

FENCE DESIGN GUIDE



Volume 3, All Rights Reserved, Compass Ironworks 2019



COMPASS
IRONWORKS

Elegance and Integrity

At Compass Ironworks, we carry into the 21st century the Amish traditions that forged our artistic sensibilities: honesty, integrity, and dedication to family, community, and craft. We do no mass production here; every installation reflects your unique needs. We are master craftsmen who work with both traditional and 21st century tools. At the end of the day, we close the doors and leave our tools at the shop, not to be touched until the next workday begins.

For more information about Compass Ironworks, please contact us Monday through Friday at (717) 442-4500.

Please use this guide as a tool to selecting the design, style, and finish that best suits your property, lifestyle, and needs. Most of the work we do for our clients is custom, and if you have an idea that is not in this guide, we will work together to custom-craft the appropriate design for your property. Before meeting with us, please consider what ideas you have for the design, finish, and detail of your project.

The (big) difference between a production aluminum fence and a custom built aluminum or iron fence.



Iron fence has been the ultimate choice for providing security and stately aesthetics to distinctive properties for centuries. Beautiful hand-wrought iron fences remain sturdy to this day and provide design inspiration for today's craftsmen and homeowners alike.

The past few decades have seen an astounding influx of lightweight, mass-produced, and imported fence—made from thin, hollow tube, loosely riveted or screwed together—that attempts to resemble genuine “iron” fence. Some of these imitation fence manufacturers have factories that produce an eight-foot-long fence panel every twenty-six seconds!

You can easily find these “McFences” in large building supply stores everywhere, all looking exactly like your neighbors’ fence, with absolutely no character or expression. A large dog can easily force his way between the pickets. An adolescent boy can bend and twist a passable hole in no time. Small children are relatively confined, but not protected from intrusion.

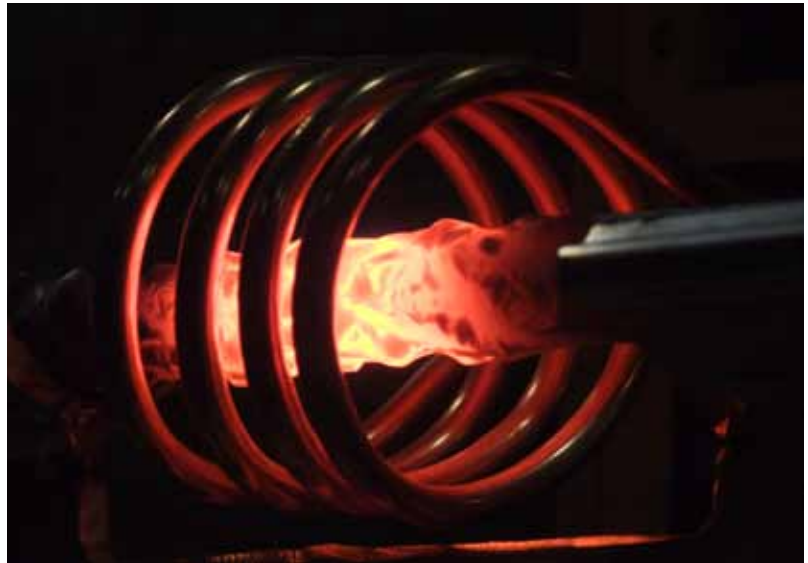
The only benefits of these fences are fast installation and cheap prices, at the expense of durability, beauty and security. Cheap fences can be twisted to fit sloping ground; the sections simply clip into the posts. In contrast, custom-welded panels are built specifically for the angle of slope under each panel and sized so that each panel is the same length in a given stretch of fence, providing strength and stability. After fabrication, it is impossible to twist custom panels to fit in a different spot.



Exceptional fences from repurposed material

Another stark difference in production fence is the material it is made from. It utilizes thin-wall tubing that is simply smashed together at the top of the picket to resemble a tip. If it does feature a small cast-aluminum finial, it is often glued or sometimes even just pressed on.

Custom fences by Compass Ironworks, however, are built with solid-iron pickets made from 98% recycled metal. These pickets are welded into heavy wall, punched channels top and bottom, and sections are fastened to the posts using the centuries-old bracket and bolt system with stainless steel or plated bolts.



Finials, rings, scrolls, and other customizable design elements are a vital element in a custom fence, but are severely limited (or eliminated) by an assembly line production model. If offered at all, they are often glued or pressed on and sometimes break by the time they arrive at their destination.

A custom fence lets you dictate the size, pattern, and detail of your design elements—limited only by your artistic imagination and budget.

Customized ornate additions give your fence individual character and set it apart from other fences in the neighborhood.

Mass produced fences must be installed in a series of awkward angles to accommodate lawns or pools with curved or rounded sides. This is where a custom fence really stands apart. Our skilled craftsmen will carefully template and photograph the site and make a fence that perfectly follows the contours of your property.

Your fence, your security, and your self-expression



Your fence, your security, and your self-expression ultimately are dictated by your choice of product. If you want a plain, cheap fence, the local big-box store has a crate of fence panels ready to go. Or a local fence contractor can buy the same shoddy materials and install them for you.

On the other hand, if you need a fence with elegance and character that defines your property as uniquely you, then call a custom fence shop—where the craftsmen take pride in their craft and you can dictate your desires to the smallest degree. The finished quality product will last several lifetimes.

Production-line fence is usually made from thin-wall, hollow aluminum tubing, so many people believe that an “aluminum fence” must be a step backwards in quality. That is true for this type of aluminum fence.

Compass Ironworks builds solid aluminum fences that are extremely sturdy, with the added benefit of customizable design, lighter weight, and zero maintenance. Best of all, our aluminum fences look exactly like true “iron” fences because they are welded, forged, coated, and installed using the exact same process. These fences can withstand saltwater environments, due to our eight-step finishing process on the solid aluminum material.

This is a huge leap in quality for a small additional cost, making it a very good option for many clients.



Compass Ironworks

Compass Ironworks is a family-owned business based in Lancaster County, Pennsylvania. Our area sports a unique combination of traditional and modern lifestyles, and horse-and-buggy rigs mingle with cars on the country roads.

Lancaster County is Amish country—and is internationally famous for its skilled artisans with impeccable craftsmanship and superb work ethics. It is a fitting home for Compass Ironworks: in our 15,000 square-foot shop, centuries old decorative iron styles are created by a talented team of fewer than ten artisans, using modern tools and up-to-date, highly durable finishing techniques.

