

Australian/New Zealand Standard™

AS/NZS 4266.10

Reconstituted wood-based panels— Methods of test

Method 10: Wet bending strength after immersion in water at 70°C or boiling temperature

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM-005, Reconstituted Timber Panel Products, to supersede AS/NZS 4266.10(Int):2001.

This Standard is equivalent to the industrial Standard harmonized between the wood panel industries in Australia, Japan and New Zealand, known as JANS 20.

METHOD

1 SCOPE

This Standard specifies three methods for determining the bending strength of particleboards and fibreboards after immersion in hot water, as follows:

- (a) *Method A* Immersion in water at 70°C for 2 h.
- (b) *Method B* Immersion in water at boiling temperature for 2 h.
- (c) *Method C* Immersion in water at boiling temperature for 72 h.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS	
4266	Reconstituted wood-based panels—Methods of test
4266.1	Method 1: Sampling, cutting, and conditioning of test pieces
4266.5	Method 5: Modulus of elasticity in bending and bending strength
4266.35	Method 35: Dimensions of test pieces
4491	Timber—Glossary of terms in timber related Standards

3 DEFINITIONS

For the purpose of this Standard, the definitions in AS/NZS 4491 and AS/NZS 4266.1 apply.

4 PRINCIPLE

Test pieces are immersed in hot water for 2 h or 72 h, cooled, and then tested for bending strength. The test is designed to provide information on the durability of the board after moisture penetration.

5 APPARATUS

5.1 Hot water tank

A stainless steel tank with lid, heated so that the water inside is thermostatically controlled to the correct temperature.

The tank should be constructed in such a way that the heating zone is separated from the sample immersion by baffles or by use of separate chambers. This will prevent erosion of the test pieces by air bubbles and strong water flows (see Figure 1).

A level control device (e.g., float chamber) may be also required to maintain the water level as water will be lost due to vaporization. Water shall cover the test pieces to a depth of 75 ± 25 mm. A backflow connection between the tank and the float chamber will also ensure pre-heating of water entering the tank from the float chamber.

For the 70°C test, the temperature of the water shall be controlled to $70 \pm 3^\circ\text{C}$.

For the boiling test, the water shall be in state of gentle boiling, with no violent or turbulent action on or below the surface.

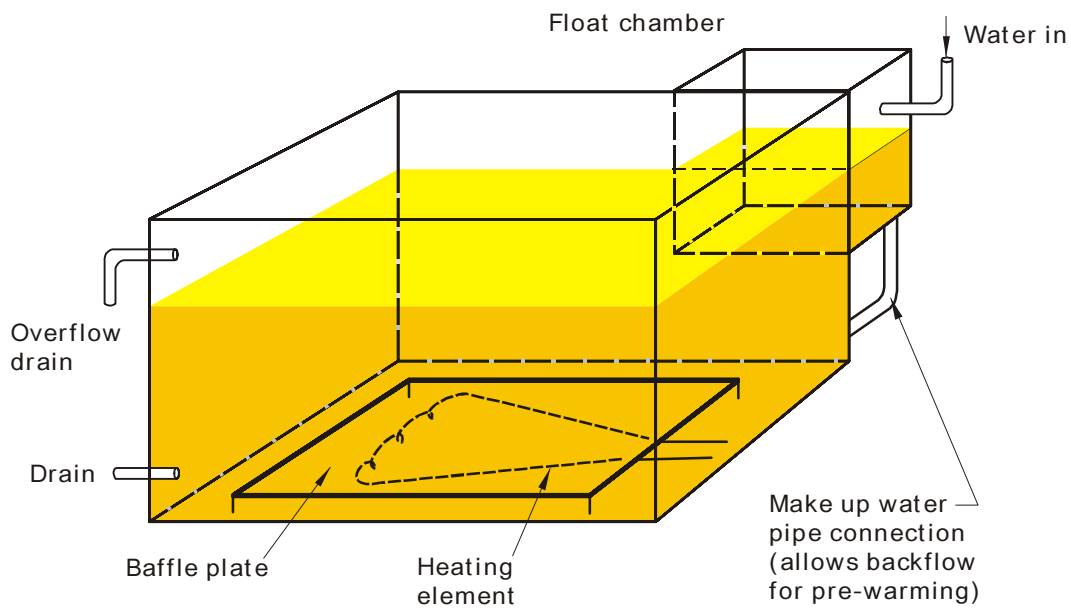


FIGURE 1 HOT WATER TANK

5.2 Racks, to hold test piece

The racks shall hold the test pieces so that their length is horizontal and their short edge is vertical (see Figure 2).

The test pieces shall have a minimum clearance of 15 mm from each other and 40 mm from the bottom of the tank and the heating element. The rack should have sufficient mass so that when it is loaded and immersed in water, it is stable and does not float or bounce up and down.

5.3 Room temperature water bath

Water bath with an internal volume capable of immersing the complete holding racks and test pieces and with an initial temperature of $20 \pm 2^\circ\text{C}$. After removal of test pieces from hot water and immersion in the room temperature water bath, the water bath shall be capable of maintaining the temperature of $20 \pm 2^\circ\text{C}$ during the immersion cycle.

5.4 Test machine

A test machine with bending strength test apparatus as specified in AS/NZS 4266.5.

5.5 Measuring instruments

Instruments as specified in AS/NZS 4266.35.

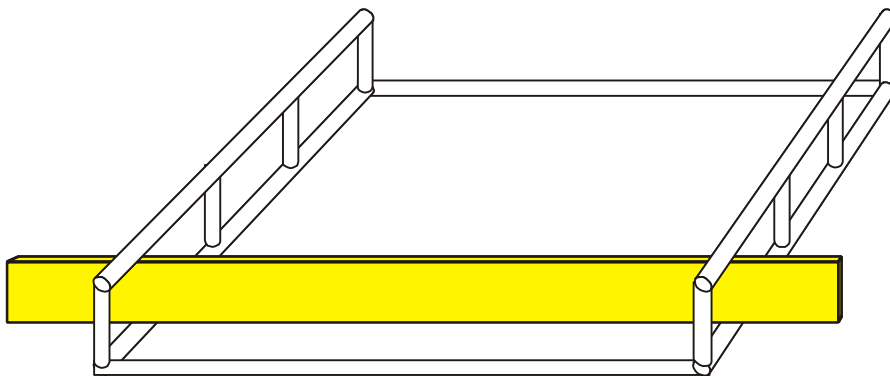


FIGURE 2 TEST PIECE HOLDING RACK

6 TEST PIECE

6.1 Sampling

Sampling and cutting of the test pieces shall be carried out in accordance with AS/NZS 4266.1.

6.2 Dimensions

The test pieces shall be rectangular, of the following dimensions:

- (a) Width $\geq 50 \pm 1$ mm, except for Method C, where width shall be 100 ± 1 mm.
- (b) Length not less than 15 times the nominal thickness of the panel plus 50 mm.

6.3 Number of test pieces

Six test pieces shall be used, three with the machine direction parallel to, and three with the machine direction perpendicular to, the length of the test piece. In the case of Method C, two test pieces shall be used, one from each direction.

6.4 Conditioning

The test pieces shall be conditioned in accordance with AS/NZS 4266.1.