

WEATHERPROOFING OF EXTERNAL WALLS

INTRODUCTION

The National Construction Code (NCC) requires that all external walls must be weatherproof to prevent dampness and unhealthy conditions for the occupants. This includes all wall types, from traditional masonry construction through to walls with high performance cladding systems.

Prior to NCC 2022, there were no Deemed-to-Satisfy provisions for weatherproofing of external walls in Class 2 to 9 buildings. However, NCC 2022 now includes Deemed-to-Satisfy provisions, as well as the Verification Method, carried over from NCC 2019. NCC 2022 continues to provide a range of Deemed-to-Satisfy provisions for Class 1 buildings.

There are a few exceptions to the requirement for weatherproofing, primarily for some Class 7 and 8 buildings. However, it is the responsibility of the building designer to obtain agreement from the certifier that their building will be exempt.

THE NCC AND WEATHERPROOFING

Class 2 to 9 buildings

Designers have several ways of achieving compliance to BCA clause F3P1, the Performance Requirement for weatherproofing.

- **Deemed-to-Satisfy.**

Compliance by designing to the requirements of BCA clauses F3D2 to F3D5. Weatherproofing of walls is covered in clause F3D5, which references Australian Standards for various types of wall construction. The other clauses mentioned here refer to requirements for roofs, sarking, and glazing.

- **Verification Method.**

Construction and testing of a prototype in accordance with the criteria set out in BCA Verification Method F3V1. The test method is fully detailed in the BCA, including water penetration tests to AS/NZS 428.

- **Evidence of suitability in accordance with Part A5.**

Selecting a system that has been tested and certified as complying with BCA clause F3P1. Where available, manufacturers can provide this certification, usually as a CodeMark or similar certificate issued by a certification body or Accredited Testing laboratory, clearly stating that the product, when installed in accordance with the manufacturer's details, complies with BCA clause F3P1.

For any project, evidence of compliance with a Performance Solution will require certification from the main contractor that the wall system has been constructed correctly, using the same materials and construction methods as those tested and detailed in the Performance Solution. It is also a requirement that any window units installed in the wall assembly have been tested to AS 2047 (see BCA clause F3D4).

Class 1 buildings

The Performance Requirement for weatherproofing of external walls in Class 1 buildings is BCA clause H2P2.

- **Deemed-to-Satisfy.**

There are a range of Deemed-to-Satisfy provisions for various external wall types in BCA clauses H2D4 to H2D8. These clauses cite several pathways to achieve compliance including BCA Part H1, Australian Standards for various construction methods, and the provisions detailed in Parts 5 to 8 of the ABCB Housing Provisions.

- **Verification Method.**

For Class 1 projects where the design does not follow the Deemed-to-Satisfy provisions, there is a Verification Method for determining the weatherproofing of external walls. This is detailed in BCA clause H2V1 and has a similar methodology and testing procedure to BCA Verification Method F3V1, for Class 2 to 9 buildings.



The relevant parts of the NCC can be found at:

NCC (2022) BCA Volume 1, Part F3, Roof and wall cladding:

ncc.abcb.gov.au

NCC (2022) BCA Volume 2, Part H2, Damp and weatherproofing:

ncc.abcb.gov.au

Further information on providing a Performance solution for weatherproofing can be found on the ABCB website at:

www.abcb.gov.au/Resources/Publications/Education-Training/Weatherproofing

Further information on windows in external walls can be found in AGWA technical fact sheet: weatherproofing of buildings, NCC requirements, AS 2047(2014) and AS/NZS 4284.

<https://awa.associationonline.com.au/documents/item/2232>

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- **Evidence of suitability in accordance with Part A5.**

As with NCC Volume 1, a wall system that has been tested and certified as complying with BCA clause H2P2 can be selected. This certification is usually a CodeMark or similar certificate issued by a certification body or Accredited Testing laboratory.

DESIGN CONSIDERATIONS

The success, or failure, of a weatherproof design can be directly related to a number of project specific risk factors, many of which are itemised in BCA Table F3V1a, and can include the following:

- The wind region where the building is located and the orientation of the walls.
- The height and number of storeys of the building.

The complexity of the building envelope, including any setbacks, balconies, overhanging eaves and similar features.

- The potential for differential movement in the building, with provision for movement joints.
- The number of different cladding and walling types proposed and their associated junctions and detailing.
- The resistance to impact of any cladding system, or other accidental damage.
- The function of any cladding panels (i.e. rainscreen with drained cavity, or a fully sealed cladding system).
- Materials lifespan, in particular finishes and sealants, and access for maintenance.

All the above criteria should be considered when designing an external wall to achieve compliance with the NCC.

SPECIFYING EXTERNAL WALLS USING NATSPEC

NATSPEC worksections, including all cladding and walling worksections, have prompts and guidance text that address weatherproofing, as well as related wall design issues including fire performance, acoustic and thermal performance. NATSPEC clauses identify the Australian Standard tests applicable to walling materials and **SUBMISSIONS** clauses require submission of evidence of testing and conformity.

NATSPEC window and glazing worksections contain guidance on making sure windows are compliant to AS 2047, a key requirement of BCA clause F3D4.

Product certification of conformity provided by manufacturers is a useful guide for the specifier when selecting a wall or cladding system and helps to provide certainty throughout the design and construction process.

Many worksections also have a clause to stipulate the use of experienced subcontractors, which can be particularly relevant for weatherproof installations where consistent, good quality workmanship is essential

DEMONSTRATING COMPLIANCE

To demonstrate compliance with weatherproofing requirements, the building designer will need to check that their documentation is compatible with the Deemed-to-Satisfy provisions, or the project Performance Solution, including any product certification relied upon. Copies of the relevant certification may need to be submitted to the Principal Certifying Authority.

For construction, the contractor will have to certify the work has been carried out in accordance with the Performance Solution or relevant Australian Standard cited in the NCC.