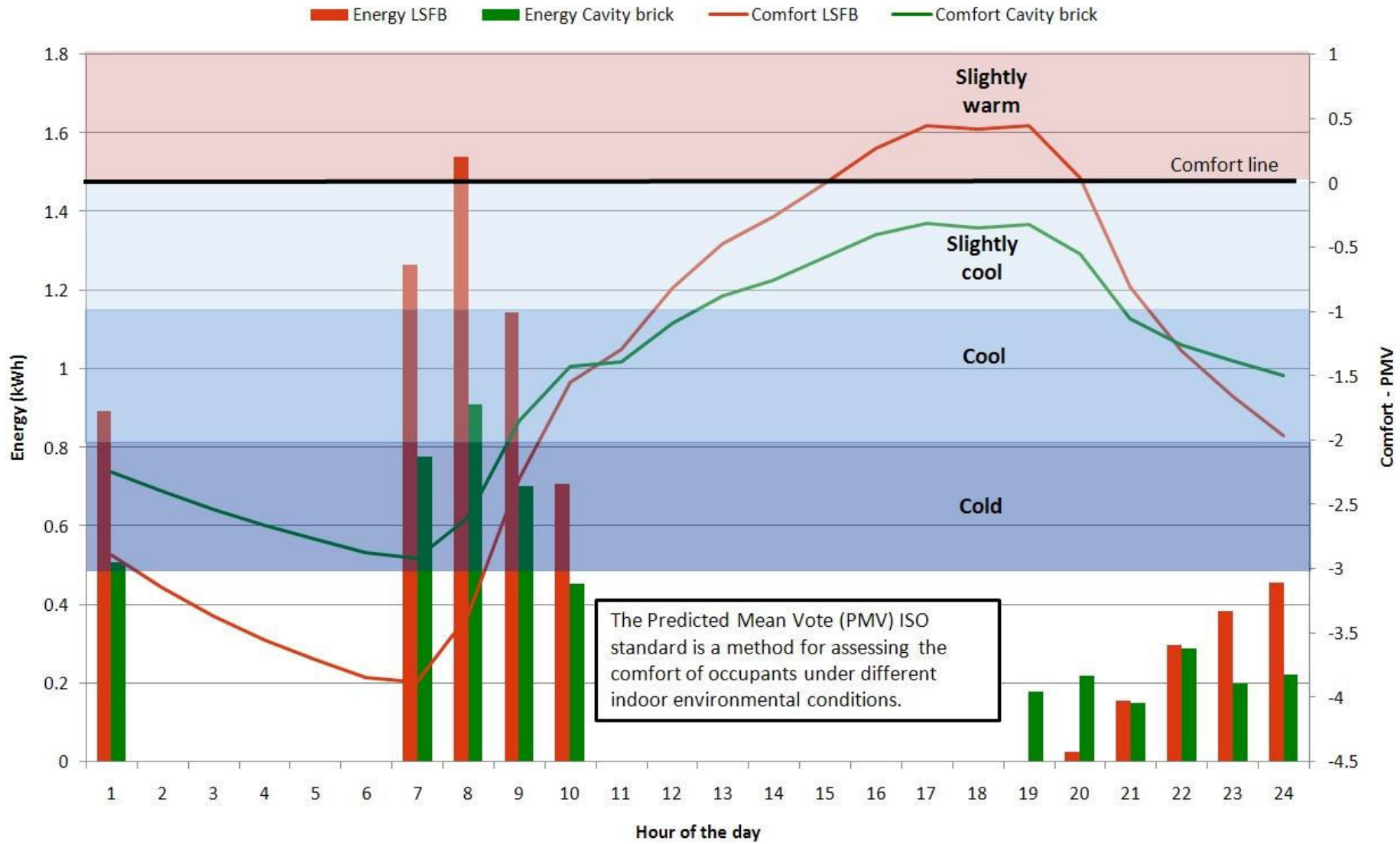
