

Purlin Spans and HWC Safe Trays

Watch Your Purlin Spans and Spacing If You Are Using E2/AS1

Our inspection team are frequently finding that the end span between purlins is too large – not something you want to find out once you have all the purlins fixed in place!

So where does the requirement for a smaller end span come from?

Purlin span information in NZS 3604:2011 *Timber-framed buildings*. Tables 10.10, 10.11, A15.9 and A15.10 gives maximum span, spacing and fixing distances to meet structural requirements. Tables for purlin spacing are covered in E2/AS1 Tables 11 and 12 for steel corrugate profiled roofing, Table 13 for trough profile and Tables 14 and 15 for trapezoidal profile cover spacing required based on base metal thickness (BMT) and profile. This is what the roofing can span (not what the timber can span) - so is about the spacing of purlins along the rafters.

The end span is the distance from ridge or fascia, and the intermediate span is for the metal roofing spans in parts other than at the ends. The tables also cover the required fixing pattern in various wind zones.

Before using NZS 3604 for purlin spacing, first check the proposed roofing metal thickness, as this dictates the maximum spacing of purlins, and then go to NZS 3604 to match the spacing required in E2/AS1 to calculate the size and orientation (on the flat or on edge) for the purlin required for the wind and snow zone.

Designers can assist in making sure the builder is aware of the requirements by ensuring they document the required purlin spacing's on their plans – we would recommend adding this information to the cross sections.

Safe Trays Under Storage Water Heaters and Associated Overflows

The 'Acceptable Solutions and Verification Methods for New Zealand Building Code Clause G12 Water Supplies' was amended on 1 January 2017.

The amendment means that if:

- you are installing a storage water heater (hot water cylinder), and
- you didn't have one installed previously, and
- G12/AS1 is your nominated means of complying with the Building Code;

then a safe tray is required with storage water heaters when installed in household units and occupancies adjoining household units.

When replacing an existing storage water heater with another storage water heater, a safe tray is not required, but it is recommended and will give additional protection to the homeowner from water damage.

Why are safe trays required?

Safe trays are required as a means to prevent water damage to household units caused by storage water heaters.

Why aren't safe trays required for replacement storage water heaters?

Installing a new storage water heater, including attaching the pipes, valves and seismic restraint, is new building work that is required to comply with the Building Code.

However, replacing an existing storage water heater is considered an 'alteration to an existing building' under the Building Act. The Building Act has upgrading provisions for alterations. These provisions relate to means of escape from fire, and access and facilities for people with disabilities, and that after the alteration the building will continue to comply to at least the same extent as it did before the building work.

So where an existing storage water heater does not have a safe tray, and is replaced as an alteration to an existing building, then a safe tray is not required, as the building is only required to comply to at least the same extent as before the alteration.

Are there other places that safe trays are not required?

Safe trays are not required in buildings that are not household units, unless the adjoining occupancy is a household unit. Buildings solely used as commercial buildings such as offices or warehouses do not require safe trays.

Safe trays are not required for non-storage water heaters, such as under-bench boilers/chillers and instantaneous water heaters.

Options to consider for new or replacement storage water heaters where a safe tray is difficult to install

If a safe tray is difficult to install, in either a new or replacement situation, other options can be discussed between the plumber or building designer and the owner of the building. These can include:

- locating the storage water heater outside
- using instantaneous water heaters.

Also it is a timely reminder that both the Acceptable Solution G12/AS1 and AS/NZS3500 require that overflow relief drains are to be copper.