Our craftsmen are keenly aware of the demand for high quality iron and aluminum custom fences.

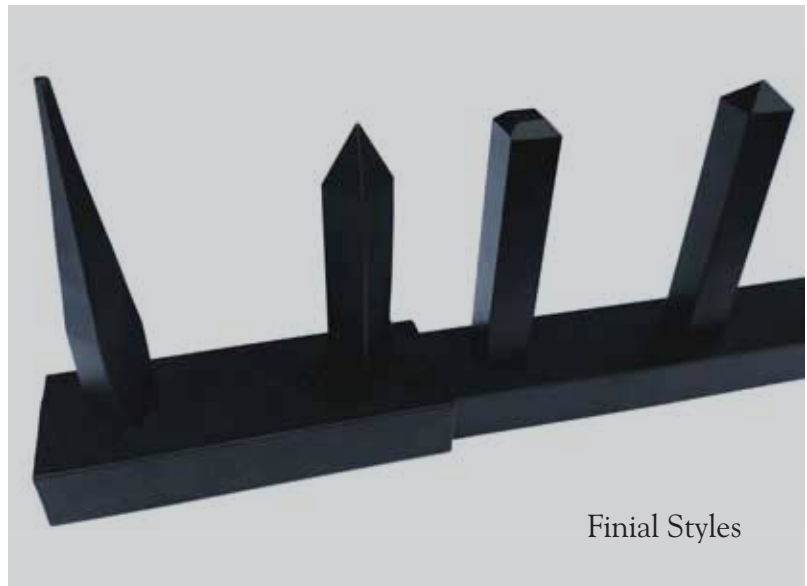
We are happy to lend our expertise and experience to design elegant barrier fences that are both durable and crash-resistant. We also provide guidance for building classic, historically correct perimeter fences to define a client's private residence. We use American-made raw materials whenever possible.

Research, design, and testing are extremely important—not only to replicate historical projects, but also to maximize fence integrity and prevent break ins. We select the proper metal alloys for maximum rigidity and create the actual fence according to the proper finish protocol. Our craftsmen work hard to exceed your expectations and finish your project correctly and on time.

Our desire is to grant our clients the security and privacy of a better fence. We seek to build long-term relationships by creating products that align with our client's landscape, property, and personal taste. The top priority is always a satisfied client.

Finish integrity is what makes it possible for us to view and admire the work of past experts and what keeps your project looking beautiful for decades to come. For this reason, we have our own in-house powder-coat finishing system that allows us to maintain complete control over the quality of the finished product. We begin by sandblasting the raw metal to remove all mill scale, dirt and organic matter. Next, the project is washed with a heated phosphate solution and a double water rinse for extreme cleanliness. If the project is on the waterfront, it is sprayed with a special chemical for salt spray resistance. Finally, a resilient primer is applied, followed by two coats of super-durable powder-coat. We take anti-corrosion very seriously.

In fact, we even had an independent laboratory test our finish integrity in a salt spray chamber known as ASTM B-117. After 2,750 continuous hours of exposure—the equivalent of fifteen years of natural conditions—our test piece came through with flying colors. We realize that our reputation is only as good as our finished product.



Finial Styles



❖ YARD FENCES



Custom swimming pool fence makes a subtle statement by blending into the environment

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Bryn Mawr



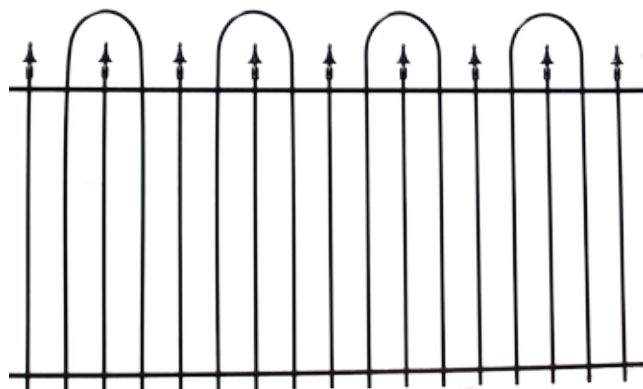
Mainline with Rigibar



Stafford with knuckles



Stafford with Rings



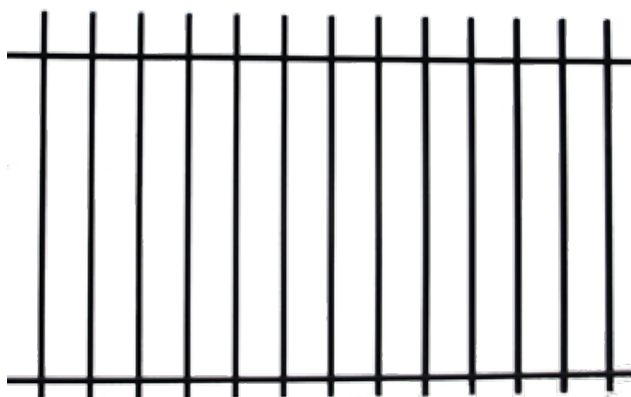
Devonshire



Saratoga 3 Rail with Rigibar



Saratoga with Rigibar



Saratoga with Classic Pickets

SECURITY FENCES



Villanova fence provides security for a private estate

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Detail of Privacy Fence Top
(The top portion can be your choice of style to fit your taste)



Finials



Picket Castings

Security Fences

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These fences are swimming pool code compliant



Stafford with Rings in Solid Aluminum, 5/8" Pickets



Chester in Solid Aluminum, 3/4" Pickets



Mainline in Solid Aluminum, 5/8" Pickets



Villanova 6 Ft high in Solid Aluminum, 1" Solid Pickets



Manhasset Privacy Fence



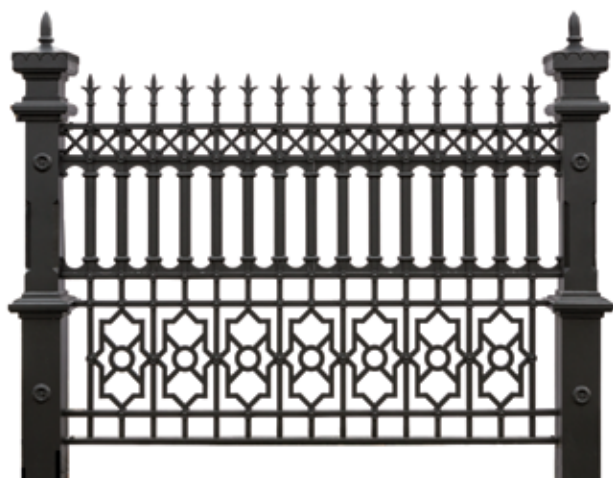
Close-up of time tested panel and post connection detail

CUSTOM FENCE STYLES



Bryn Mawr fence adds personality to this property

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Yorkshire Style



Mainline Style



Modern Style



Rustic Modern



Privacy Fence



Kent Style



Pradero Style



Fortuna Style



FINISHES AND TEXTURES

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By embracing the visual dimension of textures on Ironworks, you can really elevate the character and expression on your project. It gives you the ability to portray design sensitivities and take your project from ordinary to extraordinary.

