



Tasmania

# Building Regulation

# News Update

Building Standards  
and Regulation

Department of Infrastructure, Energy and Resources  
30 Gordons Hill Road or PO Box 56, Rosny Park 7018

Date

20 May 2004

These news updates are issued as and when is necessary, to keep the Tasmanian Building Industry informed of developments occurring with the Industry, the Building Code of Australia (BCA) and its reference documents.

## ***Building Act 2000***

### **Weathertightness**

Building Standards and Regulation and the Building Regulation Advisory Committee have been keeping a “watching brief” on the weathertightness or “leaky buildings” problem in Canada, New Zealand and other places. Although we have no clear evidence of the problem in Tasmania we are concerned that the potential exists. The following article is presented to assist builders, designers and building surveyors understand the issues.

The latest New Zealand Building Industry Authority “BIA News” (April 2004, No.140) reports on recent research into weathertightness in buildings:

***“Two Canadians, Don Hazledon and Paul Morris, developed a simple concept called the 4Ds to describe the basic principles of water management in buildings. Their concept is based on their observations of the causes of building leaks and subsequent decay problems in Vancouver. There are many similarities between the problems seen in Vancouver and those in New Zealand and the 4Ds concept is just as applicable here.***

*The 4Ds are ranked in order of importance. They are:*

- *Deflection*
- *Drainage*
- *Drying*
- *Decay resistance.*

***Deflection*** is basically keeping rain away from sensitive areas where it might enter a building. The most obvious example is eaves on a roof. Except under extremely windy situations or where buildings are tall, eaves reduce the amount of rain hitting a wall and flowing over windows and penetrations. Other examples are cap flashings and head flashings. Deflection should keep the vast majority of water from getting past the outer cladding.

***Drainage*** is the provision of paths for any water that does get past the outer cladding to be removed quickly before it can cause damage to the wall components. A drained cavity, as is used with masonry veneer, is a good example. The provision of a sill tray flashing to remove water that leaks through joinery is another.

***Drying*** removes any water that does not drain directly from behind the cladding. Drying is predominantly by ventilation but, where ventilation rates are very low, diffusion of water vapour will also contribute.

*Decay resistance* was the fourth D proposed by the Canadians but 'durability' is the more commonly used term in New Zealand as it covers fixings and insulation as well as timber. This D states that materials used to construct the wall should have the appropriate durability for the anticipated environment within the wall.

*Ideally a building should have a balanced design that incorporates all four Ds. A classic example is the simple single storey house with a hipped roof and brick veneer cladding. As fashions and designs change, the amount of protection afforded by each of the individual Ds will change. A basic principle is that when you reduce the protection provided by any one of the 4Ds, it must be compensated for by increasing the protection provided by one or more of the other Ds. It is crucial to note that the 4Ds are ranked in order of importance. It is more effective to keep water out than to drain and dry it when it gets in, or to try and make the wall components last in a wet environment. “*

In many of the reported weathertightness cases in New Zealand, there has been evidence of a reduction in all four Ds compared to buildings from earlier periods in our history. Eaves are less fashionable, flashings rare, monolithic claddings with little drainage and drying ability have become popular and untreated timber is less durable than traditional boron treated framing in New Zealand.

Keeping the simple 4Ds concept in mind when designing, constructing and inspecting buildings will help ensure buildings are weathertight. It will also assist when evaluating Alternative Solutions as the basic principles form a logical framework for the examination of compliance with BCA performance requirements.

The BIA web site contains much more information on this issue <http://www.bia.govt.nz/>