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unique and individual

Something Special in a Family Home

In this house, we've created something special in a family home. Sustainable choices in construction methods and materials, energy efficiency and a high quality finish that included a bit of 'wow' factor have all been achieved. Rammed Earth walls provide thermal mass maintaining a comfortable climate inside a home with generous space and an inherent liveability.

When our clients came to us to discuss their project, we knew we were the right Builders for the job. Their desire to create something special for their family home in Wangaratta included aspects of the construction that we have been providing in many prior projects. Sustainability in construction methods and materials, Energy efficiency in the operation of the home and a high quality finish that included a bit of 'wow' factor were all objectives for them. We introduced them to a local Building Designer and together they developed the design that ultimately meant all the clients intentions have been realised.

The home is large enough for this young family. Separate Study and Living rooms complement the main open plan Living area by providing alternative spaces for family life. The house is heated by a Hydronic heating system in the concrete slab and the insulated Rammed Earth walls help provide significant amounts of thermal mass that retain this warmth inside the home. The ease of living is created by the generous space and the inherent thermal efficiency of the home.

The end result has been a visually interesting home, well suited to its aspect and environment. The completed house is in a small single road Estate where all the neighbouring homes cling resolutely parallel to the fence line. By thinking through the possibilities the large block offered with orientation, the house has a level of functionality and thermal efficiency that means the Owners comfort and lifestyle is catered for in a home that complements its surrounds and achieves low levels of energy consumption.

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This is yet another project we've undertaken that is an outstanding example of an energy efficient design that has been achieved without sacrificing contemporary standards of finish and aesthetic design.

The 6.6 Star thermal performance rating has been achieved with attention to the detail of the thermal performance features including sealing and insulating the House thoroughly.

The total list of energy efficient and sustainable design features is impressive:

- Solar passive design using northern aspect for best effect.
- Insulated concrete slab with R.1.0 polystyrene sheet extending under the slab and vertically on the slab edge.
- Custom made Feature Timber Entry doors from M.Cavallin Joinery.
- Stegbar Siteline Timber Aluminium composite Windows, double glazed, for thermal performance.
- Polished Concrete floors constructed with 32 mpa 'Milawa Mix' blend concrete to North facing living areas for thermal mass properties.
- Rammed Earth Walls, cement stabilised and insulated.
- Cathedral Ceiling feature trusses to Living/Dining, custom made from new Kiln Dried Hardwood, connected by concealed steel plates.
- Recycled Jarrah beam and Iron Bark posts in the Kitchen/Living area.
- Hydronic Heating embedded in the concrete slab and connected to a high efficiency condensing boiler.
- Air Conditioning by two x Braemar LCB450 12.3kw evaporative air conditioners ducted to nine outlets throughout the home.
- Board & Batten wall cladding made from Radially sawn Silvertop ash, 100mm bottom board, 75mm top board complete with Silvertop ash weatherboard stops
- Cross flow ventilation – windows and doors on North and South faces allow cross-flow ventilation for cooling with proprietary seals that prevent heat loss when closed.
- A variety of wall fabrics, using external finishes over an insulated frame covered with a breather membrane.
- Complete sealing of Proctorwrap wall fabrics against windows and door frames to reduce the risk of condensation and allow for control of air movement.
- Pergola Construction in 185 x 42mm pre-primed and finger jointed, rot and termite resistant pine supported by 150 x 150 Iron bark posts.
- No recessed down lights of any type in the internal ceilings of the house to ensure a well-sealed envelope and no gaps in insulation.

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- The building is located on a lifestyle block and is connected to town water. However the Owners have elected to harvest their rainwater into a 22,000 litre tank. The home owners are determined on collecting rain water to meet their needs within the house.
- Blue Mountain Mesh gutter guard that maximises the amount and cleanliness of water reaching storage tanks and reduces the bushfire risk.
- Extensive levels of Insulation.
  - R4.1 glasswool ceiling insulation batts to House, Garage and Bike store
  - R2.5 high density glasswool wall insulation batts to all external stud walls
  - R2.0 bulk insulation to Garage and Bike store walls
  - R2.0 Sound Screen to internal stud walls to areas shown on floor plans
  - Reflective Foil roof Sarking by Roof Plumber below roof iron generally
  - CSR Proctorwrap as membrane to external walls
  - R1.0 styrene subfloor insulation to Raft Slab edge
- Custom Kitchen, Laundry and Bathroom joinery design using a blend of natural and contemporary finishes.