For instance the Chiseled Center replicates blacksmith hand-hammering with a chisel, creating line in the picket for authenticity, and if you combine another texture as well, you really get the hand-hammered look.

To add even more visual character, if you add a twist to this picket you really transform a standard picket into a 3-dimensional visual experience.

Left: A great example of how twisting transforms the visual experience



#1 Chiseled
Center

#2 Chiseled
Center in
Wood Grain

#3 Wood
Grain

#4 Chiseled
Center in
Italiano

#5 Italiano



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#6 Chisel Line
with Surface
Hammering

#7 Surface
Hammered

#8 Chisel Line
on Tuileres

#9 Tuileres with
Italiano

#10 Tuileres



#12 Chisel Line
on Cadiz



#13 Cadiz



#15 Cadiz and
Italiano



#16 Chiseled
Center on
Chatsworth

#17 Chatsworth

#18 Chiseled
Center on
Chatsworth
& Cadiz

#19 Chatsworth,
Cadiz and
Italiano

#20 Chiseled
Center, Cadiz
and Italiano



#21 Chiseled Center
and Hammered
Corners

#22 Hammered
Corners

#23 Chiseled Center
and Flat Corners

#24 Flat Corners

POSTS

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Acanthus Post



Linden Post



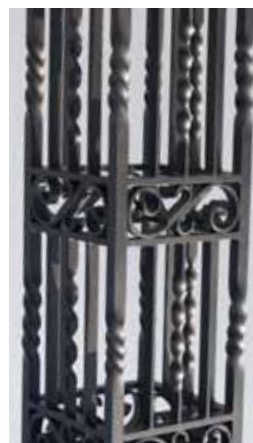
Hampton Post



4" sq. with Post
Ball Cap



Iron Weave Column



Beverly Column



HISTORICAL FENCE CASE STUDY



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In 1927, utilities entrepreneur Clarence Geist enclosed his fifty-acre estate—including what was the largest private pool in the Main Line area—with a custom, solid wrought iron security fence, eight feet high. The fence is still as beautiful and resolute as ever. This style of fence has become predominant in the Main Line area due to its simplicity and authenticity.

A client of ours wanted a version of this fence reproduced. We carefully recreated the connectors and posts in a solid aluminum material, selecting a specific alloy for the strength that the application required. The estate that this new fence was being built for had eighty-two feet of elevation change from front to back, resulting in significant slopes and some embankments. Huge and ancient trees on the property made it necessary to minimize our footprint during installation, as well as presenting some design challenges.

We carefully staked out the entire perimeter and took specific measurements for each individual fence post and panel. We cataloged the slope factor for each panel before commencing fabrication. As each panel was welded solid, it was assigned a number that corresponded with its location. And through the entire fabrication, pretreatment, and powder-coating process, the panels were treated with care until they were installed in the proper location to match the site's terrain.

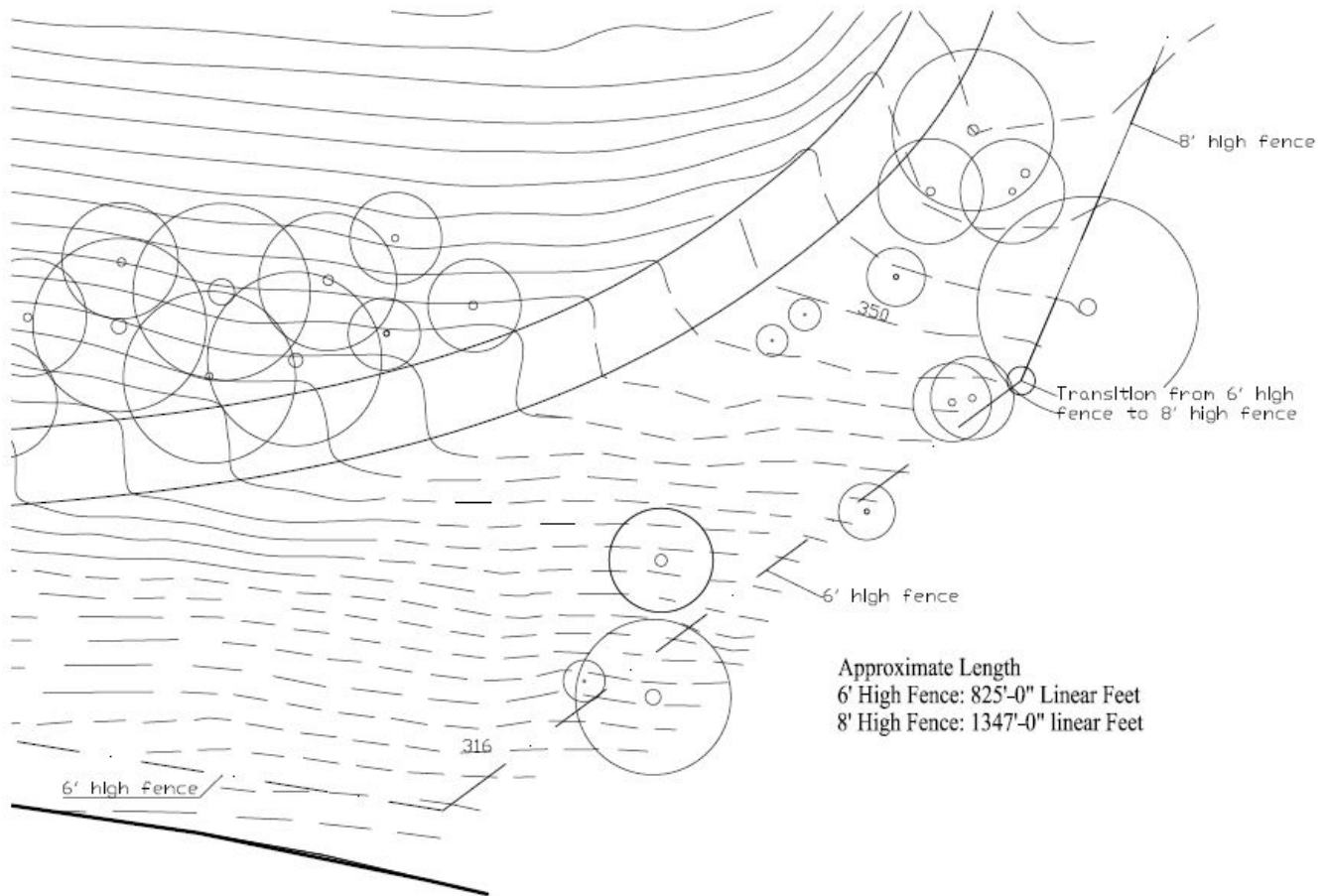
This careful protocol ensured that code and security issues were dealt with ahead of time.

