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National Timber Development Program

Technical Report
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Multi-residential Timber Framed Construction

Architects, engineers and builders are using MRTFC to solve problems such as site access, load limitations and financial viability

Multi-residential timber framed construction (MRTFC) was introduced to Australia through building regulations in 1994, as Amendment No. 7 of the Building Code of Australia (BCA) 90.

MRTFC is now used throughout Australia in a variety of construction types, including residential and commercial applications. This construction technology has been successfully applied for many years overseas in Europe and America with outstanding results. Australia is now experiencing the benefits that MRTFC offers.

Significant opportunities have been created by MRTFC technology in the building industry. MRTFC provides a viable alternative to concrete and masonry construction for architects, designers, engineers, developers and builders in addition to the benefits associated with timber construction.

Benefits of Using a MRTFC System

- Rapid construction timbers, enabling savings on large overheads and holding costs
- Decreased pressure loads on footings and transfer slabs, due to reduced weight factors from a light timber frame
- Simplified construction program, requiring only a single contractor for all the framework
- Easier and faster installation of electrical and plumbing services
- Superior acoustic performance characteristics
- Fire resistant walls

These benefits can be readily converted into cost savings.

The basic premise behind MRTFC is the utilisation of fire and sound-rated timber framed wall and floor systems to provide for vertical and horizontal separation between dwellings.

Growth in MRTFC Industry

Over the last six months, 4687 dwellings have been confirmed as MRTFC projects across Australia:

Class 1 (townhouses)	2163
Class 2 (apartment buildings)	1277
Class 3 (accommodation)	784
Class 9c (aged care)	463

This level of construction equates to an approximate 21% market share for class 1 (townhouses) and 20% of class 2 (3 storey walk-ups) constructions. These exceptional results, particularly for class 2 buildings, exceed the original expectations from this project and have substantially increased the demand for timber framing.

MRTFC Technology in the built environment generates safer, stronger and efficient structures

MRTFC Fire-rated System a Success

The real innovation of MRTFC is in its fire-rated system for separating walls. The virtues of MRTFC have been proven numerous times in 'test' situations. Now a 'real life experience clearly demonstrates that if MRTFC technology is correctly followed, it can perform in dangerous fire situations.

A residential unit fire occurred in August 2002, in a duplex at Crystal Creek Road, Runaway Bay, Queensland.

By the time a fire fighting unit arrived to extinguish the fire, flashover had occurred with flames emerging outside the unit through broken windows.

Measurements indicated that the fire took 32 minutes to bring under control, with most of the unit requiring total re-building due to damage — with the exception of the separating wall between the adjoining units of the duplex.

An inspection of the roof cavity in the adjoining unit showed no signs of breaching damage by the fire, demonstrating that the fire rated timber framed wall had prevented the fire from spreading.

MRTFC Used in Large Scale Project

Walker and Yerondias Architects have designed a large scale MRTFC project, Tower Apartments, currently under construction in Bundoora, Victoria.

The architects have incorporated both Class 2 and 3 construction into the four level building design. The four level building is made up of a basement concrete car park and three levels of timber framing.

Included in the design are:

- 108 units in total
  - 54 class 2 units (serviced and non-serviced apartments)
  - 54 class 3 units (1 and 2 bedroom hotel suites)
- Restaurant
- Gymnasium, pool, spa
- Car park basement with 160 car spaces

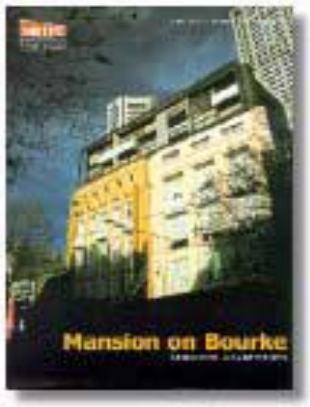
The MRTFC system used in the design consists of double studs with 13 mm thickness, fire rated plasterboard, and a sprinkler system installed on all levels.

Stained treated pine lining boards and rendered base sheet were chosen for the external cladding on the building.

Presently A & E Yerondias Pty Ltd, contracted builders for the project, have completed construction on 54 Class 2 apartments to fit out stage. Construction of the hotel section is also under way, currently at slab stage, completion to be in October 2003.

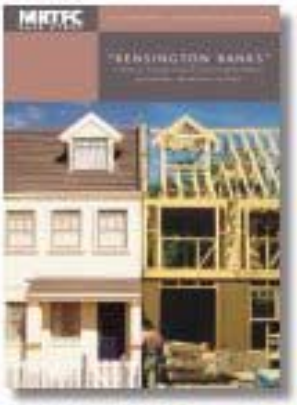
Numerous MRTFC projects are currently underway across Australia, utilising the benefits of the system for both the producer and consumer. For further information on MRTFC projects in your area, contact your local State Timber Advisory Organisation.

MRTFC technology can be used in multi-purpose buildings

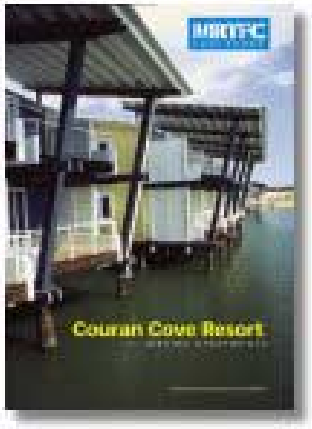


Mansion on Bourke, Melbourne

A number of Australian case studies of various classes of MRTFC being used can be found on the NTDP website (www.timber.org.au/MRTFC/case_studies.htm).



Kensington Banks, Melbourne



Couran Cove, South Stradbroke Island

The National Timber Development Council is a federation of Australian Forest Industry Associations, managing the National Timber Development Program in partnership with the Forest and Wood Products Research and Development Corporation (FWPRDC).

NTDP WEBSITE:
www.timber.org.au

Contact Details

To assist designers, architects and builders, expert assistance is available from local Timber Advisory organisations, providing support information, advice on material use and construction technology:

Queensland

(TRADAC) - 07 3358 1400

New South Wales

(TDA) - 02 9360 3088

Victoria

(TPC) - 03 9665 9255

Tasmania

(TTPB) - 03 6224 1033

South Australia

(TDA) - 08 8297 0044

Western Australia

(TAC) - 08 9380 4411