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SA TIMBER HOMES**

QUALIFICATIONS: Studied for :-

- **Higher National Diploma in Civil Engineering**

WORK HISTORY

- **Basil Read Construction – 15 years**
- **Sunlines Furniture Manufacturer**
- **Timber Frame Builder**
- **International Timber Frame Builder**
- **Director on the ITC-SA board**



Timber Frame Homes (SANS 10082)



AGENDA

- **What is a Timber Home?**
- **Characteristics of Timber Homes!**
- **Why build to a standard?**
- **Looking to the future.**



What is a Timber Home?



Source unknown



What is a Timber Home?



Eco Log Homes



What is a Timber Frame Home?

Timber frame building is a versatile, time-tested method of natural building that allows you to create beautiful, sturdy buildings.



Rustic Homes



What is a Timber Home?

Timber frame buildings have been around for thousands of years in ancient Japan, continental Europe, and Neolithic Denmark, England, France, Germany, parts of the Roman Empire and Scotland.



Denmark 1560

Post and beam construction



Characteristics of Timber Homes

- **Longevity**
- **Lived in by 70 % of the developed world**
- **Can be multiple storey, commercial or industrial**
- **Have lots of character.**
- **Interesting features can be built in.**
- **Can blend into the environment.**
- **Suitable for steep terrain and environmentally sensitive sites.**





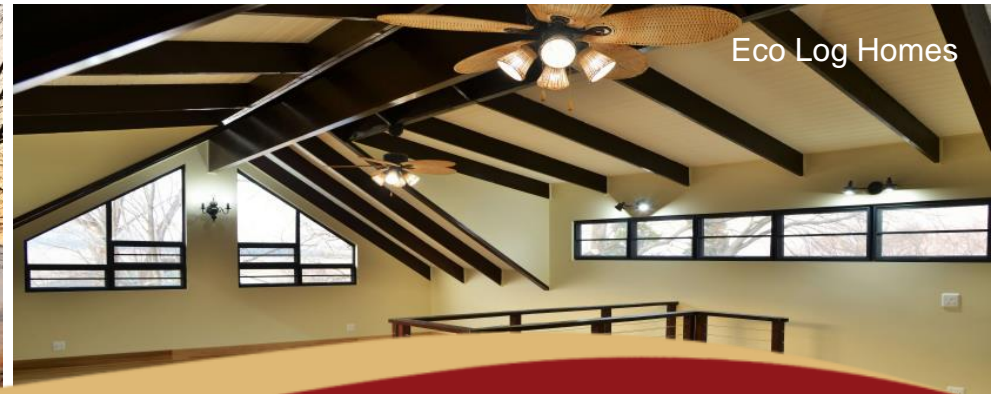
Longevity

Borgund Stave Church
1150 AD Norway



Occupied by:-

70% of the developed world's population lives in timber frame houses. These include many in the USA, Canada, Scandinavia, Europe, New Zealand, Australia and Japan.



Timber structures can be multi storey as well as multiple residential



Commercial and Industrial

Timber Buildings are gaining popularity in South Africa



Timber Homes have character



Interesting features and later additions and alterations are easily carried out



Timber Homes blend into the natural environment with minimal impact on the surroundings



**Almost no damage to the surrounding vegetation.
Ideal for environmentally sensitive and steep sites**



Why build to a standard?

Timber structures that are not built to the standards may collapse



Why build to a standard?



Why build to a standard?

Built to the standard, a timber frame home should last centuries



Why build to a standard?

Incorrect treatment may result in a timber frame home only lasting a few years



Why build to a standard?

Correct treatment will ensure life long durability



Why build to a standard?

Incorrect insulation will result in heat in summer and cold in winter.

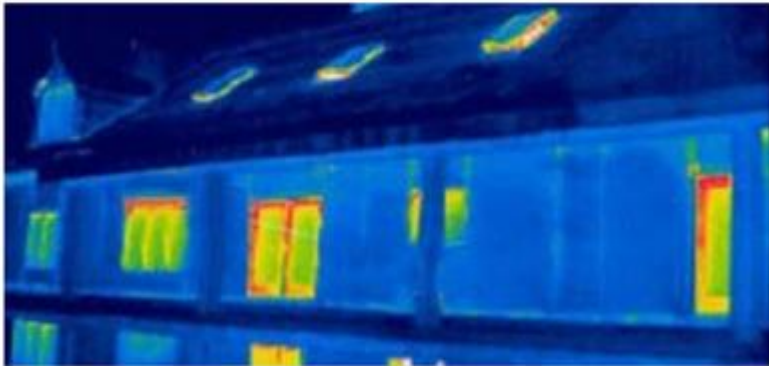


Why build to a standard?