The project was a great success. The finished fence is completely indistinguishable from the 1920s version, yet is maintenance-free and will never corrode. The client now has a solid, durable barrier that enhances the property, expresses beauty for all passersby to see, and will never be mistaken for a production factory fence.



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Fence Elevation Challenge

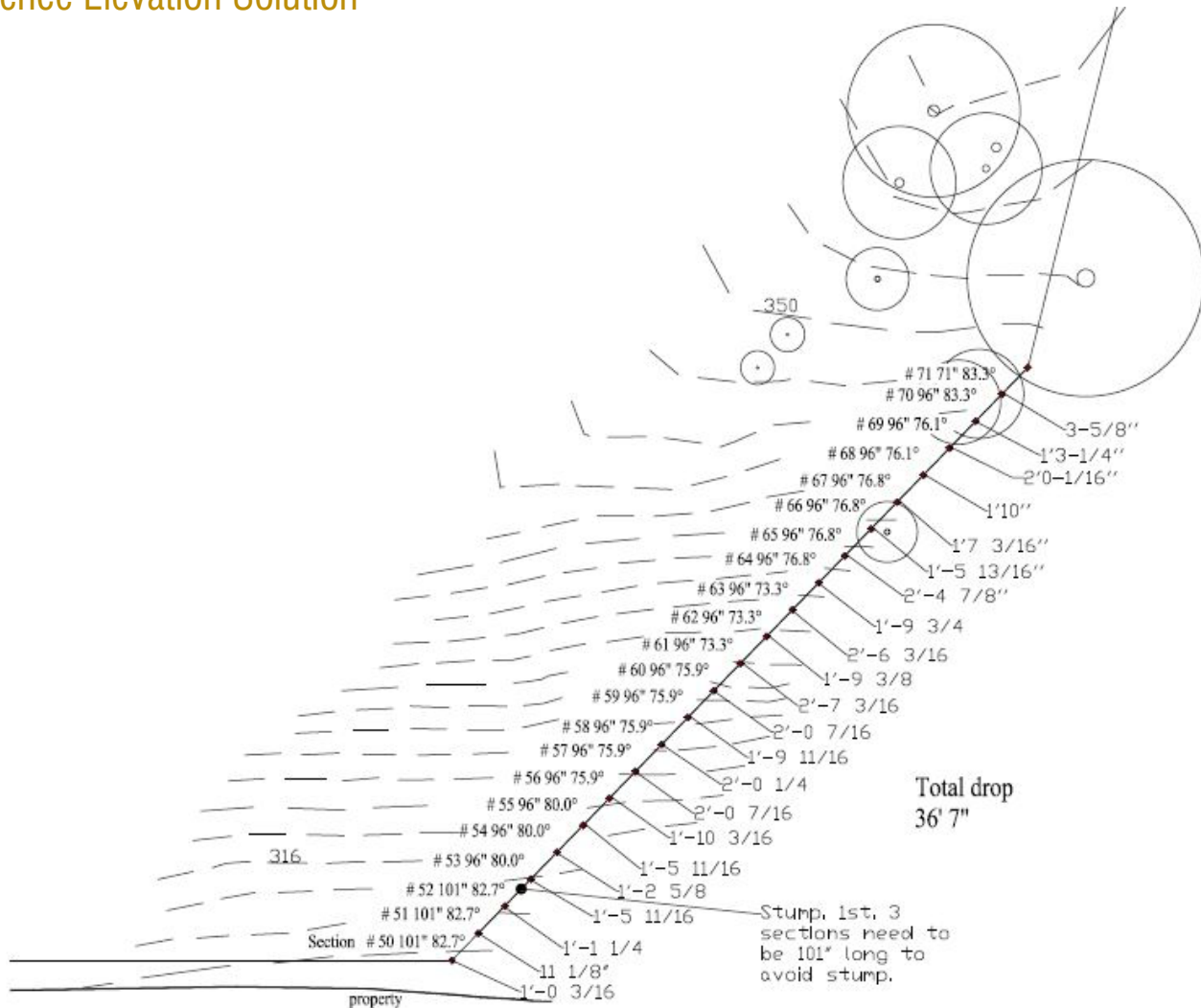


The homeowner and landscape architect desired the rigidity of a custom built fence, replicating a 1927 fence for their specific estate. The property posed some challenges, as there was an elevation change of 82 feet from the front of the property to the back, resulting in various slopes, inclines and embankments. This illustration depicts a layout of part of the property perimeter. In the illustration, each of the lines denote a 2-foot elevation change, showing that the area the fence was to be placed was quite rugged terrain.



