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Location: 79 Melville Street, Hobart

Owner: Forestry Tasmania

Architect:

Design: Morris-Nunn & Associates.

Documentation: Blythe Yeung and Menzies

Engineer: Gandy and Roberts Structural Engineers

Builder: Civil & Civic

Timber fabrication: Tasmanian Timber Engineering

Constuction Date: 1997

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

Forestry Tasmania Offices

Melville Street, Hobart - Tasmania

Forestry Tasmania, who manage over 1.5 million hectares of forest within the State, bought the Melville Street site with the intention of consolidating operations from five locations around Hobart. The new offices house a range of technologies and facilities that showcase the past, present and future of Tasmania's forestry and timber heritage, within the one precinct.

Originally a land grant acquired by the Crisp family, the site, which extends through to Brisbane Street, operated as a sawmill and timber outlet until 1968. Two red brick buildings from the 1930's - a warehouse store for dry and finished timber products and the former hardware emporium were retained and incorporated into the design that now features a glazed, domed foyer, that unites and defines entry between the two existing facades.

This development comprised the refurbishment of the two warehouse buildings; construction of new office and amenities areas; a retail showroom and the foyer dome. In total the development consists of 2000m^2 of retail space, 4200m^2 of office space and 500m^2 of workshop for Forestry Tasmania.

The dome is open to the public during business hours and houses an indoor forest that replicates the state's working forest and showcases the origins and potential uses of timber as a renewable resource.

top
the domed interior of the entry foyer is a show case for Tasmanian timber

•**Description** - The architectural ideas that underpin the design for the new offices for Forestry Tasmania combine to illustrate the organisation's primary activities. In many ways, the development reads as a library resource of wood's growth and timber's built applications presented as a visible and positive image to the public.

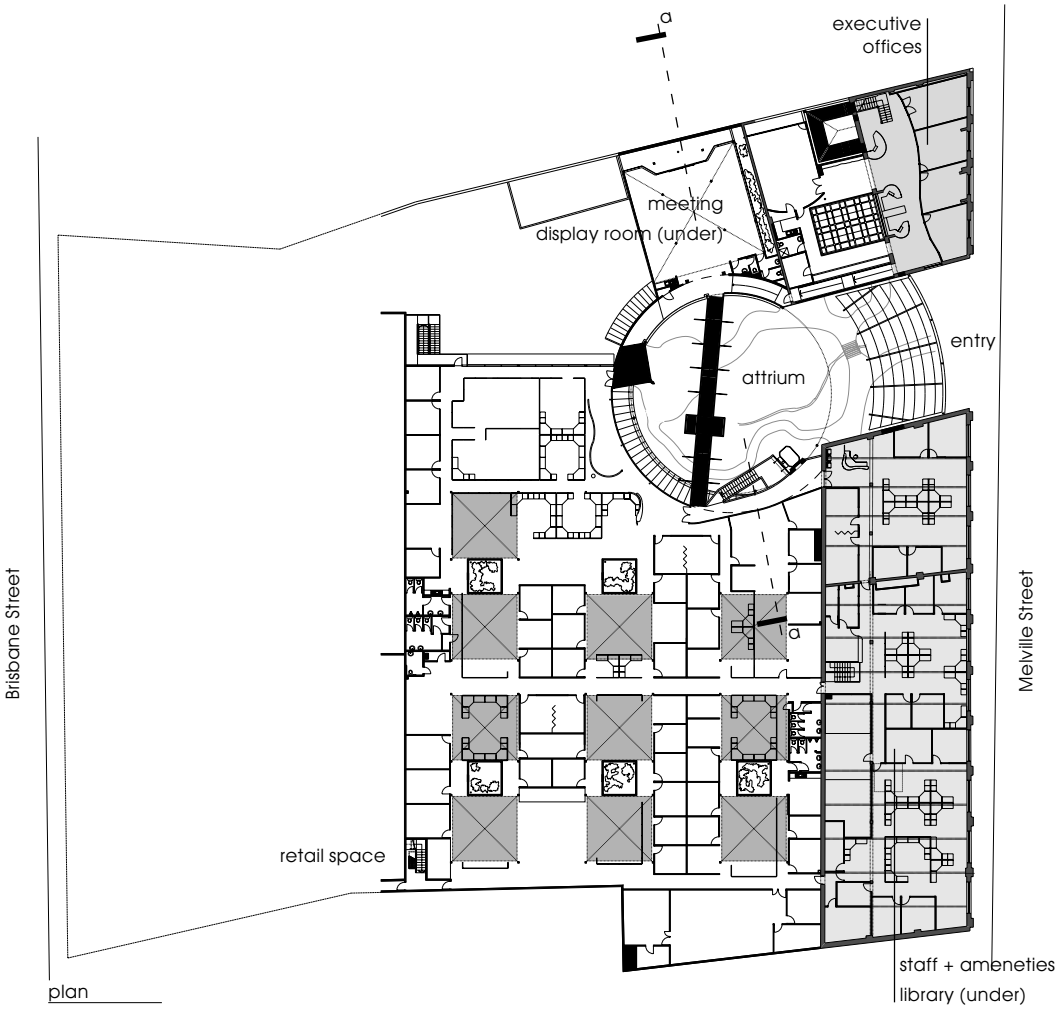
The sophisticated glue laminated hardwood structure of the domed atrium displays the sustainable and beautiful building material for which Forestry provides the raw material. Concurrently, the living, growing forest that the atrium encloses is a persistent reminder of their responsibility to maintain the necessary ecological balance in Tasmania's working forest.

