Gamagara local municipality in the Northern Cape strictly enforces energy efficiency regulations for all new buildings. According to Andre Mostert, Manager Environmental Health and Cleansing, “applying the energy efficiency regulations for new buildings and houses benefits both the municipality and the building owners”.

What is the role of the municipality?

The municipality has the responsibility to approve the building plans for new buildings and is required to enforce the SANS 204 energy efficiency standards. In Gamagara, the municipality verifies that the new buildings falls within the maximum energy demand prescribed in the standards and that all buildings comply with the energy efficiency requirements.

There is no need for a by-law or a local policy as these are national requirements.

According to the National Building Regulations, the architect must include the Energy Efficiency requirements into the building plan, whether the Municipality requires it or not. Should the architect fail to include it, the owner of the new building can hold the architect responsible for the energy efficiency costs. If the architect has not signed off on the energy efficiency compliance, the Municipality may not issue a certificate of occupancy.

In Gamagara, the building control officers benefited from some training to better understand the standards. However the municipality notes that more detailed and on-going training is needed.

What are the energy efficiency Regulations for new buildings?

- The SANS 10400-XA and SANS 204 cover energy use in buildings both for design and operations.
- SANS 10400-XA supports the National Building Regulations which are mandatory for all new buildings and extensions to existing buildings. SANS 10400-XA requires that new buildings comply with the energy efficiency requirements set out in SANS 204.
- SANS 204 stipulates the maximum energy demand and the maximum annual energy consumption for various kinds of buildings in the various climatic areas of South Africa. SANS204 also prescribes energy efficiency requirements.

Gamagara Municipality

What are the benefits for the municipality?

With more energy efficient buildings, Gamagara municipality indicates that the maximum electricity demand and the winter and summer peaks can be reduced. If buildings are more efficient, heating might not be necessary in winter and air conditioning needs can be reduced in summer. For the municipality this results in a flatter electricity usage with reduced peak demand.
Could the enforcement of these standards drive business away from the municipality?

According to Gamagara municipality, this regulation should not drive business away because the energy efficiency requirements are national requirements. The municipality strictly enforces the standards, to the advantage of the municipality as well as to the advantage of the building owner and user. “When energy needs are well managed, the electricity bill is reduced for the building owner. The need for external supply of electricity (for example for generators in malls) is reduced”.

The feedback received by the municipality from the building owner is very positive: “It costs a bit more to adhere to the standards but that was a good idea, because it saves money. This can immediately be seen on the electricity accounts.”

It is a Ah-ha moment for the municipality and the customers alike!

The municipality said: “Home owners who did implement the energy efficiency requirements fully are very satisfied with the climatic performance of their houses in this arid region and aside from the energy savings they enjoy the benefits of a house that is really comfortable to live in.”

What do the requirements mean in practice?

Gamagara municipality gives some examples of what the regulations imply for new houses and some commercial buildings:

- **Half of the hot water** used must be heated by means other than electricity, such as a heat exchanger, a gas heater or a solar water heater. In the Northern Cape, solar geysers work very well but the type of solar geyser used needs to be carefully considered due to the extreme heat in this area. In hard water areas some solar geysers may be a problem.
- **The orientation of the building** plays a crucial role – the facades with the most windows must face north.
- **The windows** must limit heat and cold transfer into the premises. Possible options include double glazing or low emissivity glass (low e-glass).
- **The thermal resistance of the walls** (R-value) need to comply with the minimum value for the zone through adequate construction method and materials of walls.
- **All water piping** need to be cladded with the appropriate cladding type and thickened.
- **Proper ceiling insulations** of the correct thickness and type must be installed.

> “The idea is to keep the temperature in the rooms between 23 and 28 degrees at all time so that it is not really necessary to run an air conditioner or a heater”.

In specific cases, for example in the case of a mall with dry cleaners, it might be quite difficult to fully comply with the maximum energy demand requirements. In this case, the municipality asks for evidence that the building developers have done everything they could to keep the electricity consumption as low as possible, such as, amongst others:

- using LED lights for all lighting needs,
- ensuring that all appliances are AAA rated (like driers, fridges, etc.),
- proving that energy management systems are used to run appliances as efficiently as possible.

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