Custom designing a new home, using passive solar design principles, takes advantage of the climate that surrounds us. Australians often design homes that focus on resisting the environment around us, meaning we consume energy in constructing and running these buildings. Intelligent thermal design reverses that trend.

Homes like this one that use solar passive design can significantly reduce the need for additional heating or cooling, which, according to 'Your Home', accounts for about 40% (or more in some climates) of energy use in the average Australian home.

The Building design and specification called up a number of materials and process that require Builders to be earnest about their care of construction. The construction methods we use daily helped bring the design to its full potential thermally with considerable insight and application of techniques that ensure a well sealed and thermally efficient home.

- The Polished Concrete floor incorporated an insulated slab edge and Hydronic heating fit out so great care was taken to protect the floor during and after construction. Seconds carpet was laid on the floor for protection during the build. Dedicated access ways with temporary timber steps were in place to reduce the import of abrasive gravel and dirt. A final buff of the floor took place in the end stages of the job.
- The Feature timber trusses were made from select grade timber and constructed in our workshop off site. Care was taken to minimise the visibility of steel connecting plates required by the Structural Engineer
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- Recycled timber was selected for the feature post and beams in the living area. This was personally selected from a Timber yard near Geelong on the basis of size, condition and species. The feature post is Ironbark, the beams are Jarrah. They required significant work to bring them to the state they are now in and their rustic effect counterpoints the highly finished floors.
- Rammed Earth walls were the first structures built on the slab and are insulated in their core. The gravel was sourced locally and the contractors travelled from Melbourne for the project. Connection details of the windows and doors within the Rammed Earth were devised to minimise the profile of trims and accentuate the visible area of the Rammed Earth.
- Board & Batten Silvertop ash cladding is an elegant and effective form of timber wall fabric. We've screwed each external board on with a high quality screw, superior to standard bugle battens. Corner details and window sills were a challenge for us to devise effective solutions. The raking ceilings of the eaves meant fitting each individual batten required painstaking measurement.
- Walk in showers that fall naturally to a stainless steel strip drain are featured in both En Suite and Bathroom. Wall niches were created using a proprietary system Ready-to-tile lightweight shelf made of rigid GRP composite. These fit into a 90mm wall cavity, have a built-in slope that prevents water ponding and a 25 year durability and leak-free warranty.

The floor areas include:

  - House area of 261m^2 or 28 squares
  - Garage area is 51.4m^2
  - Total area under roof of 415m^2 or 44.6 squares

The floor plan features include:

- Master Bedroom complete with:
  - En Suite Bathroom;
  - Walk in Robe; and
  - Vic Ash external door
- Three Bedrooms complete with built in robes
- Entry hall
- Combined Kitchen/Dining/Living area,

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- Additional Living room with French door access to Outdoor Living area
- Private Study
- Built in cupboards in the Hallway
- Undercover connection to Garage with attached Bike Store and Services room
- Northern Outdoor Living Area
- Entry porch with feature Timber facade
- Bathroom with walk in Shower
- Separate Toilet in Bedroom wing

Architecturally this is a very distinctive house with a unique aesthetic feel. The siting of the building, within the constraints of a solar passive design, has stepped away from the norm in an effective manner. However it remains a functional design that meets the Clients brief of personal responsibility for energy consumption very well.

Solar passive design using appropriate materials has also maximised comfort levels in the House, preventing the levels of Summer heat gain and Winter Heat loss that would affect the comfort levels inside. Energy efficient design was a primary factor from the outset, achieved by adhering to solar passive design principles.