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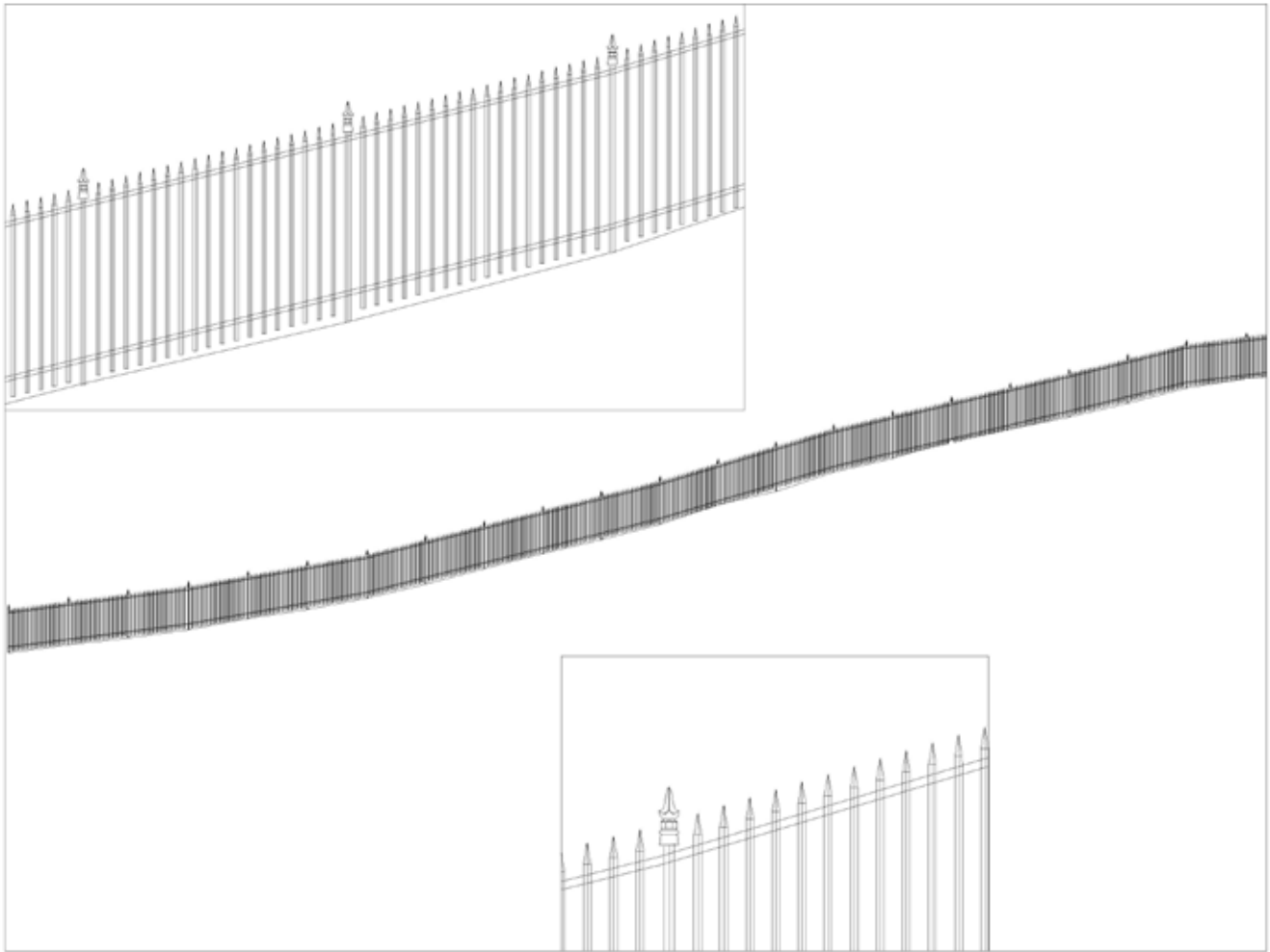
Fence Elevation Solution



This drawing shows the survey of the perimeter—the first step in building a custom fence is determining the exact location of every post onsite. Then every post location is staked with a marker. The next step is determining the exact elevation of every post (shown on the right of the fence line). Based on elevations, degrees for each individual panel are calculated, then evaluated for aesthetics, and averaged out (degrees shown on the left of the fence line). The same angles are kept together to eliminate abrupt changes in the line of fence. Then they are reevaluated to best conform to the terrain. The next shop drawing shows the fence as determined for the best look. Then each panel was assigned a specific number, which was attached to the panel immediately upon being built to its specific angle. This number was tracked through blasting, pre-treating and all of the powder-coating stages. Upon arrival onsite, the number was verified and installed in its designated place.

