Guide to plumbing and electrical installation

While building, there is a proper stage for plumbing and wiring lest you interrupt the process and incur losses in breaking walls.

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Peter Mabirizi, an engineer with Plenco Plumbing and Engineering Company, describes a home's plumbing and electrical systems as the biggest investments. Not only are they costliest systems to install or repair but any mistake will lead to inconveniences and can actually wreck the entire home.

It pays to understand how the systems work to help you design a system that will pass the test of time," Mabirizi cautions.

Plumbing

Allan Obong, a plumbing expert with Plumbing Solutions Uganda, says costs of plumbing differ according to the size of the structure and materials used. He, however, notes that all plumbing work must be installed before the house has been plastered; it should be done concurrently with wiring.

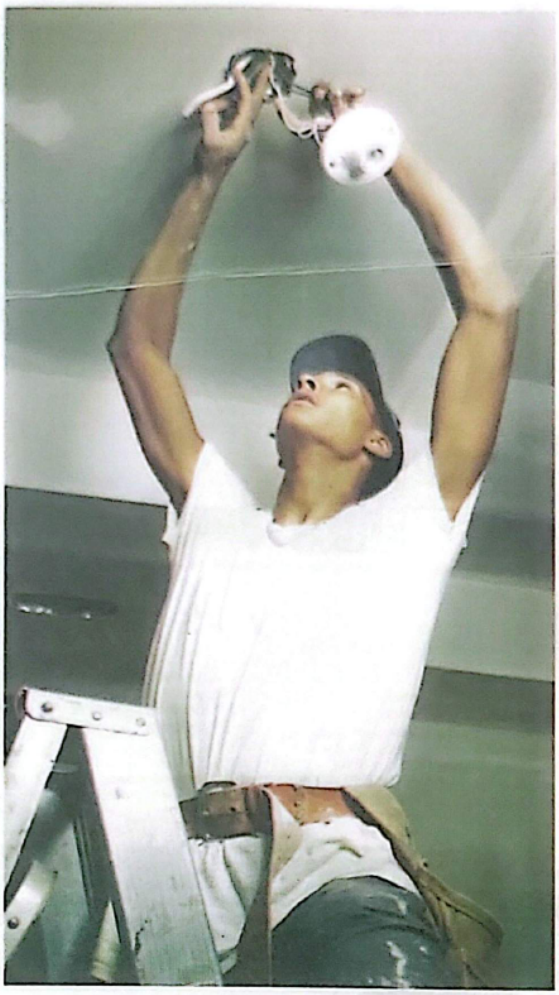
Obong states that properly designed systems should be able to distribute fresh water to all areas of the house and drain away waste water without clogs. The job of the drain-waste part of the system is to carry waste water and sewage from sinks, bathtubs, showers, toilets, and water-using appliances such as dishwashers and washing machines and deliver those wastes to the septic tank or public sewer. It also helps drainpipes maintain the right pressure for proper drainage.

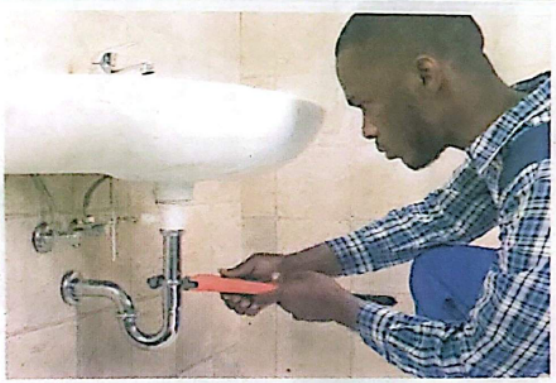
In Uganda, the water we use in our homes comes from the national water grid to your pipes and into your system. These pipes and other fittings are commonly made of plastic, copper, or galvanized iron. The pipes range in diameter from 1/2 inch to 4 inches or more.

Be careful

"The plumbing system in your home is composed of two separate subsystems. One subsystem brings freshwater in, and the other takes wastewater out. The water that comes into your home is under pressure. It enters your home under enough pressure to allow it to travel upstairs, around corners, or wherever else it's needed. As water comes into your home, it passes through a meter that registers the amount you use," explains Mabirizi. "Otherwise, when a pipe bursts, it can flood your house in no time. If the emergency is confined to a sink, tub, or toilet, however, you may not want to turn off your entire water supply. Therefore, most fixtures should have individual stop valves," he adds.