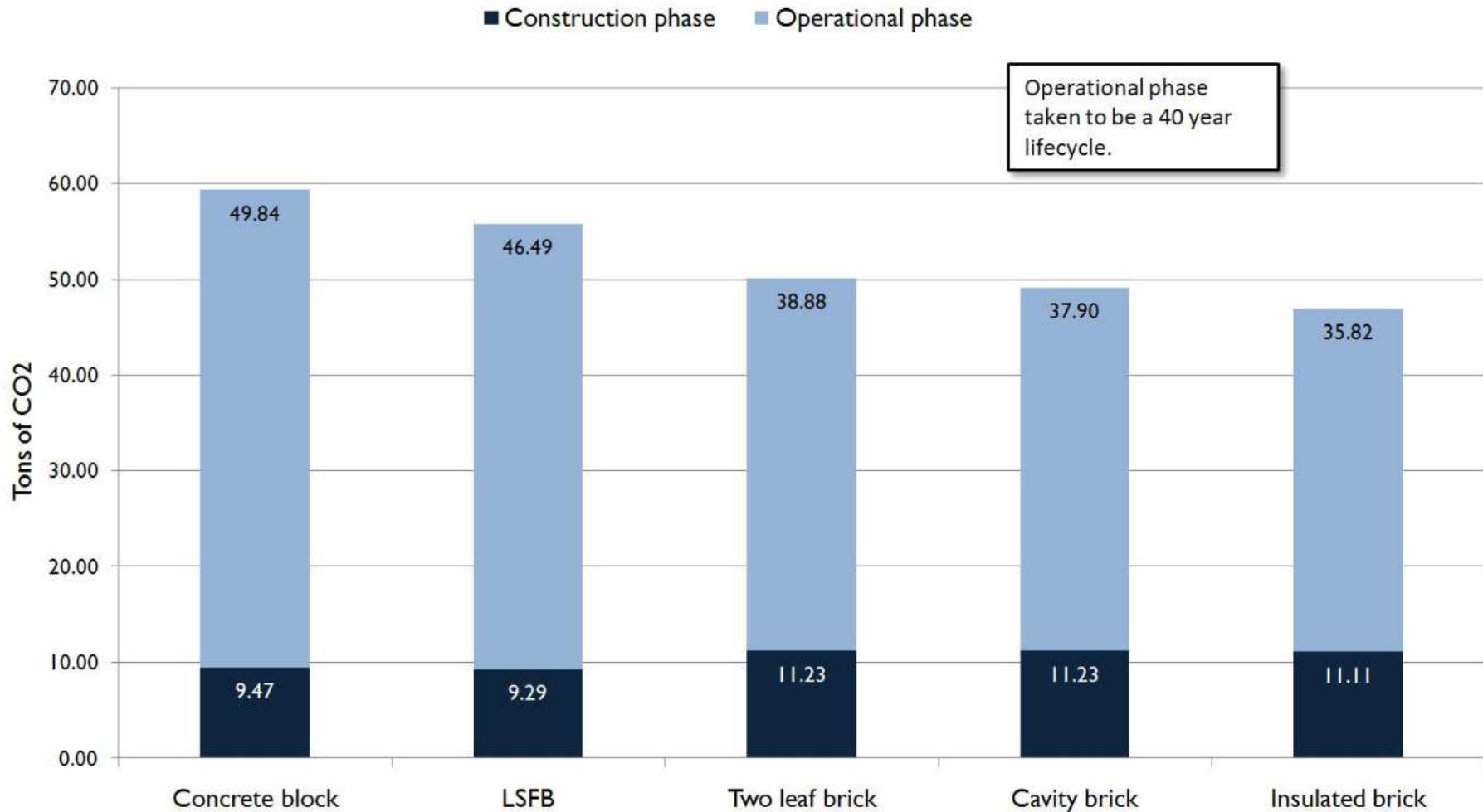


