



# Double Storey Brick Home with Timber Flooring

## THE HOME

This home was experiencing high utility costs, a need to rationalise the number of electricity meters, and to have a more thermally comfortable home.

An architectural marvel, this home is a substantial two story construction about 20 years old. The walls are cavity brick built with a suspended concrete slab flooring. The first floor is brick veneer with timber flooring and it has pitched roofs with timber truss construction. The front door faces east and is covered by a portico. A large paved area adjoins the kitchen, family and living room. The home has flued LPG gas heaters and two open fire places with chimneys. There are five sets of external French doors and many windows, making it well laid out for solar access.

## THE CHALLENGES:

### High Level of Uncontrolled Draught:

Uncontrolled winter air leakage proved to be the major reason for the lack of thermal comfort and high power costs. High power bills were also as a result of two energy meters and peak usage. A phased improvement approach is being undertaken by this household to maximise the home's performance as their budget allows.

While the window and door timber joinery was well constructed with tight fitting joints, no provisions were made for draught proofing any of the windows and external doors. The five sets of external French doors have a greater scope for draughts than regular single hinged doors. None of the windows were sealed to the brickwork on the outside.

The French doors are prone to air leakage and are more difficult to seal. They require specialised door seals to be fitted around the perimeter, bottom edge and centre seam of the doors in order to prevent air leakage from occurring.

### Single Glazed Windows and Doors and Insufficient Curtain Pelmets:

Single glazing is a very good conductor of heat. This means the windows, although well sealed against draughts, are still conducting the winter heating to the outside atmosphere. The performance of the glazing can be greatly improved by the addition of heavy weight drapes with boxed pelmets. This arrangement effectively traps a layer of still air between the glazing and the closed drapes. The pelmet is necessary to stop air flowing freely between the drapes and the window.

In many cases this is more effective than double glazing. They are of course only effective when drawn, usually at night, whereas double or triple glazing is effective regardless of the time of day.

### Double the Average Victorian Household's Greenhouse Gas Emissions:

The household's energy costs are much higher than necessary and have the potential of being reduced by up to 79%. The total consumption generates 35.17 tonnes of greenhouse gas emissions. This rate of greenhouse gas emission is more than double the Victorian average (around 3 tonnes per person) which takes into account all greenhouse gas emissions-not just from home.



## THE RECOMMENDED SOLUTIONS:

### Professional Draught Proofing:

Architectural quality door sealing kits were fitted to all French doors. Customised strip sealing was attached around the perimeter of the doors and draught weather excluders were fitted to the bottom of the doors. The internal doors to the utility areas were sealed with brush door seals.

Effective draught proofing includes such measures as sealing external doors, stopping air flow through exhaust fans (while not in use) and sealing gaps, cracks and wall vents. It also includes sealing internal doors to wet areas such as laundry, bathroom and toilet as these areas are often unheated, ventilated for drying purposes, and generally colder than the rest of the home.



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### Window Treatments:

Heavy drapes and pelmets were added to the French doors and windows.

### Energy Consumption Rationalisation / Off Peak Consumption:

We recommend disconnecting one electricity meter and have all services moved to the second meter which is a smart green' domestic meter; re-negotiating a cheaper rate of gas supply, including gas supply rates; moving to new suppliers; liaising between electricity distribution and retailer; rationalising electricity supplier; negotiating green and more cost effective domestic suppliers; and engaging and managing electricians.

**Further solutions recommended to bring this home up to 5 stars:** Chimney dampers, wall, ceiling and underfloor insulation.

