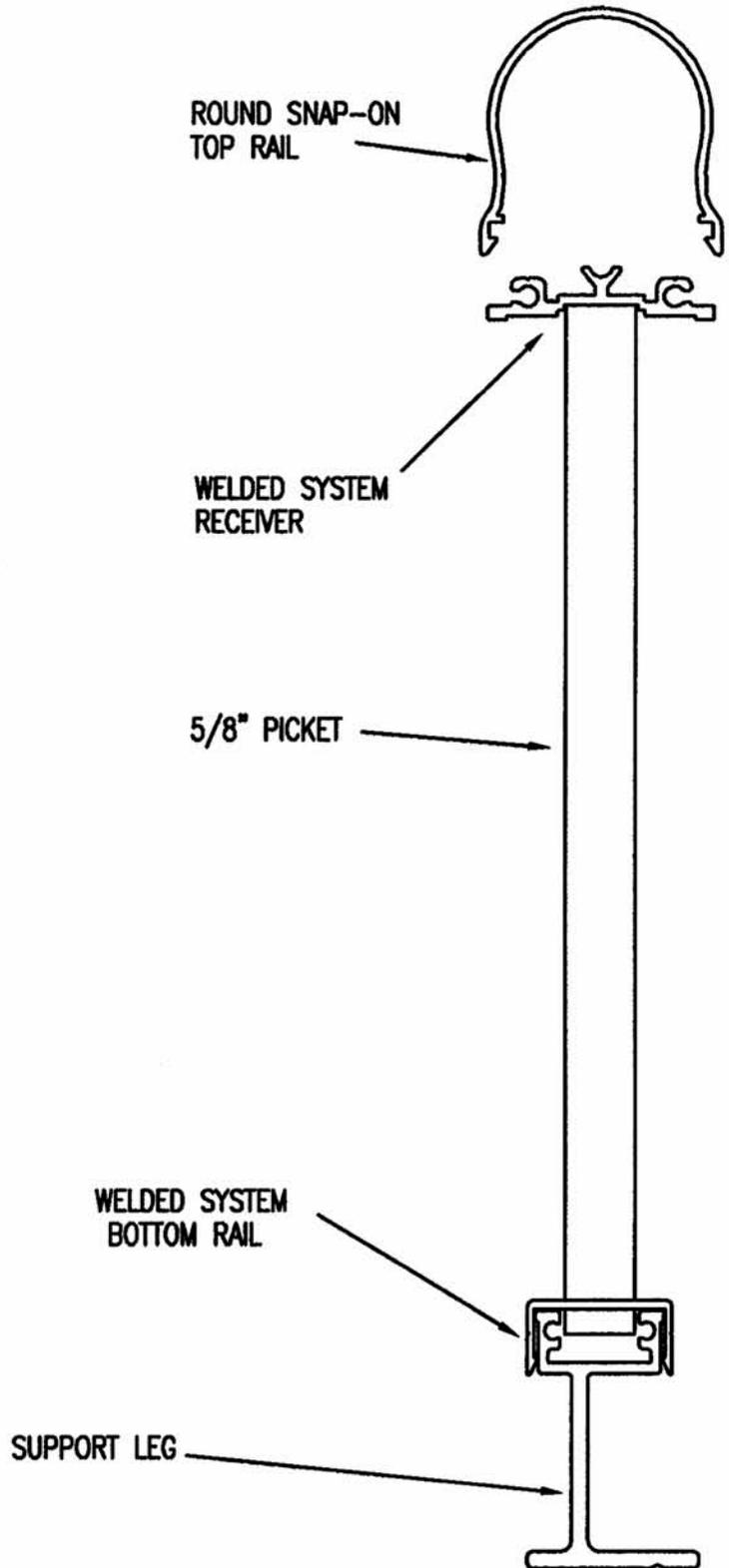
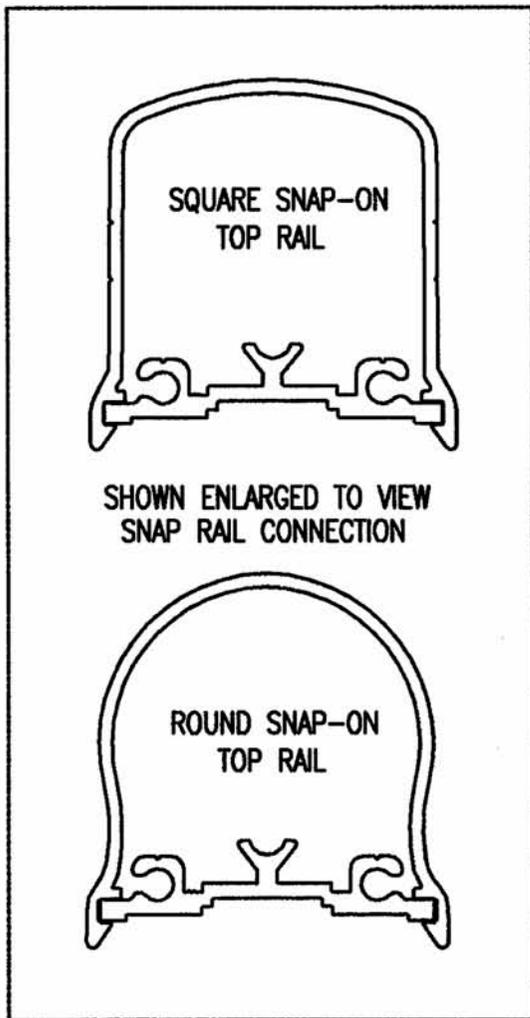


