





**SETTING THE STANDARD
FOR QUALITY AND CRAFTSMANSHIP**

WHY CAST IRON SOIL PIPE AND FITTINGS?

For centuries, cast iron pipe and fittings have been the backbone of drain, waste and vent plumbing systems throughout the world. Cast iron is as reliable as it is enduring. As building codes have gradually given way to increasing use of PVC in both residential and commercial applications, plumbing engineers and contractors should remember that what is allowed by code may not necessarily provide the best solution. **In fact, from a liability standpoint, maintaining the original specification and avoiding substitutions can be critical.**

COST-SAVING MYTHS

Due to the perceived cost advantages, PVC has become widely used in many applications where sound attenuation, structural stability, or fire-resistance are not critical. But decision-makers need to consider that savings may not be as promising as they initially appear from a simple per-foot cost comparison.

The labor required to properly install plastic DWV systems can, in many cases, outweigh the initial up-front advantage plastic has in material costs. Buried applications are a good example. Faulty trench design or use of improper embedment materials – the wrong type of soil or crushed rock – and even poor soil-compacting techniques are common defects in workmanship that can cause the pipe to ovalize or collapse. Due to the extra materials and care that must be exercised in buried applications, PVC's cost of installation per-foot can actually exceed the cost of a cast iron installation.



FIRE-RESTRICTIVE CONSTRUCTION AND SOUND ATTENUATION

Fire-resistance is another important area where the comparative benefits and drawbacks of cast iron and plastic piping must be weighed against what would appear to be PVC's cost advantage. When fire-rated assemblies are penetrated with PVC piping systems, they must be treated in accordance with ASTM E-814 (Test Method For Fire Tests of Through-Penetration Fire Stops), ensuring that the integrity of the fire-rated assembly is maintained. This process is often significantly more expensive and labor intensive for plastics, which are classified as combustible materials, than for non-combustible cast iron.

With fire resistance, the difference between plastic and cast iron is tucked away in the walls, hidden from view. But there's no hiding the differences in sound attenuation capabilities. Cast iron's ability to suppress the gurgling and sloshing sounds of water from an upstairs fixture makes it the hands-down choice for many homes and condominiums, motels and hotels, and high-rise structures.

WHY CHARLOTTE PIPE® CAST IRON SOIL PIPE AND FITTINGS?

1) THE QUALITY OF OUR PRODUCTS

For residential and commercial applications, Charlotte Pipe and Foundry produces the broadest line of cast iron pipe and fittings in the industry, including a full line of Service, Extra-Heavy and No-Hub (hubless) pipe and fittings.

PRODUCING PRODUCTS YOU CAN'T FIND ANYWHERE ELSE

Not only are we committed to being a full-line supplier of cast iron pipe and fittings, we understand that contractors need products like Extra-Heavy pipe and fittings and Double-Hub pipe to make installations easier and faster. Although all other cast iron manufacturers have quit producing Double-Hub pipe, we still offer a complete line of two-inch through six-inch Service and Extra Heavy Double-Hub cast iron pipe. And we intend to continue maintaining a large stock of Extra Heavy products.

There are several reasons Extra Heavy is specified versus Service or No-Hub. At Charlotte Pipe, our suggested specification for underground piping is for hub-and-spigot pipe. We believe the rigid joint found in the hub-and-spigot pipe is preferable for underground use. Furthermore, the greater wall thickness of Extra Heavy pipe and fittings gives greater crush strength and increased corrosion resistance.

In terms of crush strength, Extra Heavy pipe and fittings are roughly twice as strong in many sizes as their Service or No-Hub counterparts. For example, the maximum crushing load for four-inch Service pipe is 4,451 pounds per linear foot. Four-inch Extra Heavy has a maximum crushing load of 8,324 pounds.

Crush strength is particularly important in urban situations. Live and earth loads must be calculated when determining what type of pipe to use. Due to the heavy traffic and the sometimes less-than-stable ground that can be found in some older metropolitan areas, Extra Heavy pipe offers an added degree of safety in design and application.

Cast iron is naturally a corrosion-resistant piping material and will perform well in conditions where the pH values are above 4.3. Corrosion products formed in cast iron soil pipe are strongly adherent and give protection from further corrosion.

We're also the only manufacturer that offers the Quiet House® System for residential drain, waste and vent (DWV) systems. The Quiet House System comprises cast iron waste piping and plastic vent lines for a complete, economical, high-performance system. A quiet DWV system adds value to new homes and offers home builders a point of differentiation and a competitive edge in the marketplace.





ECOAT

Charlotte is the soil pipe industry's only provider that uses ecoat for its fittings. The process, which is also used on 95% of all vehicles produced in the world, offers customers a consistent, thin, even coating. An environmentally friendly process, ecoat has almost no VOCs and no toxic chemicals.

ACHIEVING UNIFORM EXCELLENCE

When you buy our cast iron pipe, you know exactly what you're getting. Our pipe is clearly stamped with our name, country of origin, the CISPI symbol of quality (©) and even the date the pipe was made. In fact, you can give us the date from any piece of Charlotte® cast iron pipe and we can provide the chemical properties of that batch.

To further achieve excellence, we tightly control the chemical properties and temperature of our iron. We measure weight, thickness and laying length for dimensional accuracy.