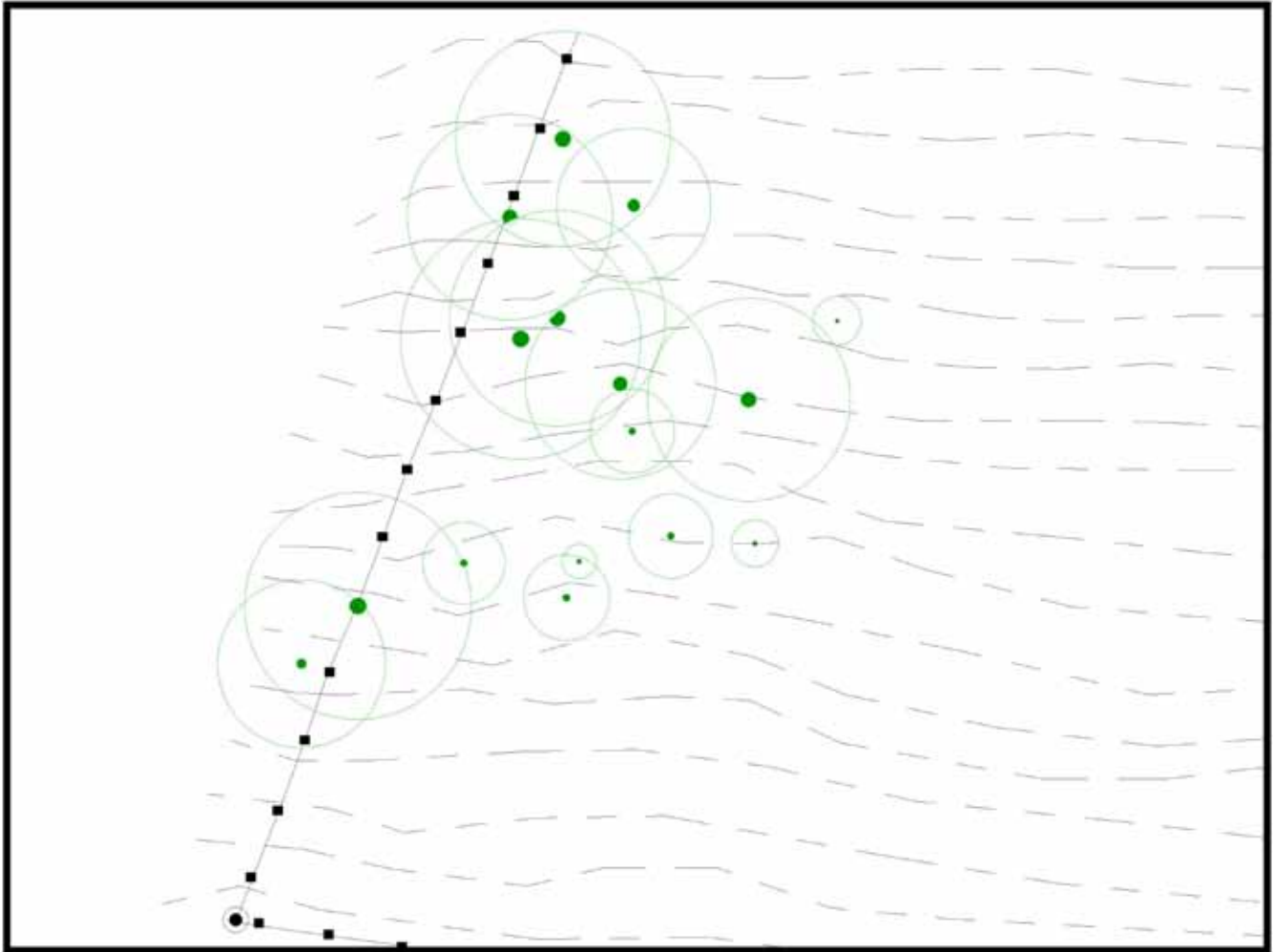


Overall Fence Project



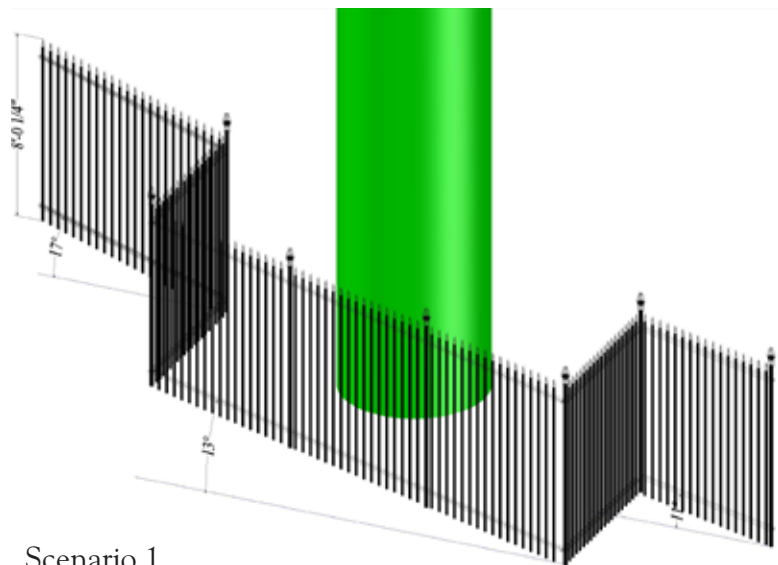
This illustration shows the final installation of the panels on various slopes conforming to the terrain, yet having minimal disruptions in the aesthetics of the fence as it flows up the grade. Another attribute to this project is that it was 100% US made. The channels were custom, the finials were custom cast, the brackets were custom made and pickets were all forged in this country. This project was exceptional, but it also gave the homeowner the assurance of knowing that 100% of his money supported the American economy, instead of going to China.

Specimen Tree Challenge



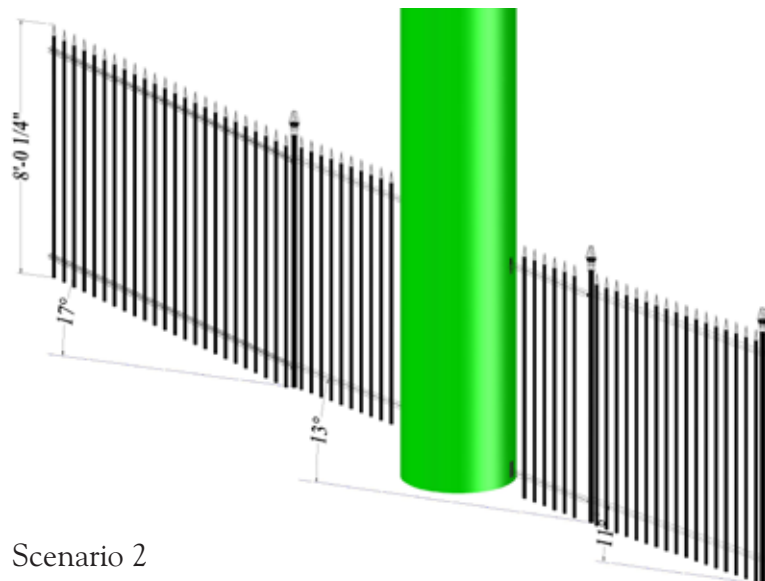
This property also had beautiful, valuable specimen trees. These trees were as much as 60-80 ft. in height and 3-4 ft. in diameter. The trees had sentimental value as well, as the homeowner had played in them as a boy. The specimen trees posed two challenges: first, the fence installation could not harm or have any adverse effects on the trees or their root systems; secondly, some of these trees were located directly in the line of the security fence. So great care had to be taken to have no fence posts close to any roots, yet not allow for any security breaches.

The homeowner and design team desired to be informed of all possible scenarios. This page shows 2 of the 4 possible scenarios. The first illustration, shows the fence squared off, where the fence post on the line was anchored as close to the tree as the root system permitted, then it was angled out 90° out to clear the roots. This scenario dictated going out approximately 66" to clear the roots to work aesthetically with the picket spacing. Then 90° again and continue past the tree. The targeted panel size was 96" throughout. However, this conflicted with the roots for post installation, so the only alternative was to break that into 3 panels before turning to go back to the fence line.