He further explains that the system consists of more than just pipes, it includes vents which allow air to e guide to plumbing and electrical installation enter the pipes to ensure proper flow of wastewater, traps, and clean outs among others.





Some people skip plumbing with an excuse that it is expensive but it is worse if you first complete the house as it will require breaking walls and rebuilding them.

Obong points out that other important components of the plumbing system are the traps. "When you check under your sink, you will see the curved or S-shape section of pipe under a drain. Water flows from the basin with enough force to go through the trap and out through the drainpipe, but enough water stays in the trap afterward to form a seal that prevents sewer gas from backing up into your home. Every fixture must have a trap. It is what protects the system from clogs and becoming stinky," he adds.

Drainage subsystems

Fixtures should have individual supply shutoff valves so that you do not need to close the main shutoff to make repairs at the fixture.

The supply and drainage subsystems are two distinct operations, with no overlapping between them. There are bridges between the two, however, and the bridges are what make the plumbing system worth having. In plumbing jargon, any bridge between the supply and drainage systems is a fixture.

Toilets, sinks, and tubs are fixtures. In addition, an outside faucet is a fixture and so is a washing machine. All devices that draw freshwater and discharge wastewater are fixtures, and all are designed to keep the supply and drainage systems strictly segregated.

Some fixtures have individual supply shutoff valves so you do not need to close the main shutoff to repair them. It is a good idea to make sure everyone in the family knows the location of the main shutoff valve in your house as well as how to use it. You may want to tag the main shutoff valve so anyone can easily find it.

Electrical wiring

According to Albert Elagu an electric technician from HIE Security Systems, wiring or electrical installation begins as far back as the house plan. "The system is designed and allocated for on the plan according to the individual's needs. Changes often occur even during construction so it is always best to what until the house has reached the plaster level and the contractor informs you that there are no more changes expected to start planning to chisel and conduit the finished areas using the information from the contractor," Elagu adds.

It is advisable to write down the purposes of each room which will guide on the number of outlets required and consequently will help you to calculate the amount of wires, conduits, types of outlets, size of the main distribution board (MDB), division of power so as to balance the current, the earthing type and requirements, the time to finish and many more.

Elagu advises on finding out the type of soil on which your structure is built because that information will guide you during earthing to avoid your electro installation becoming a shocking hazard and being rejected but the Electrical Distribution Authority.

Get genuine parts

He urges that the electrical installation contractor must have a valid electrical installation certificate from Uganda Electricity Distribution Authority. "Ugandans like cutting corners. They will opt to hire an unlicensed contractor if he is cheaper. The danger here is that such people do not think twice about bending rules since they are not answerable to anyone resulting in unfortunate accidents," he adds.

After deciding what will be included in every room, the real work begins with chiseling and conduiting the whole building. Next is plastering the finished work, running the wires according to the gauge for the different outlets provided, earthing, and installation of appliances such as sockets, switches and heaters.

Earthing is the method used to connect an electrical system to the earth with a wire which offers critical protection against electric shock and electrocution by using a rod to provide a third path for conducting electricity in the event of a short circuit or an overload.

"Lastly crosscheck all installation, test for shorts and any loose connections and all the earthing and make sure they meet the required International Electrical Standard Measurements/ units so that when UMEME comes to a ward you a certificate and connect you to the power supply line, you meet their requirements," Elagu explains.

CHOOSING WIRES

Most modern home wiring circuits consist of a single, vinyl-jacketed electrical cable containing two or more insulated solid-copper wires plus a bare copper grounding wire. One of these wires, the so-called "hot" leg, is usually covered in black insulation and carries the electricity from the main service panel to the outlets or fixtures. If there is a second or third hot leg in the cable, its insulation is often red or blue. The "neutral" wire is covered in white insulation, and it returns the electricity back to the panel. The grounding wire (bare or covered in green insulation) is there to protect you from shock by diverting any stray current directly to earth, such as in the event of a short circuit or other fault.

The electric meter is mounted outdoors where electricity enters your home. This device is used to measure the amount of electricity that is consumed in your home. The meter is monitored by your electric utility company and is protected by law—tampering with it is both extremely dangerous and illegal.

Must have fuses and circuit breakers

Fuses and circuit breakers are safety devices that help prevent overloading of your home electrical system and prevent fires. They stop the electrical current if it exceeds the safe level for some portion of your home electrical system.

Even if you are not ready to pay for electricity, do basic conduits where the wires will pay when ready.
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