# Jurorai™

## Welded Picket System

Duradek MidAtlantic  
530-G McCormick Dr  
Glen Burne, MD 21061  
800-403-3286

# CROSS SECTION DRAWING FOR WELDED SYSTEM



# DURARAIL POWDER COATING

We believe that Durarail provides the best powder produced in the industry (TGIC powder by DuraCoat and Tiger Drylac) today, but like any other industrial finish, it will naturally age over the years. In warmer climates such as California, Florida, Hawaii, and Puerto Rico for example, the aging process will be accelerated by the increased UV, salt content and humidity in the air. We suggest a regular inspection program of all Durarail systems.

1. Inspect fasteners to ensure they are properly secured to the substrate. Remove any surface discoloration from the screw and coat with a "standard car wax/polish" to prevent any further surface discoloration or patina build up. Patina is a normal surface discoloration that occurs when two different metals make contact, i.e. aluminum and stainless steel (the fasteners' integrity is not affected by this surface discoloration).
2. Durarail should be cleaned at least twice a year with a mild, non-abrasive soap and water, using a soft sponge. In areas where salts and pollutants are more prevalent (beach front or industrial areas) then the railings should be cleaned more frequently. Always rinse with fresh water to remove any residual soap. To bring back the shine or to remove the 'chalky' residue, the railings can be cleaned then polished using an automotive polish.
3. Regularly inspect any caulking as caulking compounds will break down over the years. It may be necessary to remove old sealant and re-caulk where necessary.

This information can be found on the *Durarail Care and Cleaning Guide* which can be found on the back of the Durarail Warranty. It is necessary it be followed to ensure lasting beauty of the railing system.

For the Durarail Warranty to be valid, the most current standards and specifications set out by the manufacturer must be adhered to.

**DURARAIL™ RESIDENTIAL WARRANTY**

The Manufacturer warrants that under conditions of normal use its "Durarail™ Residential Aluminum Railing and Fencing System" will be free from defects in the structure and welds for **20 years** and the "Durarail™ powder coated finish, will not crack, peel, flake or blister for **10 years**.