Scenario 1

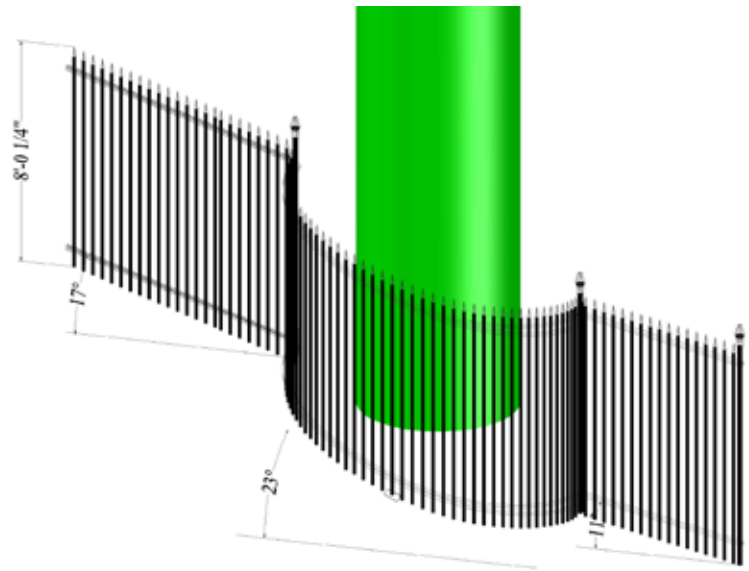
The next scenario was to continue on the fence line and die the fence line into the tree, with special brackets to compensate for the growth of the tree.



Scenario 2

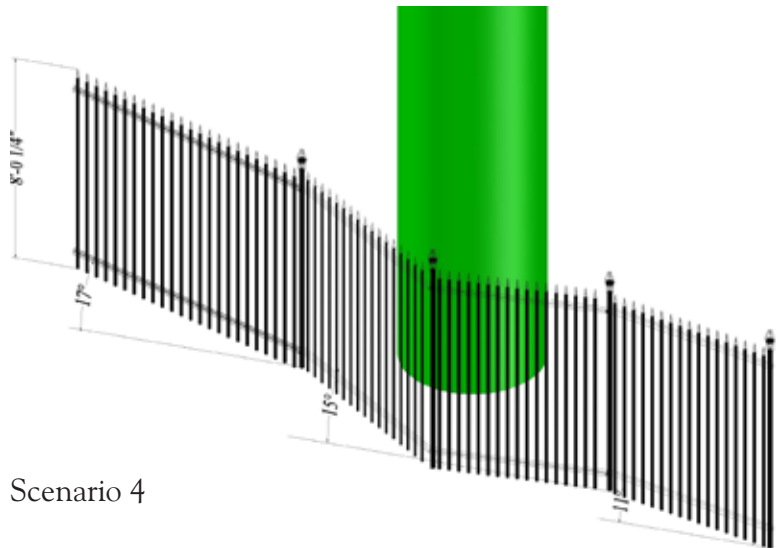
Specimen Tree Challenge (continued)

The third scenario shows where the fence was continued to a point 32" from the center of the tree, then a custom radiused piece was water jetted from 1.25" thick solid aluminum, including the picket holes on a 23° angle to compensate for the slope at the tree. This then circled the tree 180° and fastened into the fence line on the other side. To avoid impacting the tree by having a post in the ground, a floating plate system was devised for the outside quadrant of the fence circle.



Scenario 3

The final scenario was where the fence line was jogged out at a diagonal to miss the root system. Then it turned back to the fence line, relative to the center of the tree.



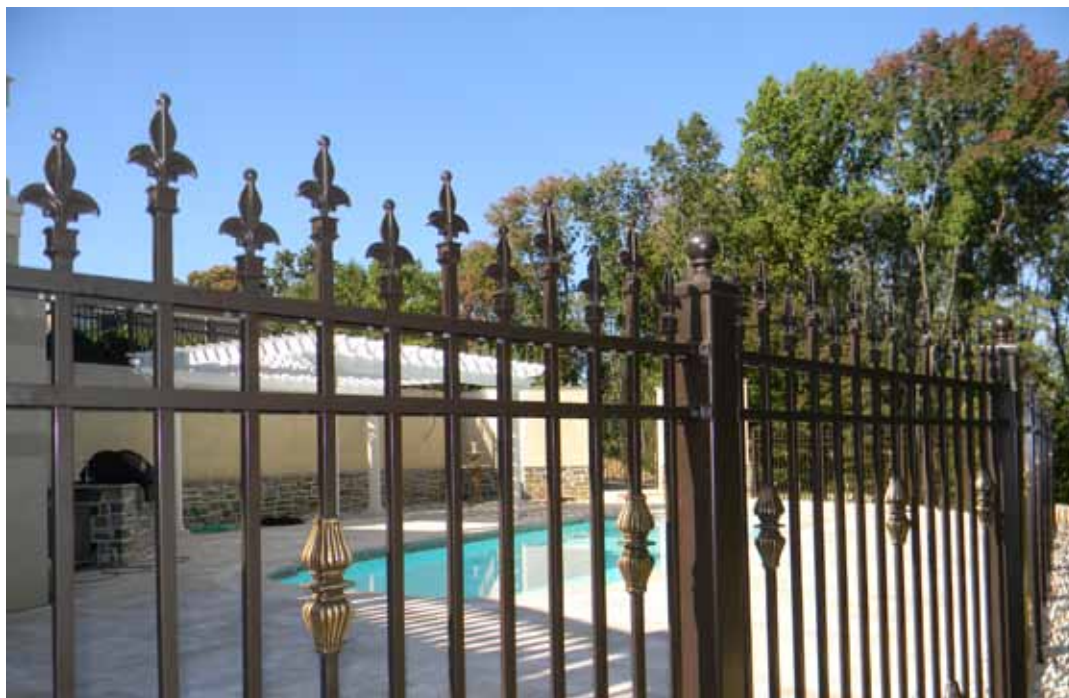
Scenario 4

FENCE INSPIRATION IDEAS



Beautiful pool fence

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Iron fence creates
a resolute barrier



Hand-forged gate has excellent security



Close-up of knuckle detail



Iron Acanthus posts atop brick wall



The classic braces on a Villanova fence add stability



The owner's initials were forged into the gate



Custom forged wall art



Hand-forged iron fence adds character to the front of this Main Line residence



Rose casting adds interest



Custom fence around circular dog run



Saratoga fence with classic pickets adorns the top of a retaining wall



Enhanced security, yet aesthetically pleasing

Detail of a forged picket and custom finial



Beautiful forged fence at a restaurant overlooking NYC skyline



Security without obstructing panoramic views



Canterbury fence at the beach



Brick walls with iron fence and gate



Bryn Mawr fence at the 2010 Philadelphia Flower Show



Top detail of iron weave column (see pulled back image of fence on page 6)



Cancer hospital provides private space for patients and families with custom aluminum fence.



Custom grape theme for this garden space for exceptional privacy.



Lockable gate provides controlled access.



