



WANZ WIS – DRAINED CAVITY AND OPENINGS

The Window Association of New Zealand has developed an Alternative Solution to the details in E2/AS1. Known as the WANZ WIS details, we look at how it works and what to watch out for.

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The article on pages 15–17 described the E2/AS1 option for the design and construction of a drained and vented cavity with aluminium window and door joinery. These details ensure that any water that may penetrate the cladding and enter the cavity is managed back out to the face of the building exterior at the earliest opportunity.

Installation difficulties with E2/AS1

One of the difficulties with the E2/AS1 details is having to install the head flashing at the correct height and location against the wall underlay and building frame prior to the installation of the cavity battens, exterior cladding and aluminium joinery. Difficulties can also arise with cutting and fixing the cladding (especially sheet claddings) around the pre-installed head flashing and also when installing the joinery. Builders often need to ‘spring’ the head flashing upwards to allow the unit to be inserted into the completed opening.

Some of these difficulties are overcome with the WANZ WIS (Window Installation System) developed by the Window Association of New Zealand. It includes a range of details for window and door installation for both direct fixed and drained and vented cavity construction that can be submitted as an Alternative Solution.

Two different approaches

The WANZ WIS drained and vented cavity installation details are similar to the E2/AS1 details except in one key aspect – WANZ WIS has a cavity closer drainage device at the window or door head. The cavity closer acts as a drain within the cavity, collecting water that has penetrated the building exterior above the window and draining it to one or both sides of

the window or door head. The water then drains down and out the cavity at the bottom of the cladding or at an inter-storey drainage detail. The head flashing does not drain water from the cavity as it does in the E2/AS1 details – it acts purely as a traditional deflection device protecting the junction between the exterior cladding and the top of the aluminium joinery.

Water is in the cavity for a longer time, so the system is more reliant on the construction and performance of the cavity and its ability to manage water down to the base of the cavity which is fundamentally different from the E2/AS1 details, where the water is removed from the cavity at the earliest opportunity.

With the WANZ system, the window and door joinery can be installed before the installation of the head flashing, the cavity battens and the exterior cladding – in line with more traditional construction methods.

Wall underlay and flashing tape

The construction sequence for WANZ WIS is shown on the next page. The first step is to protect the timber-framed opening by taking the wall underlay into the full depth of the frame and securing it around the perimeter of the opening.

Like E2/AS1, WANZ WIS also employs flexible flashing tape as secondary protection to the corners and sill trimmer to the opening. The tape should adhere to the wall underlay covering the full depth of the framing and run a minimum of 200 mm (as opposed to 100 mm for E2/AS1) along the head and down the jamb at each corner and then be turned out 50 mm and adhered to the face of the wall underlay.

Install the tape to the entire width of the sill trimmer and turn up the jamb a minimum of 200 mm (again, E2/AS1 only calls for 100 mm)



Cavity closer with fall to one side of opening.

at each end, and turn out 50 mm over the face and adhere to the wall underlay.

The flashing tape may need to be cut at the four corners so it can be dressed out over the face of the wall underlay. Any exposed wall underlay or framing needs to be covered with another layer of tape so secondary protection is provided to the entire corner. It is not necessary to tape the entire width of the head or length of the jambs. Take care to avoid a large build-up of tape.

Support brackets and joinery

The joinery needs to be sized to ensure:

- a 10 mm minimum flange cover of the unit over the cladding at the jamb and sill
- a 5 mm minimum clearance between the back of the timber reveal and the prepared opening, to form a trim cavity.

Often these tolerances are not left and the trim cavity is too small.

The joinery unit may also need to be supported by packers or proprietary support brackets at the sill. These should be installed according to the joinery manufacturer's recommendations.

The joinery is then installed with the flanges fitted tight back against the cladding, and the jamb to cladding joint is then sealed or →

covered with a protection device such as a scribe so water does not penetrate behind the jamb flange. Where windows are installed before the cladding, allow for the cladding thickness.

Air seal next

Once the joinery unit has been fixed in place, insert a PEF backing rod in to the trim cavity, then form the air seal by installing a continuous bead of waterproof expanding foam sealant around the entire perimeter of the opening on the inside line of the frame to the minimum 5 mm trim cavity. Ensure that the sealant adheres to both the wall underlay/flexible flashing tape and the timber reveal to create an airtight seal. This air seal is fundamental to the performance of the drained and vented cavity.