2) THE QUALITY OF OUR PROCESS

We've invested millions in improving manufacturing efficiency, productivity and capacity, making our foundry one of the most modern in the world. All products manufactured by Charlotte Pipe® are proudly made in the U.S.A. and meet or exceed all applicable ASTM and CISPI standards.

ISO 9001:2008 CERTIFIED

We conduct a total spectrographic analysis of 17 different elements each hour to monitor our chemical composition and make continuous adjustments to maintain the quality of the iron. We keep a daily melt log with records on every batch, so if there's ever a quality problem, we can determine when and why.

Our rigorous quality testing and ongoing process improvements have helped us achieve ISO 9001:2008 certification – an internationally recognized standard in quality assurance. ISO 9001:2008 certification proves that Charlotte Pipe and Foundry is a manufacturer of the highest caliber. When you order from us, you know you'll receive excellent products.

ENVIRONMENTAL STEWARDSHIP

We produce these superior products without sacrificing environmental stewardship. In fact, we're pleased to report that our cast iron pipe and fittings are manufactured from a minimum of 95 percent recycled scrap iron and steel and are 100 percent recyclable. Each year we prevent more than 350 million pounds of scrap iron and steel from entering overcrowded landfills.

We also operate our own water treatment facility, where we recycle and re-use 100 percent of our process water. We received a Charlotte-Mecklenburg County Blue Thumb Award in 2000 and a Charlotte-Mecklenburg Environmental Excellence in Industry Award in 2001 for our continued efforts at reducing city water demand and recycling our treated process water.

We operate well within the limits established by the U.S. Environmental Protection Agency. Our environmental operating budget exceeds \$1 million per year and over the last decade we've voluntarily spent millions of dollars to stay well ahead of the environmental compliance curve.





ENVIRONMENTALLY FRIENDLY CAST IRON

Our attention to environmental concerns brings benefits to our customers. Our cast iron pipe and fittings are made from a minimum of 95 percent post-consumer recycled material and are 100 percent recyclable. The U.S. Government, and many state and local agencies, now require government projects to use green building practices. The Green Building Council administers a certification program called the Leadership in Energy and Environmental Design green building rating system (LEED). By using materials with recycled content like Charlotte Pipe cast iron products, specifying engineers and contractors can earn points toward a LEED Certification.

3) THE QUALITY OF OUR PEOPLE

It takes the best people to produce the best product. By treating our people right, we have very low turnover, which means consistent products and consistent service, and the ability to respond well to change.

THE MOST IMPORTANT ELEMENT IN OUR CAST IRON IS OUR PEOPLE

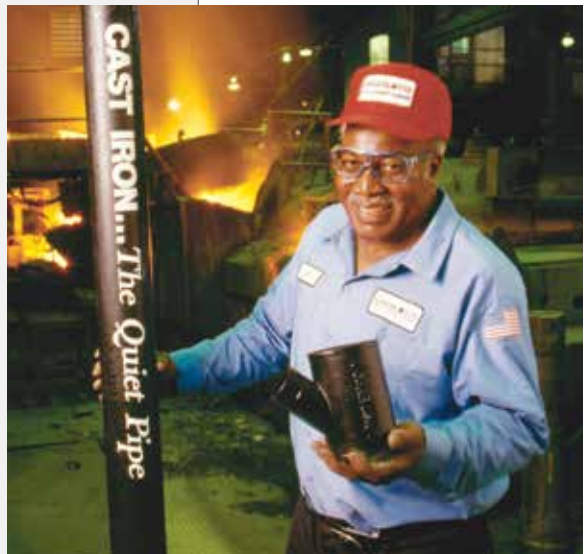
Despite the infusion of technology, casting iron is still as much a craft as it is an industry. Skilled iron pourers can tell if the iron is too hot or too cool just by looking at it. A cupola controller can tell if there is too much coke in the charge just by the color of the slag. And an experienced machine operator can produce thousands of castings a day. The hallmark of Charlotte Pipe's foundry has been adapting to changing business and new technologies to remain competitive. We couldn't do that without our exceptional people.

IT'S NOT A GREAT PRODUCT IF THERE'S A PROBLEM GETTING IT

Our wealth of experience extends into our Shipping Department, where we have more than 440 years of combined service. And because we manufacture for inventory – not for orders – we maintain stock on hand so you don't have to order extra and store it yourself. All of this allows us to ship with a 99.4% fill rate. Tell us when you need our product, and we'll ship your order complete and on time.

GOT A QUESTION? CALL US

At Charlotte Pipe and Foundry, our commitment to service doesn't end with delivery. We also offer a variety of technical resources to support our products. Our Technical Services department has the experience to answer customer questions regarding codes, standards, technical issues and product usage. And, every important document customers require – from technical information to pricing – is available on our website (www.charlottepipe.com). For additional information, consult the Cast Iron Soil Pipe Institute's (CISPI) website (www.cispi.org). Engineers looking to update their specifications can download industry and product specifications from the CISPI website.





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CHARLOTTE
EXCELLENCE

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MAN

JAMES



CHARLOTTE
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For more than a century, Charlotte Pipe and Foundry has enhanced its product lines to meet customer demand and focused on continuous process improvement to provide better service. In short, we'll do whatever it takes to meet all your cast iron soil pipe needs. Ask your sales representative or wholesaler for our cast iron products today. Or call us directly at 1-800-438-6091.

You can't beat the system.®

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