

## Chapter 1 : Plumbing - Cast Iron Soil Pipe

*The Cast Iron Soil Pipe and Fittings Handbook presents useful information of technical and general nature on the subject of cast iron soil pipe. In recent years, the volume and diversity of this information has increased.*

Two Kinds of Cast Iron Soil Pipe and Fittings to Choose From Just to clarify there are two different kinds of cast iron pipe and fittings, hub bell and spigot and no-hub soil pipe. No hub soil pipe is much more common than hub and spigot soil pipe. Hub and spigot soil pipe joints are either caulked joints or made with neoprene rubber that are compressed as the pipe enters the hub sealing the joint. No-Hub soil pipe is joined using stainless steel no-hub couplings and gaskets. Please take a look at the tools listed below. Lead is available in 5lb ingot and 25lb bars. Please see a picture of the different types of Oakum and a strand of lead. It is untarred but the fibers are treated with bentonite. Which is a type of drilling mud that swells considerably when exposed to water. So when the white oakum is exposed to water it expands inside the joint making it water tight. White oakum is the preferred oakum used for hub and spigot cast iron. Lead should be heated until it is hot enough so that it does not stick to the ladle, but it should never be overheated. Over heating lead will burn it into slag. You will know that the lead is hot enough when the lead no longer sticks to the ladle. Lead that has any amount of moisture or that is frozen WILL explode when added to a molten lead pot. Preheat the lead and or cold ladle to evaporate any latent moisture. Here are the steps to cut and assemble hub and spigot pipe and fittings with yarned and poured joints. Cut the soil to the required length with one of the cutters featured in the pictures below. After the pipe is cut, wipe the hub bell and spigot end of the pipe dry and clean it of all foreign particles. Quite often cast iron soil pipe is left outside for storage so the pipe can be damp or frozen in the winter. If there is moisture in the hub molten lead can cause the pipe to split when poured into the joint. In addition any trapped water can be instantly turned to steam causing a small explosion. To remove the stray fibers you can heat the packing iron in the lead pot and burn them away. Pour the molten lead into the vertical soil pipe joint. You must fill the joint with one pour. Just a few drops will displace the moisture and allow for a safe pour. On a horizontal soil pipe joints a running rope is used. A running rope used to be made of asbestos. Asbestos is ridiculously durable but as we all know now is also extremely dangerous if it becomes air born. Now running ropes are made of nylon strands. If the nylon becomes too hot it melts and pulls. Most plumbers who have worked with asbestos running ropes wish they had them back. The rope should be tapped lightly against the hub with the caulking hammer to make sure it fits snugly against the hub so the molten lead will not run out between the hub and the running rope. The lead is then poured into the gate, filling the joint to the top. The running rope is removed after the lead solidifies and the neck of access lead is cut off with a hammer and chisel. Most plumbers these days just carry a yarning iron and a packing iron. It does a fine job. This is a labor issue, some may say that yarned and poured joints are more rigid when hanging above ground but you could beef up the hangers and achieve the same results. The two types of gaskets are not interchangeable. Here is how you make a compression soil pipe joint. Clean the hub and spigot so that they are relatively clean of visible dirt and debris. If you are using cut pipe the sharp edge needs to be removed because the edge may catch against the gasket and jam. The edge will not damage the gasket but it can make it real difficult to join the pipe. You can take the edge off by hitting it with a ball peen hammer or a rasping file. Next you insert the gasket into the hub. Not always, here are two ways to get the gasket into the hub. Fold the gasket in half insert the gasket into the hub making sure the gasket ring will fit into the groove of the pipe and let the gasket unfold itself into the hub. You bump the gasket with the heel of your hand or with something flat like a board until it is fully inserted into the hub. Apply lubricant to the end of the pipe being inserted into the gasket. You can drive the end of the pipe home in one of three ways. If you are doing underground piping you can use a heavy pry bar. You place the pry bar in back of the pipe being installed and push forward until the pipe is inserted fully into the hub. If you are assembling fittings you can use a lead maul to pound the fittings into place. Using lead allows you to give the fittings a pretty good whack without damaging the pipe or fittings. There are a few different styles but they all operate by the same principle. A stirrup goes in back of the hub that the pipe is being inserted into and a chain or jaws are clamped around the pipe. The stirrup has a

long lever handle on a hinge. The whole contraption is like one big fulcrum. Apply No-Hub adhesive pipe lube to the ends of the pipe being joined and to the inside of the neoprene gasket. We know that adhesive lube is a bit contradictory but it lubricate upon assembly and when it sets it is rubber adhesive to ensure a good seal. Insert one end of the pipe being installed into the gasket until it hits the separator inside the gasket. Repeat the process for the other piece of pipe. Then slide the stainless steel sleeve over the gasket. Thanks again for reading from all of us at theplumbinginfo.

