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Location: Lucaston, South East Tasmania

Owner: Margot and Ken Suber

Architect: James Jones

Engineer: Gandy and Roberts Consulting Engineers

Builder: JR & JL Lewis

Constuction Date: 1988

written by: Susan Ferguson | **with:** Greg Nolan | **design:** Peter Walker

Suber Residence

Lucaston - South Eastern Tasmania

The steep, wooded and inaccessible site chosen for building this small house for Margot and Ken Suber overlooks the Huon valley in Tasmania's south east. Difficult ground conditions of exposed rock and a 1:2 ground slope generated a "thin plan form, one room wide and thirty metres long" (Jones 1988), that provides a single level platform for living.

As the only approach to the proposed site for building was from above, the roof became a key element in the design of the house. As expressed by Jones, the idea for the building was to make "one, big, hovering roof in the landscape with no flashings or roof plumbing other than a gutter", initially conceived as "a huge longitudinal trough resting on structural water tanks". Such reference to the Australian vernacular for building "sheds" - flimsy structures, clad in iron-underpins the architectural language of this house. It also reflects the influence on Jones of the work of Australian architects, Richard Leplastrier (Palm House) and Glenn Murcutt (Ball House).

The roof acts to screen the interior from the public approach to the house whilst presenting the most readable facade of the building. Being remote from town services, the roof also plays an important role in collecting water for the occupants' amenity and to fight fire.

The house therefore makes a platform for living under a sheltering roof plane. This was given architectural expression through the use of timber, particularly the **laminated** curved roof **beams** used to achieve the low slung sine wave of the ceiling which opens the view from the interior "up and out into the landscape beyond" (Jones 1988).

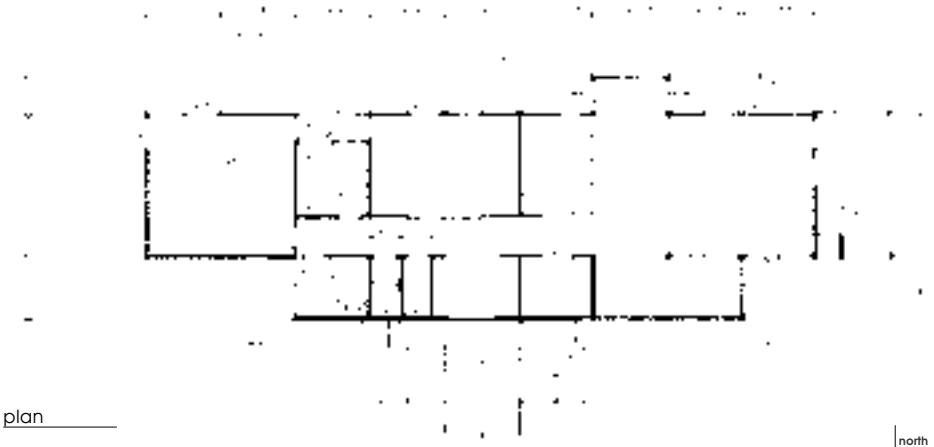
top right
the roof as viewed from the approach
photo - J. Jones

main image
view of house from the north - the house is a raised platform that floats above the landscape extending from road level
photo - L. Woolley