**DURARAIL™ TERMS, CONDITIONS AND LIMITATIONS**

1. The Manufacturer's sole liability and the owner's only remedy should be as follows:
  - a. The Manufacturer, at its discretion, may choose either to repair or replace the defective parts) of the railing. Due to normal aging and weathering of material, it may not be possible to perfectly match the colors of the old and new materials, and therefore, the Manufacturer is not responsible for color differences that may occur.
    - i. If a problem occurs within the first year from the date of purchase, the repair or replacement (at the Manufacturer's discretion) will include materials, labor and freight costs.
    - ii. If a problem occurs after year one (1) and within ten (10) from the date of purchase, the repair or replacement will include materials and freight costs. If a problem occurs in the structure, after year ten (10) and within twenty (20) the repair or replacement will include the material only, FOB our warehouse.
  2. This warranty does not cover damage due to: normal use or weathering (including, but not limited to, fading, scratching or fading); corrosive atmospheric contaminants (e.g. chemical fumes or pollution); volcanic ash; lightning; windstorms, tornadoes; (or any other act of God); explosion, riots, civil disturbances, terrorism, war, misuse, abuse, or negligence; freight or transit.
  3. This warranty does not include corrosion of screws and other fastening devices used in the assembly or installation of the railing.
  4. Should there be a defect in the system which limits the use of the railings, the Manufacturer will not be responsible for or liable for loss of use of the railings or any consequential costs. The Manufacturer's sole liability is for the repair or replacement of the defective part of the railing.
  5. The Manufacturer will not be responsible for labor and material cost other than the standard installation of our product. Examples of costs not included would be core drilling or disassembly of existing railings or any part of the building.
  6. The Manufacturer will not be required to honor this warranty
    - a. if the railing installation has been altered or changed in any manner since the time of installation as specified;
    - b. the product was not installed to the most current published standards which apply to both the Manufacturer;
    - c. a representative has not been given a reasonable access to the proper and opportunity to investigate any claim made;
    - d. all bills for installing supplies and services have not been paid in full. Proof of purchase and payment in full must be presented to obtain warranty coverage.

Any claim made under this warranty must be made within 30 days of the discovery of the problem. The claim must be made in writing to the Manufacturer or to the representative responsible for the installation and must include a copy of the purchase contract.

To the extent allowed by the laws of each State or Province, the remedies provided under this warranty state the limits of the Manufacturer's responsibility. The representative has authority to make any representations other than those stated herein. Any and all disputes arising under the warranty whether as to interpretation, performance or otherwise, shall be subject to the exclusive jurisdiction of the courts of each State or Province.

  9. This warranty is for the exclusive benefit of the original purchaser and is not assignable or transferable.
  10. Residential, as referred to in this warranty is defined as single family detached housing and detached Duplex housing.
  11. It is the responsibility of the Owner to maintain the railing in accordance with the current Care & Cleaning Instructions on the reverse and as posted on the website at [www.durarail.com](http://www.durarail.com)
  12. The warranty is offered by both The Manufacturer and the Installation Company. The Manufacturer is responsible for any materials related problems. The Installation Company is responsible for the workmanship and will facilitate any necessary repairs.
  13. The Installation Company guarantees that the work has been performed in accordance with the most current standards and specifications set out by the Manufacturer and is responsible for any workmanship related problems for a period of \_\_\_\_\_ years. The Installation Company may offer an additional written warranty stating the scope of their responsibility.

Installation Company	Installation Company's telephone
Installation Company's Address	Date of Installation
Building Owner's Name & Address	
Building Address (if different than above)	Signature - Installation Company Rep.      Date

Durarail Residential 01/04

**CARE AND CLEANING OF YOUR DURARAIL™ SYSTEM**

**DURARAIL** Aluminum Railing Systems is the finest railing system available on the market today. Precision welded to the highest standards combined with Powder coating ensures a tough, maintenance free finish.

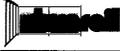
**FASTENERS:** The only regular maintenance other than cleaning is inspecting the fasteners. It is the responsibility of the owner to inspect these areas once a year. Over time fasteners may loosen and need to be tightened down as necessary. We recommend a light coat of floor or car wax be applied to the tops of any exposed fasteners every 3-6 months to help prevent oxidation (more often if you are located in a high UV and salt spray climates). Surface rust is a normal part of the ageing process. This does not affect the integrity and strength of the fastener.

**NATURAL AGEING PROCESS:** During the natural ageing process of the Powder Coating you may notice a white 'chalk' or powder that forms on the surface. This is normal and can be cleaned and polished (Using 'Vim', 'Soft Scrub' or a cut-polish) to bring back the sheen.

