

South African Energy Efficiency

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South Africa - History

- Up to end 2011 – no energy efficiency Regulations
 - No mandatory standards
- Electricity cheap
 - Long pay-back period for Energy Efficiency interventions
- Comfort not a driver for energy efficiency
- Government subsidized housing built with no ceilings/no insulation
 - Burn fossil fuel inside
 - Houses were 30m² – to 36m² – to 40m²

Eskom – Electricity Provider

- 2003 Eskom predicted:
 - 2006/7 – little/no peak load capacity
 - 2011/2 – little/no base load capacity
 - Reality – 2008/9 – base load capacity shortages
- Low reserve margin
- Coal fired power stations
 - Inefficient
 - “Dirty” energy

Energy Efficiency Standards & Regulation

- SANS 204 – published in October 2008 (voluntary)
 - Part 1 – Energy Efficiency design parameters
 - Part 2 – Naturally Ventilated Buildings
 - Part 3 – Artificially Conditioned Buildings
 - Govt subsidized houses (?)
- Regulation NBR-XA (Energy Efficiency in Buildings) – promulgated Nov 2011
 - Note NBR-X = Sustainability
 - NBR-XB = Efficient Use of Water in Buildings
- SANS 10400-XA – “deemed-to-satisfy” standard – published July 2011
- SANS 204 – redrafted – published July 2011

**DEPARTMENT OF TRADE AND INDUSTRY
DEPARTEMENT VAN HANDEL EN NYWERHEID**

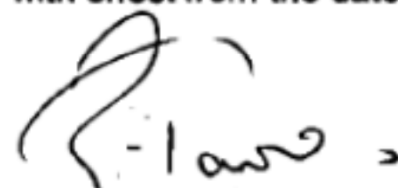
No. R. 711

9 September 2011

**NATIONAL BUILDING REGULATIONS AND BUILDING STANDARDS
ACT, 1977 (ACT 103 of 1977)**

**INTRODUCTION OF AMENDMENTS TO THE NATIONAL BUILDING
REGULATIONS TO INTRODUCE REQUIREMENTS FOR ENERGY USAGE IN
BUILDINGS**

I, Dr Rob Davies, Minister of Trade and Industry, hereby under section 17 (1) of the National Building Regulations and Building Standards Act (Act 103 of 1977) and on the recommendation of the Board of the National Regulator of Compulsory Specifications, amend the National Building Regulations, as set out in the Schedule, with effect from the date two (2) months from publication of this notice.



Dr R Davies MP

Minister of Trade and Industry

- Government gazette – 9 September 2011
- Implementation – 9 November 2011
- Applicable to new plans & renovations needing plan approval
- Applicable to all “occupied” buildings
 - Including Govt subsidized housing

Compliance to NBR-XA

1 Rational design (Innovation)

- This alternative requires input of a professional “competent” person
- Thermal performance of building needs to be calculated
- Performance should be equal or better than specified in SANS 10400XA

2 “Deemed-to-Satisfy”

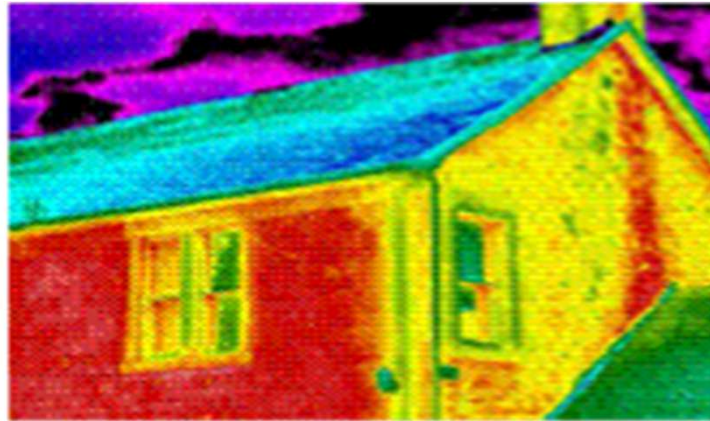
- Compliance with requirements in SANS 10400-XA

3 Comparison with a compliant theoretical (reference) building (Innovation)

- Energy usage of building shall be less than or equal to that of a reference building
- Reference building should be designed to “Deemed to Satisfy” standards
- This alternative requires input of a professional “competent” person

