

# Flood Design

## western red cedar and Timbeck Cladding

*the practicalities of elevated construction in flood prone areas are widely acknowledged by informed building designers*



Over time, in the absence of frequently reoccurring incidents to act as reminders, the benefits derived from some basic design principles tend to be overlooked, and grass root practical considerations are often replaced with "fashion trends". This is no more evident than with flood design principles where practical "elevated" designs often tend to slowly give way to "slab" or "closer to the ground" designs.

In south east Queensland, for a period following the 1974 floods, new construction and rebuild / renovation work saw a dominant move back to elevated designs. As time moved on, and the devastation of 1974 became more "out of mind", the prioritising of "elevated" into residential design slowly faded. The recent devastation from the 2011 floods within the same and wider geographical area has again seen the need to "elevate" come to the forefront.

Authorities from all levels are resisting the idea of banning residential construction from flood prone areas and instead, encouraging practical design approaches which better cope with these disasters. The most obvious of these for residential buildings is elevating the primary accommodation areas. Recent design competitions have seen a wave of new elevated designs emerge, and mostly, all are based on a very logical concept.



### So what is the concept ??

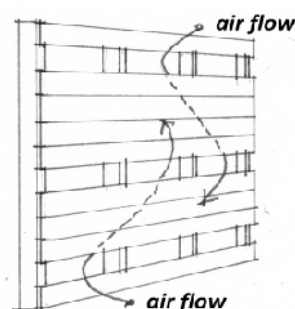
- essentially, it reflects one of the basic principles of the well proven traditional Queenslander
- restrict habitable areas to first floor level and above – these areas then house the primary furniture items and other valuable possessions above known flood levels
- provide a flexible multipurpose area at ground level for vehicles, storage and other secondary non-habitable areas.
- provide for an easy clean up after the flood waters subside, and utilise building materials which can easily be hosed down, cleaned and dried without damage.

*concept illustration is image of award winning affordable flood free home design by dion seminara architecture*

### basic building material selection

Many building materials today will not withstand a prolonged period of water immersion without suffering significant damage or total degradation. Timber is one exception and its unique properties allow it to stand out from the crowd in this respect.

From the range of timber product options, the specification of a "board" product (as distinct from a "sheet" product) provides the very positive advantage of being able to remove individual boards at strategic positions over the height of a wall. The creation of this opening assists with providing airflow through the wall cavity. After cleandown, this air flow facilitates a speedier and more complete drying process.



**ventilation and drying of the wall cavity is greatly assisted by removal of boards**

With tongue & groove profiles, the ideal application will involve removing the rear leg of the groove on boards selected for future removal and then face fixing those boards with screws. The screws will match the flat head face nail fixing pattern used elsewhere.

Removal and replacement of the board at some future time is then easily achieved. If a new replacement board is deemed necessary, it is as easily fixed by first removing the same rear leg of the groove prior to face fixing.

### which timbers are best ?

All timbers are hygroscopic and will absorb or discharge moisture to attain equilibrium with the surrounding atmosphere. The timbers which perform best through a wetting and drying cycle are those with low shrinkage rates. The lower the shrinkage rate, the lesser the effect from a wet / dry cycle.

Comparative Shrinkage Rates – Green to Seasoned – approximate & average			
	W.R.Cedar	Radiata Pine	Hardwoods
Tangential	2.00%	5.1%	4 to 14%
Radial	0.96%	3.4%	2 to 7 %

### Western Red Cedar is the stand out performer.

*(quote from WRCLA - like all woods, Western Red Cedar is hygroscopic and will absorb or discharge moisture to attain equilibrium with the surrounding atmosphere. However, it has a very low shrinkage factor and is superior to all other coniferous woods in its resistance to warping, twisting and checking).*

### coating and finishing

A timber cladding used in residential construction today will inevitably have a finishing coating applied. This makes some contribution to inhibiting the ingress of moisture. When the coating is applied on-site, the back faces of boards generally remain uncoated.

For products being considered for Flood Design, a coating all round is virtually mandatory to ensure that any take-up of moisture due to temporary immersion is even across all faces and throughout the board. Factory pre-coating offers the best quality controlled method of assuring all surfaces of the cladding profile are fully coated.

### film coating OR penetrating oil

While film coatings (paints, lacquers etc) provide a degree of protection, surface damage to the film can create weak spots where moisture from immersion can penetrate the wood fibre. Penetrating oils provide superior performance in this respect.

### the ideal product

Putting all of this criteria together, the ideal lower area cladding would be 100 or 150 mm nominal width Western Red Cedar factory pre-coated with a quality penetrating oil. **TIMBECK's WFSB135018** finished with 2 coats of factory applied **Cutek CD50** provides the optimum solution.

Full details on timber profiles, factory pre-coating and maintenance recommendations are comprehensively covered on the company's web site – [www.timbeck.com.au](http://www.timbeck.com.au)

	<b>Timbeck Cedar Products</b> ABN 123 456 789	<a href="http://www.timbeck.com.au">www.timbeck.com.au</a> <a href="mailto:info@timbeck.com.au">info@timbeck.com.au</a>	<b>07 3888 7788</b> <b>02 9709 4466</b>	<b>Design Guide 15 a</b> <b>July 2011</b>
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