## Chapter 2 : CISPI Handbook - Table of Contents

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The installer usually is required to notify the plumbing inspector of the administrative authority having jurisdiction over plumbing work before the tests are made. Concealed work should remain uncovered until the required tests are made and approved. When testing, the system should be properly restrained at all bends, changes of direction, and ends of runs. There are various types of tests used for the installed cast iron soil pipe and fittings. These are water or hydrostatic, air, smoke and peppermint. Proper safety procedures and protective equipment should be employed during all testing procedures. A water test, also called a hydrostatic test is made of all parts of the drainage system before the pipe is concealed or fixtures are in place. This test is the most representative of operating conditions of the system. Tests of this type may be made in sections on large projects. After all air is expelled, all parts of the system are subjected to 10 feet of hydrostatic pressure. Air tests are sometimes used instead of the water or hydrostatic tests of completed installations. Cast Iron Soil Pipe and Fittings joined with rubber compression joints or hubless mechanical couplings are expected to have a reduction in air pressure during a 15 minute test. This drop in air pressure does not indicate a failure of the system or an indication the system will leak water. Because molecules of air are much smaller than water molecules a cast iron system is expected to have a reduction in air pressure during the 15 minute test period. Materials under pressure can explode causing serious personal injury or death. Extreme care should be exercised in conducting any air test. Persons conducting an air test must exercise care to avoid application of pressure above 6 psig to the system under test by using appropriate pressure regulation and relief devices. Persons conducting the test are cautioned to inspect for tightness of all system components prior to beginning the test and to avoid adjustment of the system while under pressure. Proper protective equipment should be worn by individuals in any area where air test is being conducted. Water Test - A water or hydrostatic test is the most common of all tests used to inspect a completed cast iron soil pipe installation. The purpose of the test is to locate any leaks at the joints and correct these prior to putting the system in service. Since it is important to be able to visually inspect the joints, water tests should be conducted prior to the "closing in" of the piping or back fill of the underground piping. As water fills a vertical cylinder or vertical pipe it creates hydrostatic pressure. The pressure increases as the height of water in the vertical pipe increases. This is the recommended test by most plumbing codes. To isolate each floor or section being tested, test plugs are inserted through test tees installed in the stacks. All other openings should be plugged or capped with test plugs or test caps. Prior to the beginning of the test, all bends, changes of direction and ends of runs should be properly restrained. During the test, thrust forces are exerted at these locations. Thrust is equal to the hydrostatic pressure multiplied by area. Thrust pressures, if not restrained, will result in joint movement or separation causing failure of the test. All air entrapped in the system should be expelled prior to beginning the tests. Once the stack is filled to ten feet, an inspector makes a visual inspection of the section being tested to check for joint leaks. In most cases, where these leaks are found, hubless couplings have not been torqued to the recommended 60 in. Proper torquing will correct the problem. If leaks occur during testing of hub and spigot materials the joint should be disassembled and checked for proper installation. Fifteen minutes is a suitable time for the water test. Once the system has been successfully tested it should be drained and the next section should be prepared for test. Smoke Test - When a smoke test is required by engineers, architects, or plumbing codes, it is applied to all the parts of the drainage and venting systems after all fixtures have been permanently connected and all traps filled with water. A thick, penetrating smoke produced by one or more smoke machines, not by a chemical mixture, is introduced into the system through a suitable opening. As smoke appears at the stack opening on the roof, the opening is closed off and the introduction of smoke is continued until a pressure of 1 inch of water has been built up and maintained for 15 minutes or longer as required for the system. Under this pressure, smoke should not be visible at any point, connection or fixture.

All windows in the building should be closed until the test is completed. Peppermint Test - Some engineers, architects, and plumbing codes require a peppermint test to be applied to all parts of the drainage and venting system after all fixtures have been permanently connected and all trap seals filled with water. A mixture of 2 ounces of oil of peppermint and 1 gallon of hot water is poured into the roof opening of the system, which is then tightly closed. There should be no odor of peppermint within the building at any point, connection, or fixture as a result of the peppermint mixture having been introduced into the system. Operators who pour the peppermint mixture must not enter the building to do the testing. The peppermint test is usually used in old installations to detect faulty plumbing. Thrust or displacement forces are encountered as the pipe or cylinder is filled with water. The higher the fill the greater the force acting to separate a joint.

## Chapter 3 : Cast Iron Rectangular Pipe

*Cast Iron Soil Pipe & Fittings Handbook Table of Contents To date we have formatted only Chapters I and IV of the CISPI Handbook for the internet (links below).*

The Commission found two domestic like products and industries in these investigations. The Commission determined that a U. Department of Commerce Commerce has determined are subsidized and sold in the United States at less than fair value. The Commission further determined that a U. Johanson and Commissioners Irving A. Schmidlein, and Jason E. Kearns voted in the negative with respect to drain bodies and in the affirmative with respect to all other cast iron soil pipe fittings from China. No antidumping or countervailing duty orders will be issued on imports of drain bodies from China. The Commission also made a negative finding concerning critical circumstances with regard to imports of cast iron soil pipe fittings other than drain bodies from China. As a result, imports of this product from China will not be subject to retroactive antidumping duties. The merchandise covered by this investigation is cast iron soil pipe fittings, finished and unfinished, regardless of industry or proprietary specifications, and regardless of size. Cast iron soil pipe fittings are nonmalleable iron castings of various designs and sizes, including, but not limited to, bends, tees, wyes, traps, drains, and other common or special fittings, with or without side inlets. Cast iron soil pipe fittings are classified into two major types-hubless and hub and spigot. Hub and spigot pipe fittings have hubs into which the spigot plain end of the pipe or fitting is inserted. Cast iron soil pipe fittings are generally distinguished from other types of nonmalleable cast iron fittings by the manner in which they are connected to cast iron soil pipe and other fittings. The subject imports are normally classified in subheading Cast fittings of nonmalleable cast iron for cast iron soil pipe. The HTSUS subheading and specifications are provided for convenience and customs purposes only; the written description of the scope of this investigation is dispositive. Final phase antidumping duty and countervailing duty investigations. Thursday, July 13, Tuesday, June 26, Friday, August 3, Monday, August 20, California, North Carolina, Pennsylvania, and Texas. Production and related workers: Ratio of subject imports to apparent U.