Rationale behind NBR-XA structure

- Biggest energy user in residential buildings – Hot water supply.
 - Look to renewable energy or energy efficient sources
- Biggest energy driver is comfort
 - Heating, cooling & ventilation
 - Building envelope & services



SANS 204 vs. SANS 10400-XA

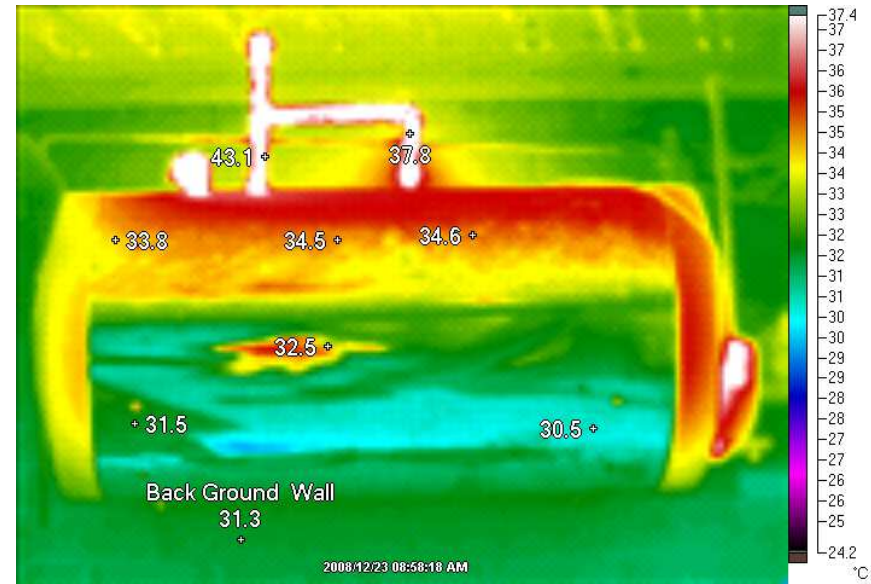
- Far more comprehensive than the building regulations and SANS 10400 – XA
 - Market acceptance, competence & industry players
- Requirements more stringent (except for roof/ceilings)
- In the longer terms regulation to be upgraded and trend toward SANS 204
- SANS 204 is a voluntary standard
- SANS 204 - Basic minimum for green star rating
- Both standards reduce the use of energy from electricity, gas, oil, or other fuels used in buildings.
- Both standards exclude energy used in the operation of the building

Green Star Rating Tools

- Office, Retail, Multi-unit Residential, Public Buildings Tools published & operational
- Water & Energy Benchmarking – pilot
- Socio-Economic Category – being drafted
- Buildings Interiors Tool – next year
- Number of Green Buildings doubling every year
- Regulation & GBCSA increased awareness
- Innovation in Green design e.g. 6 star Vodacom building (good case study)

Eskom Subsidies

- Solar water heaters
- Heat pumps
- Standard Product Offers
- Government
 - Tax Incentives
 - ▶ Industrial



What does NBR-XA mean in terms of energy saving?

- Applicable to new plans & renovations needing plan approval
 - New buildings & renovation sections will show energy saving & increased comfort
- Proportion of new buildings to existing building stock is low
- Suppressed (depressed) economy = lower proportion of new to existing building stock

Solution (1 possibility) - Retrofit of buildings

- Building Envelope to SANS 204
- Innovative interventions
- Green Leasing
- Energy rating of buildings
- Opportunity to sell back to grid (network not quite ready)
- Financing opportunities

Financing

■ IDC

- Funding for ESCO's

■ USAid

- Assist banks with loans & capacity

■ UNIDA

- Mainly industrial

■ AFD

■ GIZ

■ Facilitated by SANEDI

Opportunities

- Finance needs to be more “User Friendly”
- Tax Incentives to be more building focused
- Regulation new – innovation in itself
- More awareness = opportunities for innovation
- Regulation needs to be more stringent
 - Low skilled job creation vs. higher levels

Questions?



Fire



Acoustic



Cost Effective



Thermal

Comfort and Energy Efficiency