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Advisory regarding safety of Solar Water Heaters during low water pressure scenarios

Solar water heaters are designed to operate with consistent water flow through the system. Due to the ongoing water crisis, the City of Cape Town has advised that low water pressures can be expected and in some cases, limited periods of water outages. This advisory is in response to issues raised by the media regarding the safety of solar water heaters in these scenarios.

High pressure solar water heaters

High pressure solar water heaters (ie. with a pressurised tank), whether they are flat-plate collectors or evacuated tubes are not at risk of damage from low water pressure or short periods of no pressure (water outages). In cases of low water pressure from the municipal supply, the geyser or storage tank will be refilled at a slower rate and the solar water heater will not be adversely affected. Even in cases of water outages or zero water pressure, high pressure solar water heaters that are installed correctly, can withstand short periods (a few days at a time) without water with no adverse effect on the panel, geyser or pump.

If water outages are expected to last longer than a week, the City advises customers to cover the solar collector panel with reflective sheeting (eg. sisalation) or a dark tarpaulin or blanket. Nevertheless, it is expected that water outages will last a number of hours not a number of days or weeks. Once water is reconnected, the user may experience cold water for a short time.

Low pressure solar water heaters

Low pressure solar water heaters (ie. the tank is not pressurised) are predominantly installed in low income houses. These systems can also withstand low water pressure from the municipal supply without adverse effects on the system components. In scenarios of water outages, flat-plate collector systems are not at risk. In certain circumstances, low pressure evacuated tube systems have a minor risk only when the geyser is completely emptied (eg. from an extended water outage or an incorrectly installed system) and the glass tube experiences thermal shock when the municipal water supply is turned back on resulting in cracking. The system will not explode.

In instances of extended water outages (a week or more), the City of Cape Town advises that customers cover the solar collector panel with a dark blanket or reflective sheeting and disconnect water to the geyser until the water service is reconnected and the panel has cooled (ie early in the morning or late at night). If you have a low pressure evacuated tube system, contact the installer or supplier to determine whether you are at risk of damage from water outages.

Water Saving expansion tanks

All hot water cylinders (including electric, solar and heat pump storage tanks) drip water from time to time through the overflow valve. This is a safety feature. This allows water to be expelled from the pressure reducing valve expansion side. When water in the tank is heated it expands and in almost all hot water systems some water is lost in this way. A water saving technique that is common place in Europe, is to fit hot water systems with a small expansion tank which allows the water to be pushed into this tank rather than through the overflow valve. When the pressure in the geyser drops again, the water in the expansion tank goes back into the geyser. Ask your installer if they can install an expansion tank on your system. This saves a few litres per day per geyser. Please note however, that these small tanks do not have SABS certification.

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