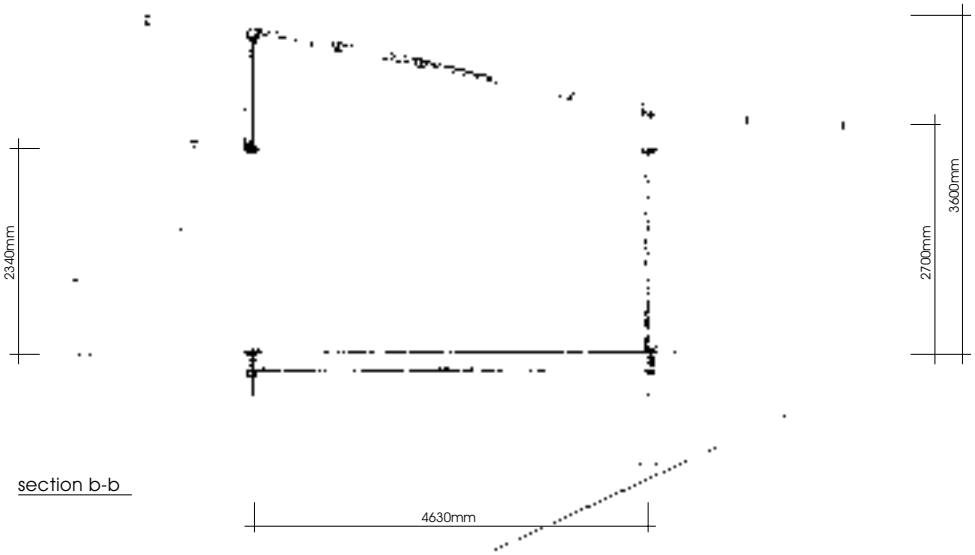
•**Description** - Originally conceived as a studio for Margot, the brief for the building was controlled by a limited budget. To address economy and provide a unique building, architect James Jones designed a highly refined **post** and beam structure determined by a regular grid based on standard sheet sizes. The building comprises one repetitive structural section with perimeter infill stud work. Such a strategy allowed for a planning flexibility whilst providing a clear series of datums that produce a proportional language to the building envelope. Standardised, low cost cladding materials, door and window joinery systems then dress and punctuate the frame.

The house has a simple parti of orienting the living spaces and decks to the north and valley outlook. The building provides its own water supply, with water tanks, fire hose reel and generator located beneath the floor. The roof has a catchment area of 200m^2 covering 130m^2 of internal space and 70m^2 of deck. Given the steep slope, the provision of covered and accessible external space was critical in the design. Access to the platform is provided under the roof overhang to the east, the aspect protected from Tasmania's notorious "roaring forties" - a weather pattern resulting in boisterous, cool westerly or north-westerly weather that affects the whole of Tasmania.

east elevation



plan



section b-b

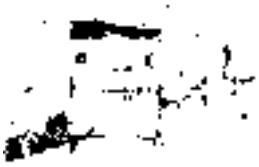
top right
north elevation

above right
the butterfly shed was an inspiration for the design
photo - J.Jones

above left
east elevation

middle left
floor plan

bottom left
section b-b (through house + slope of bank)
drawings - courtesy of the architects



• **Structural Description** - The primary grid of the post and beam system deployed in the building works on a module of 2400mm. Dimensionally therefore, walls and openings are multiples of 300mm, 450mm, 600mm, 900mm and 1200mm. In section, a datum of 600mm (sill) and 2400mm (head height) is established with highlight glazing, continuous to the perimeter walls, expressing the roof profile. This dimensional rigour, based on standard sheet sizes, therefore allows for a certain planning flexibility in determining 'wall' and 'opening' within the frame.

The platform floor of the house is supported on and braced between steel columns and beams that rest on isolated concrete piers. Oregon **joists** sit over the 200UB sub floor beams. The primary frame that comprises the extruded structural section is constructed of laminated **Tasmanian Oak** columns and roof beams. Long span Tasmanian Oak purlins sit over the curved roof beams. At the platform level, therefore, the material changes to timber with infill braced stud work and "drop in window and door panels" (Jones 1988).

The platform cantilevers to accommodate decks and utility spaces below. Tasmanian Oak and Myrtle tongue and groove flooring is used inside and marine quality Celery Top Pine decking is used externally.

The Tasmanian Oak roof beams are double curved, each curve 25m in radius, forming a low slung wave. The beams are made from short sections of 29mm glue laminated, finger jointed members. The members are 2 laminates wide to enable easy housing and minimal chisel work on site. The laminated columns are made of 4 laminates in the same 29mm glue laminated finger jointed method, whereby the laminates of the column members continue past the beam.

