



SHUTTER SYSTEM FOR PROTECTING WINDOWS IN FLAME ZONE

A shutter system suitable for protecting windows under flame zone exposure conditions has been developed by Paarhammer Pty Ltd. A prototype of the system has been tested to AS1530.8.2.2007 and the data from this test have been used as part of an assessment undertaken by Noel Arnold and Associates (NAA) in accordance with clause 1.2.2 (Evidence of suitability) (a) (iii) of Volume 2 of the Building Code of Australia (BCA) to determine that the shutter system, when installed and constructed as described in the NAA Report [1], will provide the required level of protection to a window or doorway should the house be subject to flame zone conditions.

The shutter frame that was tested for the prototype testing incorporated timber within the frame at the hinge locations. This was necessary to give a sufficient section for attachment of the hinges in order to ensure adequate behaviour under non-fire conditions. As a result of the short timber sections within the support frame, some burning was observed after the heating test, although this burning extinguished within the permitted 30 minutes duration therefore meeting the requirements of the Standard. However, the current design, which is the subject of NAA Report, uses a heavier steel frame and does not incorporate any timber within the frame. Should this frame have been tested, there would have been no burning at any time following removal of the test specimen from the furnace.

A double leaf system is shown here but bi-fold four leaf systems are available for widths up to 3200mm. The system utilised decorative hinges for normal operation but is locked in position when closed by pins which have an important function under fire exposure conditions.

The shutter system may be used to protect 'standard' single or double glazed windows (or doors) constructed from a minimum of 5mm toughened glass provided reasonable allowance has been made for expansion of glass within the frame. Frames in which the glazing is mounted may be timber including softwood, steel, aluminium or PVC. The minimum distance between the glass and the rear of the shutter is 25mm.



Double leaf shutter system



Typical hinge



Locking pin

Typical Details of Shutter System

The shutter may be located directly adjacent to the window or door within the window or door *reveal* or may be directly attached to the external wall provided the wall is a fire-resistant wall with respect to exposure from outside. The total *width* occupied by the shutter leaves – assuming a bi-fold, four leaf shutter system can be is 3200mm and the maximum height of window/door reveal is 2400mm.