Energy required to achieve comfort on winter solstice - Johannesburg



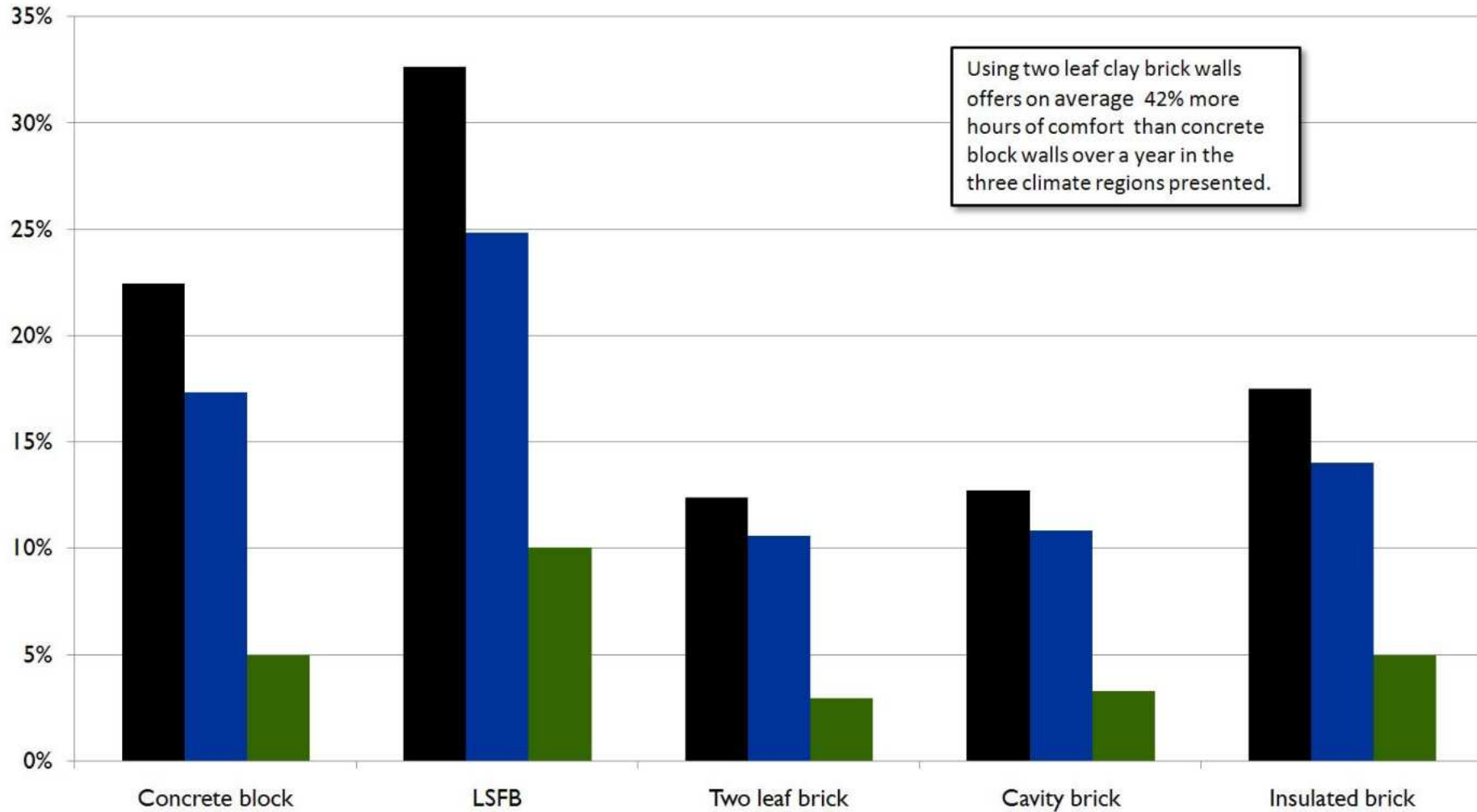
Carbon footprint (construction and operational heating energy) - Johannesburg



Data sourced from embodied energy study undertaken by Econic Environmental Consultants