Correct insulation will result in outstanding climate control and sound insulation

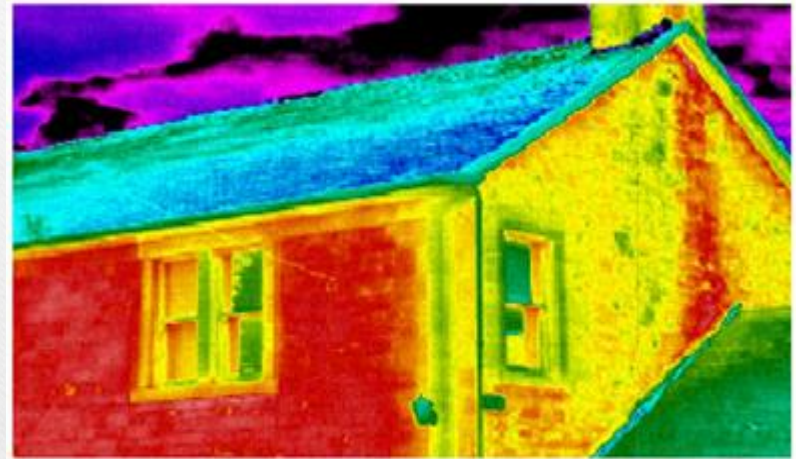


Correct Insulation



Timber Frame Home

Infrared camera tells the story



Brick and Mortar Home

Why build to a standard?

Incorrectly constructed timber frame homes create a fire risk



Fire Risk

- Timber performs better than many other building materials in the event of a fire. It chars and burns at a slower rate and is less likely to melt or collapse.
- Correctly built, a timber home comfortably measures up to South African fire safety requirements. The charring rate of timber is **0.6 mm per minute**. This figure is widely accepted internationally and has been the subject of extensive published research.
- The charred timber prevents oxygen reaching unburnt timber, thus extending the structural integrity of the burning timber.



Why build to a standard?



Why build to a standard?



Correct Standard – SANS 10-082

Timber Frame Construction is not an ABT and timber structures must be built to the SABS standard.

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Edition 4

SABS

South African Bureau of Standards

SOUTH AFRICAN NATIONAL STANDARD


Timber frame buildings



Correct treatment is critical H 4 Poles (Piles) at 24 years



Correct Timber Treatment

HAZARD CLASS SYMBOL	H3	H4	H5
END USE APPLICATION (typical examples)	External Above Ground	In Ground Contact	In Fresh Water / Wet Soils
	Balustrades Fencing bearers and slats Outdoor decking and beams Garden furniture Laminated beams Weather board Steps Cladding Stairs Timber Homes Gates Fascia boards Plywood	Agricultural posts Landscaping structures Playground structures Fencing Pergolas Carports Flower boxes Decking Bridges Stakes Garden Edging Transmission Poles	Piling Retaining Walls Slipways Culverts Flood Gates Jetties Drains Walkways

Using sustainable timber

- Timber is a renewable resource – in sustainable plantations, harvested trees are constantly replenished.

