



SNS COLLEGE OF TECHNOLOGY



(An Autonomous Institution)

Water Tap Giving Shock





Water Tap Giving Shock



- A complaint was received in Electrical maintenance section that water tap was giving electric shock in the mornings.
- On investigation it was found that some persons had connected one end of the water heater coil to the phase of the supply and the other end of the heater coil was connected to the water tap for the return path.
- This water pipe was not connected directly to the earth and provided a high resistance path to the flow of current.
- As a result, the water tap attained voltage (depending upon its resistance to the earth) and was giving electric shock.



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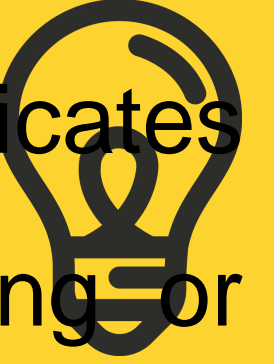
- Resistance is 10 Ohms and the water heater is 1000 watts load, it will produce across the GI pipe a voltage of 50 volts (supply voltage being taken as 200 volts).
- This will give sufficient electric shock if someone comes in contact with the pipe.
- As a remedy the other end of the water heater must be connected to the neutral of the supply and not to the water pipe line Water pipe line must be properly earthed to bring its resistance to earth well within safe limits.





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A water tap giving an electrical shock is a serious safety hazard. It usually indicates that the plumbing system has come into contact with faulty electrical wiring or appliances, causing the tap to become live with electricity. Here's how this can happen and steps you should take to resolve the issue:



Possible Causes:

Faulty Grounding: Electrical appliances, especially water heaters or pumps, may not be properly grounded. This can cause current to flow through the plumbing system.

Damaged Wiring: Electrical wires may be damaged, particularly in locations near water sources, leading to leakage of current into metal pipes.



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- **Improper Earthing of the Building:** If the building's electrical system is not properly earthed, it may cause metal parts, including taps, to carry electricity.
- **Old or Corroded Plumbing:** If the pipes are old or corroded, they can increase electrical conductivity, leading to shocks.
- **Short Circuits in Electrical Appliances:** Appliances connected to the water supply may have internal short circuits that cause electricity to pass into the water pipes.



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Safety Precautions:

Do not touch the tap with wet hands until the issue is resolved.

Turn off the main electrical supply immediately.

Call a qualified electrician to inspect the electrical system and fix any grounding or wiring issues.

Use a Voltage Tester to check for live currents on the tap or pipes, but only if you are trained to handle electrical equipment safely.





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Long-term Solutions:

- 1. Proper Grounding:** Ensure that all electrical systems and appliances are properly grounded to prevent electricity from flowing through the plumbing system.
- 2. Install Ground Fault Circuit Interrupters (GFCI):** These devices cut off power if an electrical imbalance is detected, preventing shocks.
- 3. Plumbing Insulation:** Insulate pipes to prevent them from becoming conductors of stray electricity.



THANK YOU