Plywood sheets, designed to sit on top of the beam edges, fit between the dressed roof purlins to form the ceiling and brace the roof through diaphragm action. Rather than using cover strips, the plywood joints are expressed as a 5 mm shadow line. The open joint to some degree also allows for dimensional tolerance within the ceiling geometry.

Externally the building is clad horizontally in corrugated sheet with ridge caps deployed as vertical corner flashings. Internal walls are standard stud wall construction sheeted in plasterboard to 2400mm high. Glass infill below the roof beams are again used to accentuate the hovering roof plane.

top left
architect's initial sketch of the house's relationship to the site

top right
interior as originally constructed
photo - L. Woolley

above right
house viewed from south eastern corner

• Bracing light structures - Bracing in light weight structures can be achieved by locating shear panels or skins at various locations. A shear panel is a solid panel that is constrained top, bottom and at the sides thereby "filling in" the frame. This may occur as a vertical panel between the post and beam or horizontally between rafters and purlins. The panel acts to resist **lateral movement** in the building by restricting the relative movement between the parallel members. Not all bays of a framed structure require bracing. For example, a long shear panel in the plane of the ceiling that extends the length of a structure can act to brace the entire building when connected to end wall shear panels.

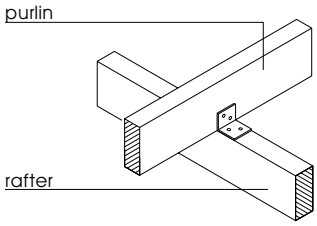
• Architectural expression of timber as exposed structural element - The lines of the expressed structural beams and columns deployed in the Suber House, express a harmony and direction in the building that work to establish an architectural vocabulary. When left in their natural tones, the choice of timber species also acts to determine a colour, a warmth and therefore a palette in the building.

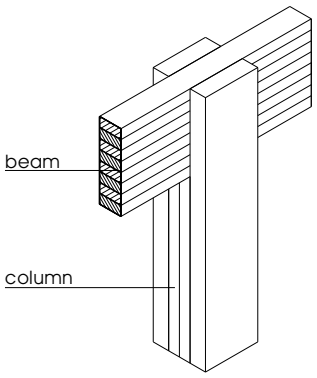
• The use of timber in standardised elements - The use of post and beam provides a means of eliminating determinants on the positions of walls in a building and therefore the way that living spaces are created. To establish a grid like structure permits open planning, free of visual obstruction. Repetitive spacing, inherent in the nature of the grid, therefore promotes a standardisation of elements in the post and beam structure. As discussed in the Suber House, such a language of architectural elements also promotes a proportional language in the building. To use repetitive elements, such as doors and windows, achieves economy and also a flexibility, in terms of retrofit.

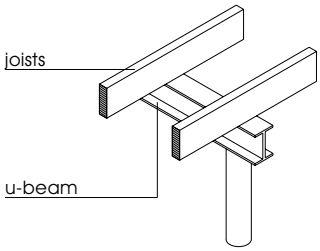
top left
curved laminated roof beams under the northern veranda

bottom left
platform under construction
photos - J.Jones

below (top to bottom)
- metal angle connection
- glue laminated beam
- stacked bearer + joist system







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Jones J.1988, "Suber House 1988", Architectural Statement (unpub.)

• glossary

beam: structural member, other than a triangulated frame, which supports load primarily by its internal resistance to bending

joist: one of a series of timber beams used to support the floorboards or ceiling of a building

laminated (timber): a built up product made of layers or laminations of wood, all with the grain laid parallel and glued or otherwise fastened together

lateral movement: movement in a structure that is perpendicular to the major axis of loading, ie. usually horizontal movement

post: a column or a free standing axially loaded compression member, usually vertical

tasmanian oak: Tasmanian Oak is the name given to three almost identical species of eucalypt (Eucalyptus delegatensis, Eucalyptus obliqua and Eucalyptus regnans) hardwoods that are normally marketed collectively.

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