

Design of timber swimming pool structures



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When designing a building, it is necessary to consider more than just loads expected during the design life of the structure.

Draftsmen, builders, engineers, architects and sub-contractors also need to ensure that all the components that form the structure are protected from the environment.

As well as the external surroundings, the design of structures over swimming pools must also take into account the possible internal environmental hazards of both high humidity and chlorine vapour.

These hazards can effect all components within the building, including the roof trusses, wall framing, bracing, hold down details, etc.

Good building design and workmanship can minimise these potential problems by ensuring adequate ventilation, vapour barriers and insulation are incorporated in the structure.

Any exposed timber used in indoor swimming pool construction should be selected from species with natural or artificially induced resistance to decay.

As a guide, the following is a partial list of suitable species. Contact your local Timber Promotion Council to

determine if a different species of timber is suitable.

All untreated timber should be of a durability class 1 or 2 and should not contain significant amounts of sapwood.

Refer table below for list of suitable species.

Treated timber species of lower durability classification or timber having significant amounts of sapwood are suitable provided such timber has been adequately treated with preservative in accordance with Australian Standard 1604.

ceiling structure supported by stainless steel rods. The collapse was attributed to stress corrosion of the stainless steel.

Several similar failures have occurred in the years since.

The conclusion reached was that even high quality stainless steel might be unsuitable for use under certain circumstances.

To ensure a building survives for its design life, it is recommended that consideration is given to the building environment and all the structural connectors are either:

Australian Species with Durability class 1 or 2

Ash, crow's
Bloodwood, brown
Box, black
Box, white
Carbeen
Gum, red river
Ironbark, grey
Mahogany, red
Penda, brown, red
Satinash, grey
Tallow wood
Wandoo

Ash, hickory
Bloodwood, red
Box, grey
Box, yellow
Gum, grey
Gum, salmon
Ironbark, red
Mahogany, white
Pine, celery top
Satinay
Tuart
Woollybutt

Blackbutt
Bloodwood, yellow
Box, red
Cadaga
Gum, red forest
Gum, yellow
Jarrah
Messmate, gympie
Pine, cypress
Stringybark, white, yellow
Turpentine
Yertchuk

Imported Species with Durability class 1 or 2

Cedar, western red

Kwila (merbau)

Redwood

When using treated timbers, you need to ensure that the treatment does not affect other components.

For example, a chemical reaction can occur when galvanised products are used in CCA treated timber and there is high moisture present.

All metal connectors used in the construction of a swimming pool roof structure need to be corrosion resistant.

This includes elements such as the truss connector plates, bracing, nails and hold down connections.

Structural stainless steel connectors are not recommended in an environment where chlorine ions and moisture are likely to be present.

This was the consequence of a collapse in Europe of a concrete

a) Manufactured from an inherently resistant material - eg Hot dipped galvanised, or

b) Protected by a resinous or plastic coating - eg Coated with a suitable bituminous paint.

Above all, regular inspection and maintenance is the critical procedure required to provide a structurally adequate structure for the design life of the building.

Refer to "Appendix VII Use Of Timber In The Construction Of Swimming Pool Halls by P Juniper and R Schaffner, Public Swimming Pools Planning Manual, published by Department of Youth, Sport and Recreation - Melbourne, 1979 ISBN 7241 8658 1" for more complete advice.