**GENERAL CLEANING:** Your railing should be cleaned at least twice a year with a mild, non-abrasive soap and water, using a soft sponge. In areas where salts and pollutants are more prevalent (beachfront or industrial areas) then the railings should be cleaned more frequently. Always rinse with fresh water to remove any residual soap.

- Avoid using a dry sponge, which may scratch the surface
- Use regular glass cleaner for glass.
- To remove minor scuffmarks or scratches use 'Soft Scrub' or 'Vim' or equivalent mild or non-abrasive products.
- To remove paint or sealant spots use Methylated Spirits, Turpentine, White Spirits, Alcohol or Isopropanol.
- Always remove any sap, tree seeds, bugs, etc. as soon as possible, as sun exposure and heat will make them more difficult to remove.
- Certain household cleaners, abrasive agents, harsh chemicals, strong solvents, acids, steel wool and industrial cleaners can cause damage and discoloration to the finish and are not recommended.
- Always test a small, inconspicuous area before applying any product to Durarail

durarail@duradek.com  
[www.durarail.com](http://www.durarail.com)



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Tel: (604) 591-0584 Fax: (604) 591-3100



7722 16th St., North Kansas City, MO 64116  
USA  
Tel: (816) 431-5833 Fax: (816) 431-2924

## **IMPORTANT NOTICE:**

### **Dissimilar Metals & Corrosion – How to Avoid Problems**

Over the past few years we have learned a substantial amount about dissimilar metals and how they react in certain climates. In harsher climatic regions, with high UV, salt or humidity levels, dissimilar metals will corrode at a much faster rate, especially when installed into concrete. For this reason, there are some important installation procedures that need to be followed. These will not only ensure that you are getting the best quality product, but the railing system will have a longer lifespan with less damage due to corrosion.

#### **NICKS, SCRATCHES AND CUT ENDS**

It is critical that the installer touches up all nicks or blemishes in the powder coating in order to prevent further damage. This is also recommended for any cuts, which expose the mill finish material (regardless if they are left exposed or not). Exposed areas will oxidize at a faster rate and corrosion could work itself between the powder coating and the substrate. We recommend using tough-up paint to seal these areas from further damage.

#### **BASE PLATE FASTENERS**

To prevent the fasteners from damaging the powder coated finish in the screw chases, each base plate hole must contain a plastic shoulder washer. It is also necessary to apply a small amount of NP1 urethane sealant (or equivalent) to all screw chases, pre-drilled holes, as well as to all fastener threads within the system prior to installing. This is to create an additional barrier between the different metals the reducing the process of electrolyses. Please note: do not apply too much NP1 sealant into the pre-drilled holes as it will ooze out when the posts are secured in place - any excess sealant should be removed once the fasteners are in place.