Recycled timbers, reassembled as pyramidal skylights to the new amenity and office areas, demonstrate the potential of the material to be reclaimed and reworked.

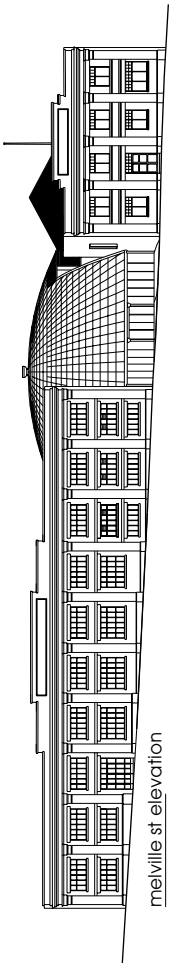
Rough sawn timber used in the trestle bridge, which straddles the stream that runs through the atrium, is a reminder of past ways of building.

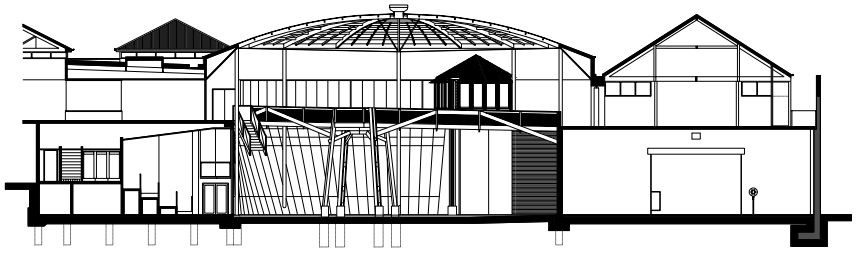
The use of native timber showcases contemporary timber products and applications. Doors and joinery feature custom made **veneers**. New joinery items are designed to work with existing joinery that add to, rather than circumvent, the furniture inventory.

Details that punctuate the building describe the potential of timber found only within the State. For example an extremely tough under storey species, known as Horizontal Scrub, is used in the round and sliced as handrails, woven balustrades and doorknobs.



plan





section a-a

top right
entry to forestry building from street + inside of dome

above left
first floor plan of forestry building

above right
Melville Street elevation

bottom left
section a-a (through domed entry foyer)
drawings - courtesy of the architects

•Structural Description: The domed atrium - The dome with its front curved extension was the best design solution in the only space between the old buildings, a 16 metre wide gap which then broadened out at the rear. By forming a high central space which curved down in between the brick side walls, a dramatic new volume could be formed.

A stream, buried within a brickwork duct, runs under the atrium and causes unpredictable movement in the foundations of the two warehouse buildings. The atrium structure therefore needed to be flexible and independent. To achieve this the atrium is clear of supports and where required, additional strength in the timber members of the dome was achieved with steel bracing. A steel **barrup truss** supports the edge of the dome where it changes into the tail like canopy to the street. The longer spans of this portion of roof are under trussed.