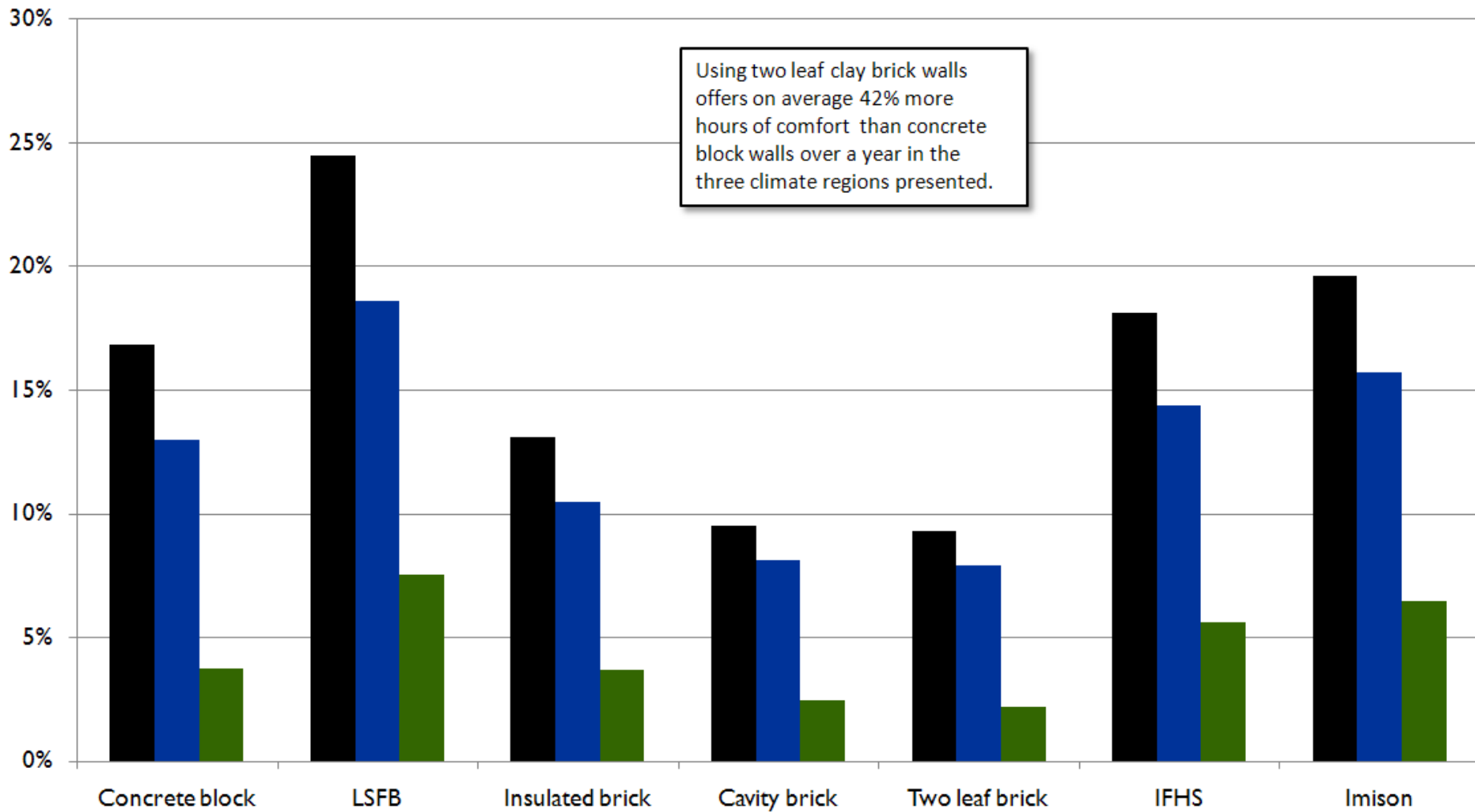
Percentage of time occupants experience high thermal discomfort (PMV outside of ± 3 band)