As with E2/AS1, the sealant needs to be accurately installed so that it does not expand into the trim cavity. Like the details in E2/AS1, the WANZ WIS is a pressure-moderated installation system, which negates the potential for water to be driven towards the lower pressure interior of the building through the cladding assembly.

Unlike E2/AS1, the use of a PEF backing rod is not compulsory but is recommended by BRANZ.

Cavity closer drain

Once the joinery has been fixed in place, install the cavity closer drain in the correct location at the window or door head. The closer should extend 60 mm past either side of the unit, and the 50 mm high closer upstand should be fixed to the face of the frame on the wall underlay with a slight camber, to provide a drainage fall from the centre to each end. The WANZ WIS cavity closer is a proprietary flashing device (with no substitutions allowed) that is sized to suit the nominal 20 mm depth of the cavity and is sloped to the front, allowing any water collected from within the cavity to be held against the back, or potentially wet side, of the exterior cladding.

Install a layer of flexible flashing tape or (as BRANZ recommends) another layer of wall underlay across the width of the cavity closer so any water that may penetrate even further into the cavity and drain down the wall underlay will drain off the wall underlay into the closer.

Cavity battens and head flashings

Next, install the vertical cavity battens, ensuring they are fixed over the cavity closer upstand but stop short of the drainage section of the closer to allow cross drainage.

A traditional head flashing with a minimum fall of 15° is required to ensure that the width of the head of the window or door is protected at the junction with the exterior cladding. The flashing should be installed a minimum of 30 mm past each side of the jamb flange or any scribe or jamb protection device that is to be part of the cladding installation.

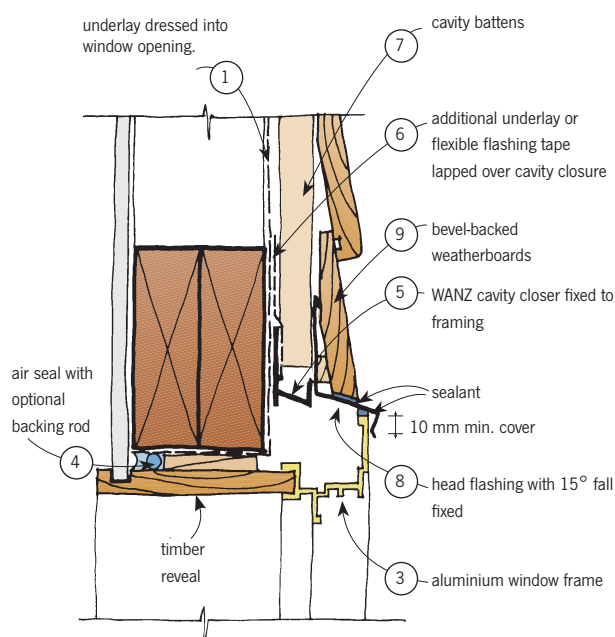
The head flashing upstand should have a minimum cover of 35 mm behind the cladding and be fixed to the face of the cavity battens and sealed hard down onto the head flange of the joinery unit, with the front downturn of the flashing providing a minimum 10 mm cover over the head flange.

Exterior cladding

The system is completed by installing the exterior cladding. There is no requirement for a gap from the top of the head flashing to the underside

WANZ WIS window head detail construction sequence for weatherboards

- Step 1 – Install wall underlay, cut and fold back around opening.
- Step 2 – Tape top corners with flexible flashing tape and across the sill trimmer with a 200 mm turn-up at each end.
- Step 3 – Install window. Fix in place with required packers.
- Step 4 – Install air seal.
- Step 5 – Fix WANZ cavity closer to wall framing over underlay.
- Step 6 – Install tape lapped over the cavity closer upstand.
- Step 7 – Install cavity battens.
- Step 8 – Fix head flashing to cavity battens. Ensure a 30 mm overhang of window at each end and that there is a minimum 15° fall to the exterior.
- Step 9 – Install cladding.



WANZ WIS detail of window head flashing with cavity-fixed, bevel-backed weatherboards. Step 2 is not in the drawing view.

of the cladding as, unlike the E2/AS1 method the head flashing is not draining water from the cavity at the unit head. The cladding should also be sealed to the flashing for a distance of 50 mm in from each end. Seal the joinery unit to the cladding for the length of the sill and the jambs or incorporate some form of protection device, as per the cladding manufacturer's recommendations.

The WANZ WIS is accepted as an Alternative Solution by many Building Consent Authorities, and detailed information regarding installation of the system in a range of exterior cladding types in both direct fix and drained and vented cavity construction is available from WANZ. ♦