AS/NZS 4284:2008

Australian/New Zealand Standard™

Testing of building facades

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-080, Curtain Walls. It was approved on behalf of the Council of Standards Australia on 7 July 2007 and on behalf of the Council of Standards New Zealand on 11 March 2008.
This Standard was published on 28 April 2008.

The following are represented on Committee BD-080:

Association of Consulting Engineers Australia
Australian Aluminium Council
Australian Building Codes Board
Australian Glass and Glazing Association
Australian Steel Institute
Building Research Association of New Zealand
Engineers Australia
NATSPEC
National Association of Testing Authorities Australia
National Precast Concrete Association Australia
Plastics and Chemicals Industries Association
Window Association of New Zealand

Additonal Interests:

Independent Chair

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 07156.

Australian/New Zealand Standard™

Testing of building facades

First published as AS/NZS 4284:1995.
Second edition 2008.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 8619 7

PREFACE

This Standard was prepared by the Joint Australia/New Zealand Standards Committee BD-080 on Curtain Walls to supersede AS/NZS 4284:1995.

The Standard is based on 'Specification for the performance testing of building facades by the SIROWET method' published by CSIRO, Division of Building, Construction and Engineering now it is known as Manufacturing and Infrastructure Technology.

This Standards is derived from publication by the CSIRO on the method of facade testing developed by the CSIRO and known as SIROWET. These publications are the following:

(i) 'The SIROWET Rig, for testing weatherproofness of building facades' by N.G. Brown and E.R. Ballantyne, CSIRO Division of Building Research 1975.

(ii) 'Specification for the performance Testing of Building Façade by the SIROWET Method', January 1990. Division of Building, Construction & Engineering, CSIRO—Australia.

(iii) 'The SIROWET Method; Specification for the Performance Testing of Building Facades by the SIROWET Method', June 1992 ISBN 0 643 050930. This specification (TR92/6) is effective from 30 June 1992 and supersedes (TR 90/2) dated February 1990.

Consideration has been given to maintaining compatibility with NZS 4211:1985, *Specification for performance of windows* and with Amendment No. 3 which converts the earlier working stress basis to limit state design requirements. It should be noted that the water test pressure calculated in NZS 4211 Amendment No 3 is based on an alternative serviceability wind pressure definition and not equivalent to serviceability pressure determined in AS/NZS 1170.2.

The objective of this Standard is to provide those persons or organizations involved with the specification, design, purchasing and construction of building facades with a method for determining the performance of a building facade under wind and other optional loadings. This test method is applicable to complete facades and is intended to assess the overall system performance and interaction of the various facade components.

The Committee has made a number of significant changes and additions to the original SIROWET method and these include the following:

(a) Change to limit state principles from working stress.

(b) Addition of optional seal degradation, seismic and building maintenance unit (BMU) restraint tests.

(c) Addition of several appendices, including a pro forma for test loads and limits.

Test pressures nominated in the Standard represent minimum default values that should be applied to the test sample; however, selection of pressure values should be based on the proposed usage of the structure, its exposure conditions and of the expected performance of the facade.

For high rise residential and commercial building facades (buildings typically greater than 25 m) or at particularly exposed sites that incorporate curtain wall, strip windows, opening window sashes, sliding doors, bifolding doors and the like, the methods of test described in this Standard are applicable to prove performance of the system. Facade elements in these situations can be subjected to the same environmental factors such as a continuous facade on an office building—particularly wind-driven rain. The non-uniform nature of wind-driven rain has led to the adoption in this Standard of the cyclic pressure water test and the SIROWET method before it. Appropriate additional testing parameters, such as those described in Table 2.2 of AS 2047—1999, *Windows in buildings—Selection and installation* and AS 4420.3—1996, *Windows—Methods of test*, Method 3: *Operating force test* as well as the torsional rigidity of building elements as covered in Clause 13 of NZS 4211:1985 *Specification for performance of windows*, should also be considered for relevant elements.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

CONTENTS

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Testing of building facades

1 SCOPE

This Standard sets out a method for determining the performance of a representative building facade under simulated conditions of loading. This Standard may be applied to all types of facades including low- and high-rise, commercial, industrial and residential buildings. Tests include displacement of the facade or prototype, water penetration and structural integrity at ultimate limit state as well as optional tests, including BMU restraint, seismic loading and seal degradation. This test method is applicable to prototype testing in a test facility and on-site testing.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1170	Structural design actions
1170.4	Part 4: Earthquake loads
AS/NZS	
1170	Structural design actions
1170.0	Part 0: General principles
1170.1	Part 1: Permanent, imposed and other actions
1170.2	Part 2: Wind actions
NZS	
1170	Structural design actions
1170.5	Part 5: Earthquake actions—New Zealand
4211	Specification for performance of windows
ISO/IEC	
17025	General requirements for the competence of testing and calibration laboratories

3 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

3.1 BMU

Building maintenance unit.

3.2 Framing members

The elements, such as mullions and transoms that support facade panels.

3.3 Specifier

The person or party responsible for the facade Specification, nominating the use of this Standard, the test sample, sequence, pressures and performance criteria.

3.4 Test facility

Either a laboratory or any other facility registered by an accredited-testing agency in accordance with ISO/IEC 17025.