

Best DEWATS Practices

Practical Guidance for the Decentralized Wastewater Treatment System Specialist

Plumbing and Pipes

There are a number of different pipe materials. Use this guidance to select the right ones for your DEWATS project.



Using a handsaw to cut PVC pipe to length. TIP: Use a tape measure to find the exact required length of the pipe. PVC is flexible so "bend" it into the fitting for the perfect fit.



ABS 2-way cleanout for a sewer line. TIP: Install one within 1 meter of the building, every 15 meters and where ever sewer takes a bend of than 30 degrees or more. Install a riser pipe to grade and use an ABS cap to finish.



SDR-35 sewer pipe. TIP: Install and grade the bedding material first before placing the pipe in the trench.

Background

For plumbing smaller DEWATS systems, most installers will use plastic pipes, such as polyvinyl chloride (PVC) or acrylonitrile butadiene styrene (ABS). Consider using steel or concrete pipes in larger systems, or where high temperature is a concern. Follow this simple guidance for the best results:

PVC Pipe - Cheap, stable and easy to work with. It is most often white in color, but also available in green (non-potable water systems – see SDR 35 below) and grey (electrical conduit). PVC piping is commercially available in a wide variety of sizes and thicknesses, and there is a wide assortment of fittings for just about any plumbing job. Pipe can be cut with a saw or special shears, and is connected with a two step solvent – weld (primer and glue) process. *TIP*: PVC pipe marked "NSF" meets international standards.

PVC Schedule 40. It is used in DEWATS for pressurized supply lines commonly found in effluent pumping systems. It can also be used in drainage and venting, but less expensive alternatives may be available. The major drawback is that PVC can only handle temperatures of 60 degrees C.

PVC Schedule 80. It is a thicker version of the schedule 40 and therefore more durable and able to handle higher pressures. Mainly used for commercial applications.

CPVC. This is chlorinated PVC. It is able to withstand temperatures of up to 82 degrees C. Common uses for DEWATS systems are for air blowers associated with small aeration systems. The CPVC can handle the higher temperatures generated by these devices.

SDR 35 (Standard Dimension Ratio) pipe is a non-potable variety of PVC. It is green in color and almost exclusively used in gravity sewer and drainage systems. SDR 35 is available in larger sizes than white PVC and is considerably less expensive. It often uses ring-gasket fittings that make a very tight seal.

ABS Pipe. ABS is generally less expensive than PVC but is not pressure rated. It is black in color and for DEWATS is generally used for drainage sewers, venting, or plumbing for septic tanks. It can also be cut with a saw, but is connected using a one step glue. It is temperature safe to 82 degrees C, but less versatile in the variety of fittings when compared to PVC.

<u>Cast Iron (CI) Pipes.</u> These pipes are mostly used in larger residential or commercial DEWATS. They are well suited for pressure and can withstand external load because of their thickness. The pipes are easy to layout and join. These pipes are manufactured by vertical casting in sand molds, horizontal casting in sand molds and centrifugal casting (spun casting pipes).

<u>Concrete pipe</u>. Often used for sewers, and can be manufactured on-site with portable rolling machines. Limited use for smaller DEWATS.