



CONSTRUCTION METHODS



MASTER BUILDERS
SOUTH AUSTRALIA

There has been a real revolution in the styles and fabrics of homes available in South Australia. The past five years have seen the advent of SIP (Structural Insulated Panels), precast tilt up slab designs, and rendered AAC/ Foam designs.

It is fair to say that the majority of homes being built in SA are larger homes on smaller blocks of land. The advent of two-storey high density living.

The availability of new materials and the acceptance of new designs have radically changed the appearance of new homes being built. Whilst many of these new homes embrace the features of past classical designs the changes have brought new possibilities and choices to clients building homes.

None the less, the traditional South Australian architecture captured by the return veranda federation villa remains popular even today.

Brick Veneer

The majority of homes built are brick veneer with a wooden or steel frame on a slab foundation. The brickwork is the external cladding and is tied to the internal frame that the internal linings are fixed to. There is a cavity between brick and frame where services can be run and the cavity and frame allow the fitting of insulation.

Double Brick

This method was widely used up until the 1960's where a second layer of bricks replace the frame. In most cases the internal brick wall was hard plastered.

Stone and Block

In the case of the gracious bluestone and sandstone villas and federation homes many of the front and side walls of a home were constructed of stone. The stones was often pointed and hard plastered internally to provide a smooth finish.

Alternative Construction Methods

There are many other methods of construction including, Hebel Power Panels, mud brick, pole frame, straw bale, timber rammed earth and many cladding manufactured board systems on timber and steel frame. These are usually rendered.

Before building you should do extensive research on the advantages that each system will provide. Make sure that the features of the method suit your environment, climate and your living requirements. Energy efficiency is an important issue in your decision of building system and floor plan.

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Foundations and Footings

Often wrongly referred to as the foundation of the house, the footing is the reinforced concrete structure that is constructed in preparation for the building of the home. The foundation is the soil strata upon which the footings for the house are constructed.

The foundation supports the footing that in turn supports the superstructure of the house.

The majority of homes are built on a slab but there are other sub floor systems that are particularly suited to slopping sites.

All the preparation and planning in building your home starts to take shape with construction of the footing. The most common footing system method in South Australia is excavation for footings that then support a concrete slab. However, there are advantages in every system of construction available. Therefore, it is important to choose a designer or architect and a builder that has experience in the method of construction that you have decided on.

The site is prepared by digging trenches for the footings, a plastic vapour barrier membrane is then fitted to the trenches. The steel reinforcing is added and formwork installed before pouring the concrete footing and slab.

The slab acts as a termite protection and is the foundation for the home. There are variations to slab footing such as Waffle Pod method that was developed to compensate for South Australia's very reactive soils.

If you have a sloping site there are many methods and systems to build without changing the natural contour of the land. Traditionally homes in South Australia used the dwarf wall method as the sub floor system.

Frame

Traditionally timber has been used for framing in house construction. However, steel framing is achieving a growing market share. Both systems have advantages. Timber is readily available in all common sizes, all trained carpenters can use the product expertly, it has a proved record and if the frame is to be exposed, then it can be aesthetically pleasing. Timber can be treated to prevent termite attack.

Steele is termite resistant, lightweight, delivered on site in modules, quick and easy to fabricate and erect and there is a growing number of carpenters being trained to built with the material.

Cladding

There are many methods of external cladding of frames, such as the use of manufactured boards, timber like western red cedar, Colorbond or coated steel sheets.

Roofing

Roofs come in all different shapes and sizes but the majority of roofs are either masonry or sheet material clad. All roods can be divided into two categories, flat or pitched roofing.

The roof frame is generally constructed from a timber or steel frame. The traditional roof construction is built on site, however, with simple roof prefabricated trusses are often used and fixed on site.

Generally the structure of the roof is determined by the design of the home. There are designs that are particularly suited to flat roofs and most people are familiar with the pitched roof with classic gables and valleys.

The choice that the homebuilder has to make is whether to have a masonry tiled roof or a sheet metal roof. There are advantages of either a masonry or metal roof.

Tile Roofs

Tile Roofs can be constructed from terracotta or concrete roof tiles. The look is classic and suits many of the popular styles of homes built today. Masonry tiles are available in many colours and profiles. Tiles are also available in other traditional materials like slate and shingles. Sarking can also be used under tiled roofs as a moisture barrier and insulator, particularly in high wind areas, on roofs that have flat roofs and with some profiles of tiles.

Metal Roofs

There is nothing like the sound of rain on a tin roof on a cold night. Tin is not quite the correct terminology, but it's a term we have used for many years. Sheet metal roofs are made from either steel that is coated to withstand the elements, or from metal that is highly resistant like copper. However, copper is very expensive and the majority of roofs are made of steel that is coated. Colorbond is the most widely used and is available in continuous lengths and 22 different colours. Most roofs where rain water harvesting is required are sheet roofs because the harvested water is cleaner.

Windows, Eaves etc.

Some other decisions that need to be made aside from colour and material selections, include whether or not your home has eaves.

There are many homes built today that replicate the Georgian style that did not use eaves. Think about the eaves before deciding not to have them on your home as they provide protection from the sun in summer and insulate your home.

Whether to have aluminium or timber windows is another decision that needs to be resolved.

Consideration needs to be given to location and environment, maintenance and aesthetics when considering the choice of windows, furthermore the energy efficiency of windows is dependent on factors like thermally broken windows, double-glazed or improved glass. Making the decision on which window to use should be done carefully because window selection is one of the most cost sensitive parts of a buildings fabric.