Both the atrium roof and its tail are constructed of glue laminated Tasmanian Oak. The dome spans 22m and was built in sixteen equal segments. Each segment comprises radial edge beams with intermediary structure designed to support the glass. The segments were assembled on site in opposing pairs.

After the dome segments were installed, the edge members were bolted together to form a single dome rafter. To resist lateral thrust, the base of each rafter was then tied back to a central tension ring with steel cable. The arc of the dome rafters continues on one side of the building towards the Melville St. entrance, and forms the tail of the atrium.

top right
the trussed, curved, glue laminated timber rafters of the dome run through to form the tail

above
detail of connection joint between a dome rafter and tension rod.

right
second level foyer jutting into the atrium

far right
rough sawn atrium bridge

top left
interior of dome

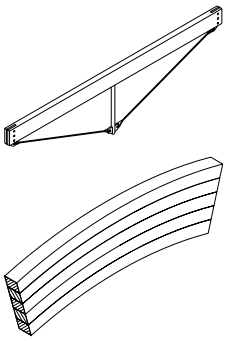
top middle
construction of single dome rafter element

top right
detail of rafter to purlin joint

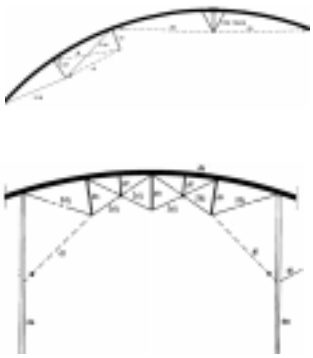
bottom left
interior of pyramid under construction

below (top to bottom)
- under truss beam
- curved glue laminated beam segment
- set out drawings of dome and curved trusses
drawings - courtesy of the engineer

• **Glue lamination** - Glue lamination technology provided a solution to the inherent problems presented in using single, large pieces of timber as long span structural elements. A large section of timber is likely to have knots or other characteristics that reduce its overall structural strength. They are also becoming increasingly difficult to obtain and season. Therefore to maximize structural potential, it is more effective to select good pieces of timber from smaller timber members, (that are easier to dry and handle) and reassemble them to construct a single laminated member, that is as long and as deep as required. The added advantage of assembling smaller pieces is that they can be also be shaped to a profile. The curved laminated beams are constructed from laminates that have been **finger jointed** into long lengths, curved to the required profile and glued to form the member.



details



set out drawings

• **The combined use of timber and steel** - The design of this building deploys timber as an expressed compressive element and light steel as tension members to achieve a certain tracery like aesthetic. It provides a memory of other ways of combining timber and steel - masts in ship building are the solid compressive members, the lines of rigging are steel. The combination also provides colour and contrast - timber is rude, solid and warm and steel is bright and string like.

Both architect and engineer wanted to use the same dimension structural timber member for the dome and its tail to achieve a seamless connection between the two spaces. The tail however was a large span and so required additional reinforcement to maintain the slender section. This was achieved with steel struts and tie rods that also provide a tracery-like layering to the structure.

• **Timber finishing** - Throughout the design of the building, a combination of timber finishes has been used in a variety of ways. The **glulam** elements of the dome and tail are highly finished, to produce a slickness that suggests newness and currency. Recycled from the original building, the members used in the pyramidal skylights are left rough sawn. As they will not be touched and only seen, they do not require finishing. The members used in the trestle bridge suggest a **patina** of weathering and memories of rude timber buildings. Finishing of timber is therefore determined by its application and the tactile and visual response desired.

• **references**

Morris-Nunn and Associates, "The Greening of Forestry's World", Architectural Statement (unpub.)

Wesley P. 1997, "Architectural Statement", Tasmanaian Master Builder, p. 8

• **glossary**

barrup truss/ trussed beam: a timber beam reinforced with a trussed metal tension rod

finger joint: an end joint in which wedge shaped projections in one piece of timber fit matching recesses on the other piece and are bonded together by an adhesive

glulam: laminated timber where the laminations are joined with adhesive

patina: a surface change due to age or use, such as the fine oxidation of copper or the weathering of wood

rough sawn: surface condition of wood as it leaves the saw, ie. not dressed or final sawn

veneer: a thin sheet of wood of uniform thickness

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