8 ft. high Iron fence is part of a revitalization from a 1928 train station.



Left: Iron fence provides a safe and authentic barrier for today's commuters. Right: Custom forged pickets for authenticity.



Swooping pattern with fleur-de-lis finials provides enhancement and safety.



Distinctive beauty while meeting all building and safety codes.

Iron fence provides
security and lasts
for ages





1100 ft of marine grade fence provide beauty and security for a seaside retreat.



Solid aircraft grade aluminum fence provides an aesthetic barrier around the grounds of a family estate.



Custom fence creates a private haven for this family's shore home.



Design elements provide a distinct separation from average neighborhood properties.



Fence on top of wall for perimeter of property



Left: Forged aluminum scrolls and basket



Above: Scroll detail close-up



Custom garden fence and gate accentuates the landscape



Garden fence for beauty to last for decades



Custom medallion accentuates this garden gate



Custom fence to simulate an entrance gate



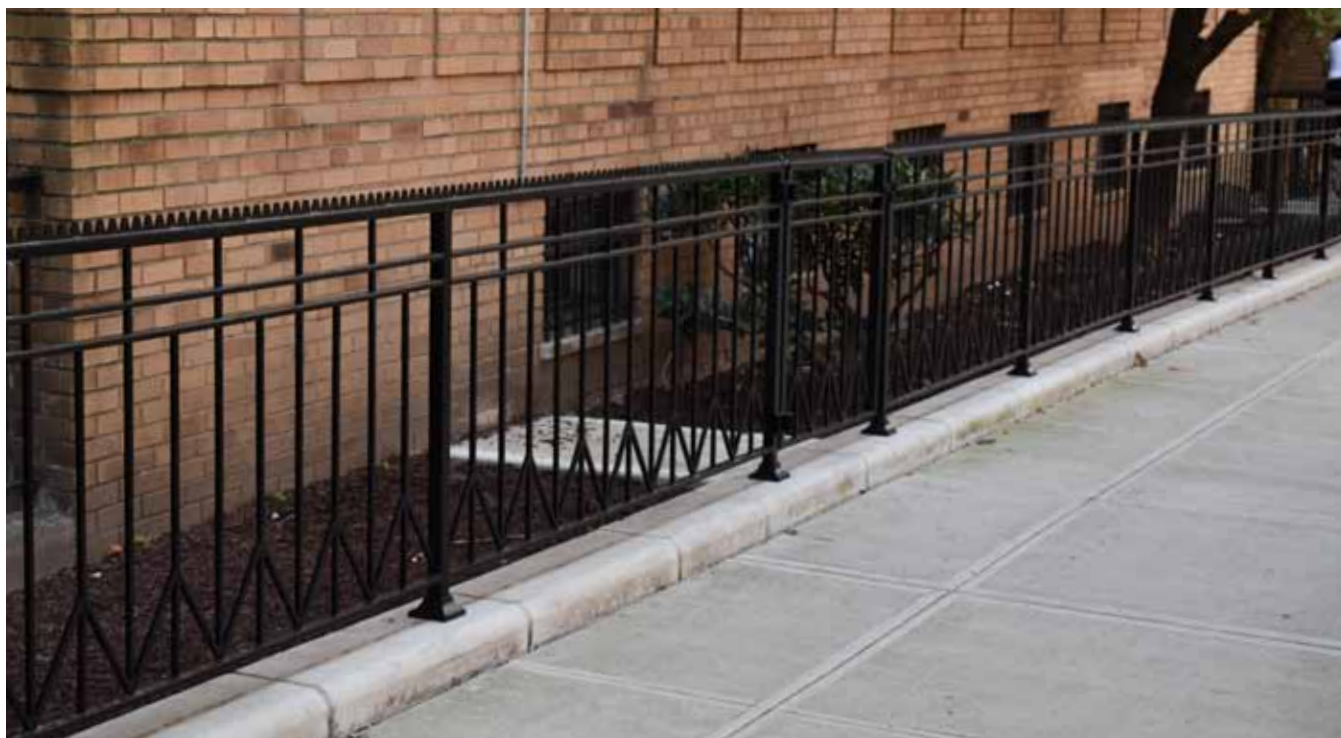
Refurbishing and replicating old iron fence



Old wrought fence replication



Metal fence for a garden area



Iron railing and iron fence custom built to the radius and rise of the project



Code compliant pool fence built in aircraft grade aluminum



Contemporary Chamfer –
top on security fence



Phenomenal security fence follows grade cohesively and is an asset to the landscape and the property



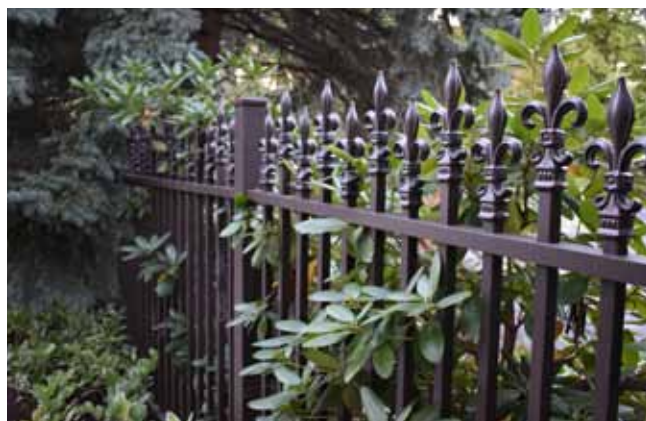
6 ft. high solid aluminum pickets create the best security fence



The beauty of iron fence and masonry



Solid picket security fence has unparalleled rigidity, yet provides beauty to the landscape



Above: Pool code entrance gate

Right Top: Fleur-de-lis finials have beauty for a custom pool fence

Right Bottom: Pool landscape fence that blends into the landscape



Aluminum fence built with marine grade components to withstand elements at a water front location.

Beautiful fence overlooking the lake





7ft. high residential security fence with creative design elements and Roman Bronze color.



Beautiful oval design in front security fence



Oval detail



 Beautiful iron fence for a personal dog park



Metal fence for dog enclosure



Custom created pool fence and pool gate



Left: Custom created knuckle for gate

Above: Custom pool fence for difficult terrain



Wrought iron pool fence



Iron railing to iron pool fence transition secure pool fencing



Security fencing for senior resident



Egress courtyard gate in security fencing



Chamfer top pickets staggered with alternating twisted pickets create a rigid but classic retaining wall fence.