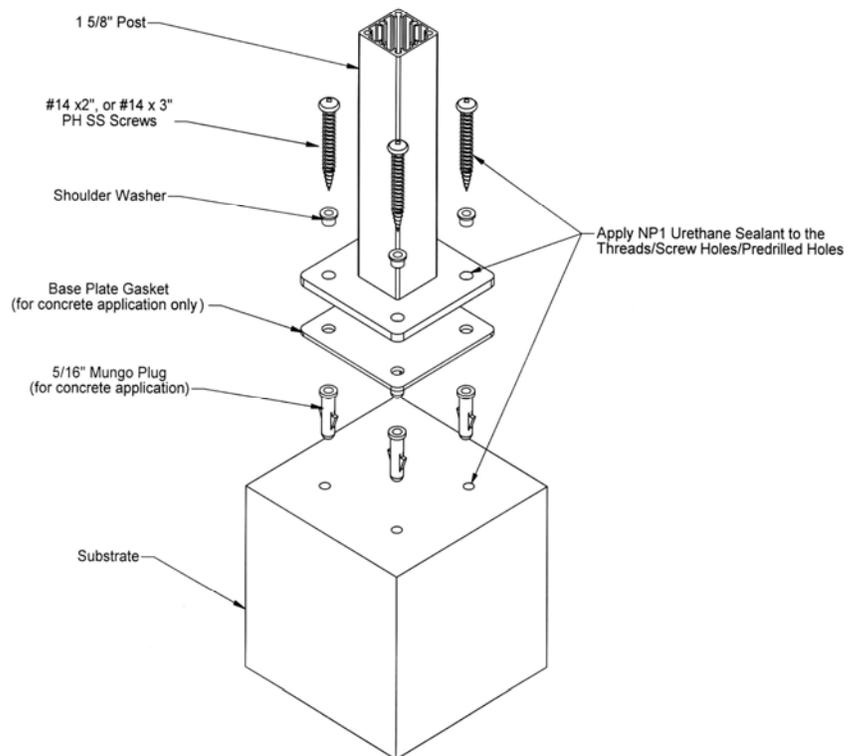
#### **SYSTEM FASTENERS**

It is also important to recognize that all other fasteners within the railing system are subjected to the same potential of corrosion damage, as they are in contact with a dissimilar metal. Although it is less likely that the climatic elements will hasten that damage, it is recommended that those fasteners also be coated with NP1 urethane sealant.

#### **NEOPRENE GASKET**

(for concrete installations only)  
Concrete can be highly acidic in nature and as result may cause early corrosion in the base plate if the powder coating is scratched during installation. To create a barrier between the base plate and the concrete substrate, a Neoprene gasket must be placed under the base plate to avoid any potential damage.

**Base Plate Installation Method**



## TOOLS AND SUPPLIES NEEDED FOR DURARAIL

Generator – 5000 watt	2 quick grip clamps
Extension ladder	Utility knife
10" miter saw w/60+ tooth carbide blade	Aviation snips
Heavy duty hammer drill	Channel lock pliers
Heavy duty extension cords	¾" chisel
Three way adapter	Safety Glasses
Accurate 2' to 4' level	Ear Protection
Accurate torpedo level	Tape measure
Cordless 14v drill/screw gun (preferably 2)	Spray bottle with soapy water
Drill bits (1/8", 5/32", 3/16", ¼")	Pencil
Drivers (#2 square drive @ 3") (#3 square drive @ 6") (1/4 nut driver & #2 Phillips)	Hand held calculator
White rubber hammer	Masking tape
Rubber handle hammer	Razor to remove labels from glass
Caulk gun	Glass cleaning supplies
Oak block	Soft scrub w/ soft nylon scrubby
String line	Heavy duty lawn and leaf bags
	Paper towels and/or rags
	Big "O" citrus cleaner

## SCREWS FOR ASSEMBLING DURARAIL

Posts to Concrete .....	4 – See <i>Concrete Fasteners</i>
Posts to Wood.....	4 - #14 x 3"
Receiver Channel to Post .....	2 - #10 x 1 ½" (do not over-tighten)
Receiver Clip to Post .....	2 - #10 x 1 ½" (do not over-tighten)
Receiver Channel to Sleeve .....	2 - #10 x ¾"
Receiver Channel to Wall Mount .....	2 - #10 x ¾"
Sleeve to Post.....	2 - #10 x ¾"
Bottom Rail to Wall Mount .....	1 - #10 x ¾"
Top Wall Mount to Wood .....	3 - #12 x 1 ½"
Top Wall Mount to Brick.....	3 - #12 x 1 ½" w/ Mungo Plugs
Bottom Wall Mount to Wood .....	2 - #12 x 1 ½"
Bottom Wall Mount to Brick.....	2 - #12 x 1 ½" w/ Mungo Plugs
Support Leg to Wood .....	1 - #12 x 1 ½"
Support Leg to Concrete.....	1 - #12 x 1 ½" w/ Mungo Plug

**The Problem:** #10 x 1 ½" (#8 head) screw heads break off while trying to install the receiver channel to the post

**The Solution:** Please note that you are attaching screws to aluminum not steel. Adjust your cordless drill torque setting to medium. The #10 x 1 ½" screw is designed to cut into the screw ports with limited effort. Pre-drilling is required to install the #10 x 1 ½" screws into both the post screw chases and for the rail clips.

