

COLUMN FOR MAY 14, 2005.

HEADLINE; HOW DO DRAINS WORK?

A: We have an older home and intend to renovate it this year. I hope to do a lot of the work myself. Plumbing drains seem simple yet I hear horror stories from friends about odours, blocked drains and backups. How can this be so difficult?

A: The basis for all drains is maintaining atmospheric pressure, that is to say zero pressure in effect. The largest problems I see are undersized drain lines, poor slope and improper use of fittings. There is a strict set of rules with respect to drains and the number of fixtures attached to it. I strongly recommend you make an actual map of your new drain and vent system. A bathroom sink should be a 1-¼ inch pipe; kitchen sinks, bathtubs and washing machines are usually 1 ½ inch pipe. A walk-in shower should be a minimum of 2 inch and toilets are 3 inches. The number one issue with older homes is the lack of proper venting when renovations are done. There is a vent fitting called a “cheater vent” that I see far too often under sinks, a sure sign the installer did not take the time to think out his vent system. These are usually stuck at the end of drain when a new sink is added. You must install the vents in the proper place along the drain line. I have seen renovations where the vent is installed at the end of the main drain and all the sinks and the toilet are draining ahead of it. This can cause the pressure differences to actually blow the water out of the traps under the sinks. There must be water in the traps under your sinks and bathtub at all times. If it gets sucked out by poor venting or improperly sized drains this will allow sewer gas to enter your home. Drains should be stepped up in sizes as you add more discharge. For example, after two sinks are added in, the main drain should be increased to a minimum of 2”. Once the toilet is added they immediately change to 3 inches. The actual vent stack that goes to the attic is never smaller than 1 ½. There are instances where construction of the home makes it necessary for the drain and the vent to be the same line. This is called a “wet vent”. In this case if the drain size was supposed to be a 1-½ inch, then the drain size should be changed to a 2-inch line. This allows air to remain in the drain while the amount of discharge is flowing away. More than one fixture can operate off a single vent, what matters are how and where they are positioned.

Poor flow is a common problem. A good rule for all pipes under 2 ½ inches; they should slope towards the city sewer or your septic system at the rate of ¼ inch per foot. Larger pipes with limited turns can slope at 1/8 inch per foot. The most important thing is to maintain this slope constantly. Plan your drains with as few 90-degree turns as possible, especially in any pipe larger than 2 inches. There are different types of elbows available; some have a longer radius even though they do make a 90-degree turn. Proper use of Sanitary Tees and Wyes can make or break a good system. Tees should only be used when a horizontal drain meets a vertical one. Any connections that are vertical should have a Wye installed. Attention to the correct number of clean-outs is also important. Start with traps under all your sinks that have the screw off base or the style that comes apart with union connectors. The next time your wife’s wedding ring gets caught in the drain you may be grateful for this. The code does not permit the use of “S” traps under sinks, only “P” traps are permitted today. The end of all large runs and at the base of the main vertical vent stack should have the large screw out type of cleanout installed. If you are forced to make a number of turns, install one here too.

The most important thing is to get a plumbing permit and take your plans with you when you speak to the local plumbing inspector. While they will not draw out your project, if you arrive with a respectable layout they will make suggestions and then visit the home when the system is installed. Once the drywall is on if you have cut any corners or installed incorrect drain sizes this will eventually show up and then the costs of repairs can really add up. Plumbing should be done carefully and to the code.

Now the answer to last week’s question. What is a berm? The answer was D) An earth embankment used for a visual or sound barrier. Now this week’s question. What is rip-rap? Is it; A) a method of decorative stucco

B) Stones placed on a sloped embankment to prevent erosion C) Rough cut lumber used for sub floor in pre war homes. The answer in next week's column.

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