



## TECHNICAL NOTE #13

### Will Eurocode 6 Impact on SA clay brick dimensions?

The Eurocodes are the ten European standards (EN; harmonised technical rules) specifying how structural design should be conducted within the European Union (EU). Neither SANS 227 or EN 771-Part 1 (covered by Eurocode 6) specify a work size for masonry units. Thus Clay Brick producers will not be pressured to adopt the less productive UK standard brick format of 210x102.5x65 mm.

#### TECHNICAL CONTRIBUTOR

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## WILL EUROCODE 6 IMPACT ON SA CLAY BRICK DIMENSIONS?

Neither SANS 227: Specification for Burnt Clay Masonry Units or EN 771-Part 1: Specification for Clay Masonry Units (covered by Eurocode 6) do not specify a work size for masonry units, but both state that the work size shall be declared by the manufacturer.

Thus Clay Brick Association members will not be under any pressure to adopt the UK standard brick format of 210x102.5x65 mm. Reducing the height from 73 mm to 65 mm reduces bricklaying productivity, which is not desirable.

Both SANS 227 and EN 771-Part 1 specify tolerance categories for the average and individual fired dimensions based on the measurement of a representative sample (SANS 227 sample size 32, EN 771-Part 1 sample size of 10).

In my experience a sample size of 10 is too small to make an informed decision regarding the compliance of a batch of bricks. We will have a good case to retain the sample size of 32.

The following tables compare the tolerance categories between SANS 227 and EN 771-Part 1.

Tolerance or maximum range in the dimensions of individual units measured from the sample.

SANS 227 Category	Tolerance mm	EN 771 Category	Maximum Range mm
FBX	L=+- 5mm	R 2	L=+- 4.5 mm
	W=+- 3 mm		W=+- 3.1 mm
	H=+- 3 mm		H=+- 2.6 mm
FBS	L=+- 7 mm	R 1	L=+- 8.9 mm
	W=+- 4 mm		W=+- 6.2 mm
	HH=+- 4 mm		H=+- 5.1 mm

For SANS 227 these tolerances are mandatory, whereas for EN 771-Part1, the manufacturer may ignore R1 and R2 and declare the maximum range of dimensions which will be achieved in that manufacturer's deliveries.

Maximum deviation of the sample mean from the specified work size, in this case assumed to be 222x106x73 mm for both standards.



SANS 227 Category	Max Deviation mm	EN 771 Category	Max Deviation mm
FBX	L=+-2.5 mm	T 2	L=+- 3.7 mm
	W=+- 1.5 mm		W=+- 2.6 mm
	H=+- 1.5 mm		H=+_ 2.1 mm
FBS	L=+- 3.5 mm	T 1	L=+- 6.0 mm
	W=+- 2.0 mm		W=+- 4.1 mm
	H=+- 2.0 mm		H=+- 3.4 mm

SANS 227 has a tighter specification for the variation of the sample mean from the declared work size.

Again EN 771-Part 1 permits the manufacturer to declare a deviation which differs from T 1 or T 2.

## ABOUT THE EN EUROCODES

The EN Eurocodes are expected to contribute to the establishment and functioning of the internal market for construction products and engineering services by eliminating the disparities that hinder their free circulation within the Community. Further, they are meant to lead to more uniform levels of safety in construction in Europe.

The EN Eurocodes are the reference design codes. After publication of the National Standard transposing the Eurocodes and the National Annexes, all conflicting standards shall be withdrawn.

It is mandatory that the Member States accept designs to the EN Eurocodes

They are currently at the stage of maintenance and evolution in order to address the variety of new methods, new materials, new regulatory requirements and new societal needs developing and to extend harmonisation.



## THE EN EUROCODES APPLY TO

- structural design of buildings and other civil engineering works including:
- geotechnical aspects;
- structural fire design;
- situations including earthquakes, execution and temporary structures.

For the design of special construction works (e.g. nuclear installations, dams, etc) other provisions than those in the EN Eurocodes might be necessary.

## THE EN EUROCODES COVER

- basis of structural design (EN 1990);
- actions on structures (EN 1991);
- the design of concrete (EN 1992), steel (EN 1993), composite steel and concrete (EN1994), timber (EN 1995), masonry (EN 1996) and aluminium (EN 1999) structures; together with
- geotechnical design (EN 1997); and
- the design, assessment and retrofitting of structures for earthquake resistance (EN 1998).

## CEN/TC250 PRODUCES THE EN EUROCODES

The EN Eurocodes are developed under the guidance and co-ordination of CEN Technical Committee 250 (CEN/TC250) "Structural Eurocodes".

CEN is a technical organisation composed of the National Standards Bodies of 33 European countries.

In addition to the full Members, CEN has Associate Members which are broad-based European organisations, representing particular sectors of industry as well as consumers, environmentalists, workers, and small and medium-sized enterprises. National Standards Bodies from EU neighbouring countries which have links with EU or EFTA are participating in CEN with an Affiliate status

The European Commission and the EFTA secretariat act as CEN's Counsellors for policy issues.

### **For further information:**

The Clay Brick Association of South Africa

Website: [www.claybrick.org](http://www.claybrick.org)