When fastening the receiver channel to the post, pre-drill the receiver channel with a 3/16" drill bit. Be sure to move the receiver channel to either side of the post to ensure you do not drill out the screw port (the hole you are about to drill is oversized). This will allow the screw to enter the port with no resistance. In fact, you are only fastening into the port, not the receiver channel. This will prevent the screw heads from breaking off.

# CONCRETE FASTENERS

## CONSIDERATIONS IN CHOOSING A CONCRETE FASTENER:

**What is the material you are fastening into?** Is it a hollow core base such as drywall, concrete block or plaster and lath? Or is it solid core like stone, brick or concrete. (Hint: site inspect all surfaces you are fastening into as they are not always made of the same material)

**Are there post tension cables present in the concrete?** Post tension cables are tendons composed of steel wires embedded in concrete and then tensioned after the concrete is hardened. In the event that PT cables are present, it is important to obtain the location of the cables and avoid fastening into the concrete at these locations as these cables are under tremendous pressure and can be extremely dangerous and expensive to fix if hit.

**What is the PSI of the concrete you are fastening into?** The greater the PSI the greater the tension and shear strength of the fasteners. Fasteners are typically tested in 2000 PSI and 4000 PSI concrete.

**What is the shear strength of the fastener?** Shear strength is the capacity the fastener is able to withstand before it breaks off.

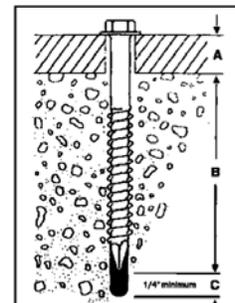
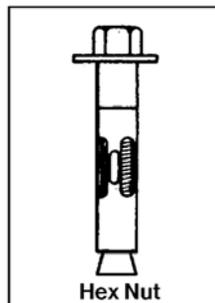
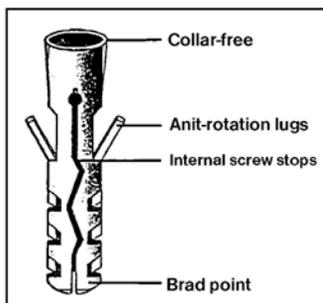
**What is the tension of the fastener?** Tension strength is the capacity the fastener is able to withstand before it pulls out.

**Is the installation subject to the elements?** Depending on the location of the install, you may decide to upgrade your fastener to a more corrosion resistant material. Industry standard is a 304 stainless steel. Many fasteners can be upgraded to a more corrosion resistant 316 stainless steel. Keep in mind 316 stainless steel is a softer metal therefore will have different strength factors.

**How far away from the edge of the deck is your post being set?** The closer to the edge of the concrete the fastener is installed the less effective it becomes. Each fastener varies on set back. Typically a 3" setback from the edge of the deck to the edge of the base plate will provide maximum tension and shear strength from the fastener.

\*\*Information provided by Durarail is to be used as a guideline only. We encourage you to contact your supplier for technical data on the exact screw you decide to use. For more information on fastening into concrete, check out [www.concretenetwork.com](http://www.concretenetwork.com).\*\*

Suggested Concrete Fasteners			
<b>Name</b>	Mungo Nylon Plug - #8 x 1 1/2"	Sup-R-Sleeve (Hex Head) - 5/16" x 2 1/2"	Crete-Flex (Hex Washer Head) - 5/16" x 2 1/4"
<b>Material</b>	Durable cadmium free nylon	304 Stainless Steel	410 Stainless Steel w/ Stalgard coating (800 hours of salt spray resistance)
<b>Ultimate Tension Loads</b>	Solid Concrete (25 MPa) - 1,120 lbs. Solid Brick - 1,010 lbs.	Concrete (2000 PSI) - 1,840 lbs. Concrete (3500 PSI) - 1,900 lbs. Concrete (5000 PSI) - 2,040 lbs.	Concrete Block (2070 PSI) - 1,216 lbs. Concrete Beam (3350 PSI) - 2,505 lbs.
<b>Ultimate Shear Loads</b>		Concrete (2000 PSI) - 1,376 lbs. Concrete (3500 PSI) - 1,800 lbs. Concrete (5000 PSI) - 2,000 lbs.	Concrete Block (2070 PSI) - 1,324 lbs. Concrete Beam (3350 PSI) - 2,591 lbs.