■ Johannesburg ■ Cape Town ■ Durban

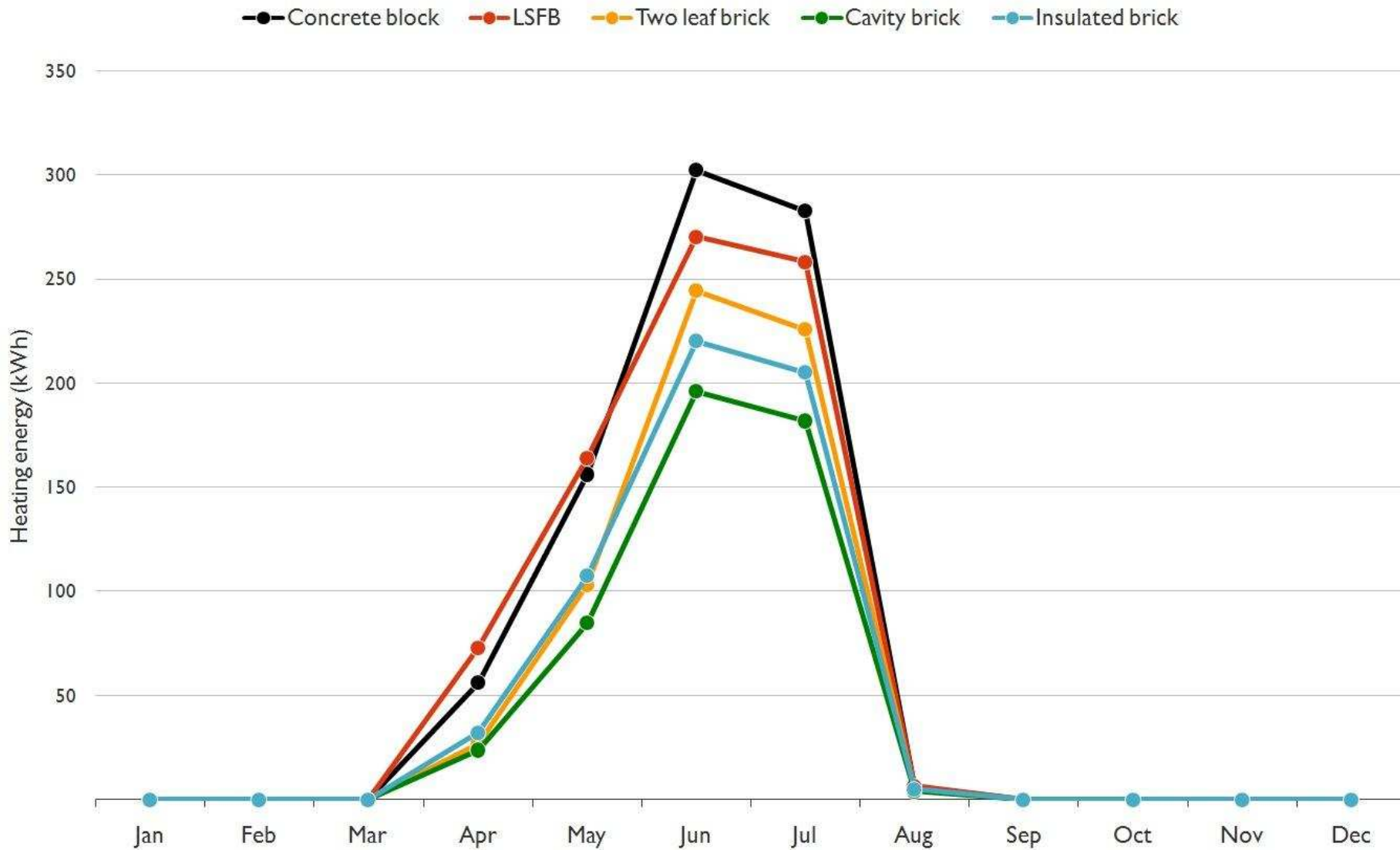


Percentage of time occupants experience high thermal discomfort (PMV outside of ± 3 band)

■ Johannesburg ■ Cape Town ■ Durban



Monthly heating energy in low cost house - Average of six climate zones



Increase in annual energy consumption

Concrete block and clay brick

Additional heating requirement for a concrete block house in comparison to a clay brick house.

Climate zone	Percentage increase
1 Johannesburg	22%
2 Pretoria	29%
3 Nelspruit	30%
4 Cape Town	21%
5 Durban	50%
6 Kimberley	19%

The annual heating energy saving when comparing concrete block walling and clay brick walling in low cost housing is illustrated for different climate zones. Ceilings insulated to SANS DTS.

Cavity clay brick used in Southern Cape condensation problem areas.



Legend



Increase in heating energy required by a concrete block house in comparison to a clay brick house.

Energy required to heat a clay brick house for one year.

Pie chart size represents amount of energy required for heating annually.

- Concrete block – increase in energy
- Two leaf clay brick
- Cavity clay brick

Prepared by WSP GREEN by DESIGN

Increase in annual energy consumption

Light steel frame and clay brick

Additional heating requirement for a light steel frame house in comparison to a clay brick house

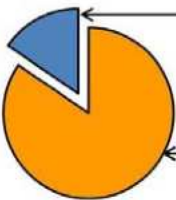
Climate zone	Percentage increase
1 Johannesburg	16%
2 Pretoria	31%
3 Nelspruit	33%
4 Cape Town	19%
5 Durban	61%
6 Kimberley	8%

The annual heating energy saving when comparing light steel frame walling and clay brick walling in low cost housing is illustrated for different climate zones. Ceilings insulated to SANS DTS.

Cavity clay brick used in Southern Cape condensation problem areas.



Legend



Increase in heating energy required by a light steel frame house in comparison to a clay brick house.

Energy required to heat a clay brick house for one year.