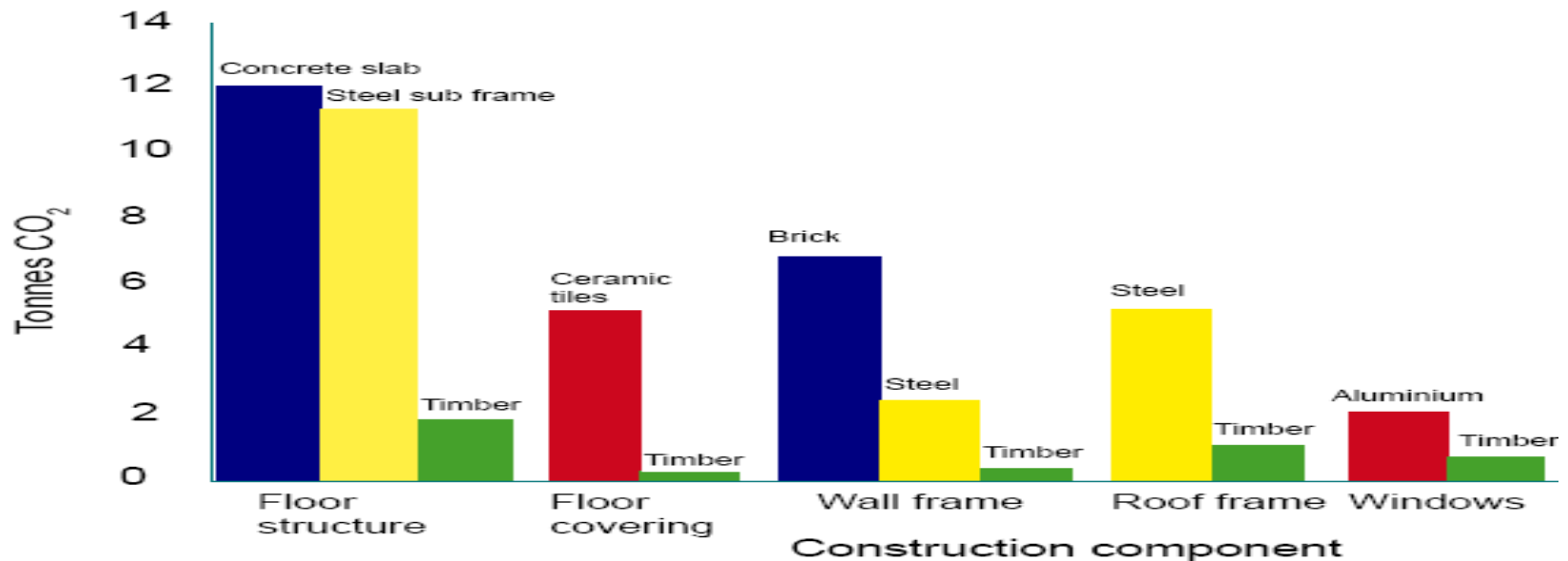


Energy requirements and greenhouse gas emissions



Timber is a practical solution to a lower carbon footprint

- Typical Residential Home ($\pm 200\text{m}^2$)



Environmentally friendly



Looking to the future

International trends?

- “Most European countries are strong advocates for the implementation of the Kyoto protocol and thus **all new buildings in Europe will undergo an energy audit** and be attributed an energy rating, so that buyers have the ability to distinguish energy efficient from energy inefficient buildings. **It is estimated that one-third to one-half of all GHG emissions are attributable to building construction** and operation costs.

REF : UK Timber Frame Association.

1-<http://www.timber-frame.org/>

2-<http://communiqués.gouv.qc.ca/gouvqc/communiqués/GPQF/Avril2006/20/c9105.html>

3-Ürge-Vorsatz et al. 2007. Appraisal of policy instruments for reducing buildings' CO2emissions. Building Research and Information. Volume 35. Number 4. July/August 2007.

4-Lowe, Robert. 2007. Editorial: Addressing the challenges of climate change for the built environment. Building Research and Information. Volume 35. Number 4. July/August 2007.



Looking to the future

Timber Homes are gaining popularity in South Africa



Eco Log Homes



Looking to the future

Timber Homes in the countryside



Eco Log Homes



Looking to the future

Timber Homes in the mountains



Timber Homes in the countryside

Looking to the future

Timber Homes in the suburbs



TAKE AWAY?

- Correctly build timber frame homes have many exceptional benefits.
- Timber frame buildings should be built in strict accordance to the SANS 10-082.
- The ITC-SA can provide you with a list of industry experts that can assist in understanding and implementing standards.
- Timber frame homes are gaining popularity in South Africa.



FINAL TAKE AWAY?

Australia has recently amended their building codes to allow timber structures up to 25 metres tall.

Timber frame structures could alleviate South Africa's housing shortage and poor building practices in a very short space of time by pre-manufacturing homes and then creating entrepreneurs to erect them.



THANK YOU

www.itc-sa.org

