

Australian/New Zealand Standard®

Domestic garage doors—Methods of test

Method 2: Wind pressure test

1 SCOPE This Standard sets out a method for determining the performance of domestic garage doors designed for installation in domestic buildings. It addresses the wind pressure of the test sample.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

1170 Minimum design loads on structures (known as the SAA Loading Code)

1170.2 Part 2: Wind loads

4055 Wind loads for housing

AS/NZS

4505 Domestic garage doors

4504 Domestic garage doors—Methods of test

4504.1 Method 1: Test sample and preparation for wind pressure test

NZS

3604 Code of practice for light timber frame buildings not requiring specific design

4203 Code of practice for general structural design and design loadings for buildings

3 DEFINITIONS For the purpose of this Standard, the definitions in AS/NZS 4505 apply.

4 PRINCIPLE A sample garage door is fitted as one face of a pressure chamber, sealed at its perimeter, then subjected to positive and negative test pressures.

5 APPARATUS The following apparatus is required:

- (a) *Pressure chamber*—of a size to fit the test sample garage door.
- (b) *Centrifugal fan*—with controls to pressurize the chamber.
- (c) *Fluid or electronic manometer*—capable of measuring air pressure to an accuracy of $\pm 5\%$.
- (d) *Force measuring device*—calibrated in newtons
- (e) *Air bags or other suitable methods*—to achieve the same results as those obtained by using Items (a) to (d) above.

6 PROCEDURE

6.1 Test pressure The test pressure shall be as specified in AS/NZS 4505 for the particular wind classification that the garage door will be rated to (e.g. N2 wind classification for up to N2 rating). If not specified, the test wind pressure shall be calculated in accordance with AS 1170.2, AS 4055, NZS 3604, or NZS 4203 for the most severe classification applicable to either the manufacturer's intended market, or to the specific building project.

6.2 Test procedure

6.2.1 Resistance to wind pressures for non-cyclone regions

6.2.1.1 Test sample preparation The test sample shall be prepared in accordance with AS/NZS 4504.1.

6.2.1.2 Test sample pre-loading An initial pressure equivalent to 50% of the test pressure specified in Clause 6.1 shall be applied to the test sample and held for 1 min.

6.2.1.3 Test pressure application (serviceability and ultimate limit state) The test sample shall be subjected to a smoothly increasing pressure up to the test pressure determined in Clause 6.1, conducted individually in both positive and negative directions. The time taken to reach the test pressure shall be approximately 1 min. The test pressure shall be maintained on the sample for a period of 1 min.

6.2.1.4 Inspection after test pressure application The test sample shall be inspected and any signs of deformity, damage or collapse of the test sample noted and recorded. 'Collapse' shall mean any one or any combination of the following:

- (a) Dislodgment of any cladding material.
- (b) Loss of support of frame, such as when it is unstable in its opening in the building structure.
- (c) Dislodgment of the main assembly.
- (d) The failure of any component, locking device, fastener or supporting stay which would allow the garage door to come open.

NOTE: Sufficient precautions should be taken during the performance of testing to ensure the safety of the operating personnel.

6.2.1.5 Operation after test pressure application At completion of the test, the force required to open the door from the fully closed position, shall be recorded.

NOTE: This is only applicable for serviceability limit state tests.

6.2.2 Resistance to wind pressure for cyclone regions

6.2.2.1 Test sample preparation The test sample shall be prepared in accordance with AS/NZS 4504.1.

6.2.2.2 Test sample pre-loading An initial pressure equivalent to 50% of the test pressure specified in Clause 6.1 shall be applied to the test sample and held for 1 min.

6.2.2.3 Test pressure application for serviceability limit state The test sample shall be subjected to a smoothly increasing pressure up to the test pressure determined in Clause 6.1, conducted individually in both positive and negative directions. The time taken to reach the test pressure shall be approximately 1 min. The test pressure shall be maintained on the sample for a period of 1 min.

6.2.2.4 Operation after serviceability limit state test pressure application At completion of the test, the force required to open the door from the fully closed position shall be recorded.

6.2.2.5 Test pressure application for ultimate limit state In tropical cyclone regions (regions C and D as specified in AS 4055) the garage door assembly shall be designed to resist the fatigue loading sequence given in Table 1.