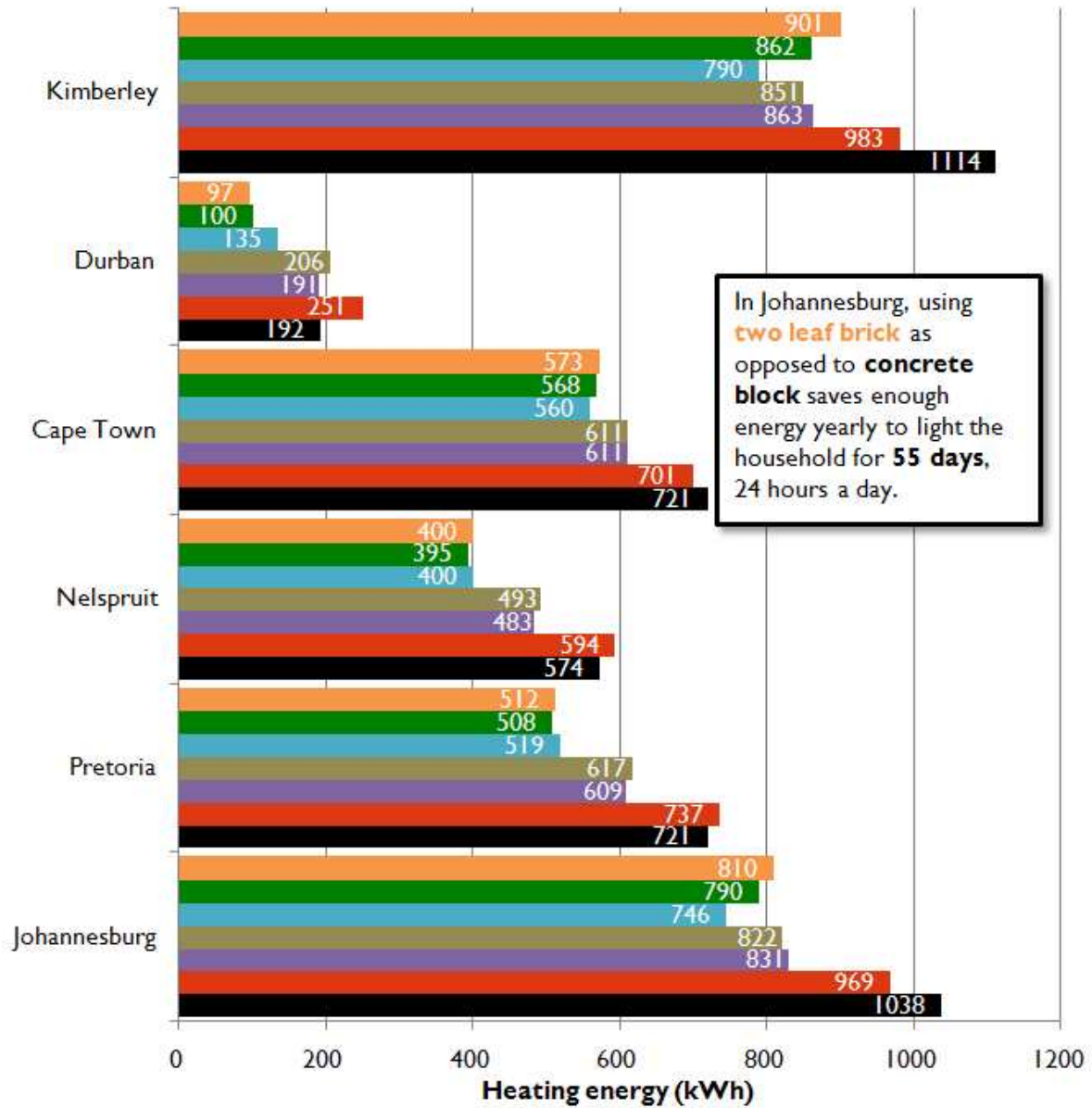
Pie chart size represents amount of energy required for heating annually.

- Light steel frame – increase in energy
- Two leaf clay brick
- Cavity clay brick

Prepared by WSP GREEN by DESIGN

Heating energy per annum

■ Two leaf brick
 ■ Cavity brick
 ■ Two leaf insulated brick
 ■ Imison
 ■ IFHS
 ■ LSFBS
 ■ Concrete block



In Johannesburg, using **two leaf brick** as opposed to **concrete block** saves enough energy yearly to light the household for **55 days**, 24 hours a day.

Heating energy per annum

■ Two leaf brick
 ■ Cavity brick
 ■ Two leaf insulated brick
 ■ LSFBS
 ■ Concrete block