\*\*These values are offered as a guide only. Performance and technical data sheets from the supplier of the above suggested fasteners are available upon request.\*\*

## **DURARAIL 1 5/8" POSTS FOR 36" SYSTEM**

- **34 1/8" WHEN RECEIVER ATTACHES DIRECTLY TO TOP OF POST.**
- **34" WHEN RECEIVER IS INSERTED IN A SLEEVE THAT MOUNTS TO TOP POST.**
- **TO MEASURE POST: HOOK TAPE ON BOTTOM OF POST PLATE AND MEASURE TO TOP OF POST.**

## **DURARAIL 1 5/8" POSTS FOR 42" SYSTEM**

- **40 1/8" WHEN RECEIVER ATTACHES DIRECTLY TO TOP OF POST.**
- **40" WHEN RECEIVER IS INSERTED IN A SLEEVE THAT MOUNTS TO TOP POST.**
- **TO MEASURE POST: HOOK TAPE ON BOTTOM OF POST PLATE AND MEASURE TO TOP OF POST.**

## **Welded Picket Assembly Instructions:**

Note: Ensure that the post base plates are set back from the edge of the deck far enough to ensure that the outside mounting screws will screw into the perimeter deck joist. Failure to screw into the deck joist will weaken the installation.

1. Place your corner posts in position on the deck. The measurement between the posts will give you the panel length required.
2. Determine if you will be utilizing mid posts with sleeves. In the event that the mid posts do not require sleeves you will be required to trim your corner posts by 1/8" in order for the top rail will sit level. When using center sleeves on the mid posts you may leave all posts at their original height.
3. Install corner post sleeves and receiver clips and/or bottom rail sleeves as required on the posts prior to post installation.
4. Measure between the corner posts and decide where the center posts will now be placed, all posts should have equal spacing. When installing the mid posts we recommend that the post be centered on a picket to allow equal spacing between the post and the adjacent pickets. Cut out the bottom rail allowing enough room to install the 1 5/8" post. Remove the cut out picket by breaking the weld on the underside of the top receiver. Insert the post into the panel by sliding the bottom rail into the bottom sleeves or over the rail clip. Center the panel on the deck and place one screw in the center post plates.
5. Measure the overall deck width. Deduct the backset from the deck edge to the inside edge of each corner post. The remaining measurement will be the length of the bottom rail of the panel that will be required between the two corner posts. The top receiver channel will be the dimension between the two posts plus the length of the 45 degree miter at each end.
6. Cut the top rail to length with mitered corners on the end. Snap the top rail onto the top receiver.
7. Place the picket support legs into the rail panel. The support legs should be placed centrally between the posts. Do not screw these legs in place as the final height adjustment will be made at the end of the installation.
8. Place the panel into the corner post sleeves which were previously installed. Level the corner posts. Secure the corner sleeves to the top rail and receiver channel using two screws on the underside of the sleeve.
9. Secure and level all posts.
10. When using wall mounts in lieu of corner or end posts the welded panel should be prepared using the same methods as noted above with the exception that the end of the rail and receiver channel should be cut square. When the top rail is clipped on to the receiver channel, slide the wall mounts over the end of the top rails and bottom rails. Level the panel and screw the top wall mounts into their final location. Secure the bottom rail wall mounts after you double check the welded panel for level.
11. When using wall mounts between two fixed points ie. two columns, install the wall mounts first. Measure the distance between the two columns and deduct the width of one wall mount to give you the length of panel required.
12. Fit the panel into the mounts on one end move the panel into place in line with the opposite wall mounts. Now center the panel in the wall mounts on each end.
13. With the aid of a chalk line or by visual method ensure the top rail of the assembly is level between all posts and does not have any dips in the rail. The support leg is now ready to be secured to the deck and the rail. The support leg will assist in keeping the rail level in the event that excessive loads are placed on the rails between posts.
14. Clean the railing with Vim to remove minor scuff marks and debris.
15. Have the owner inspect the installation for final approval.