DAM BUSTER®

Achieve Compliance with **Dam Buster Products**

NOTE: All Dam Buster® products are protected by various Australian and International Patents.

This document is to be read in conjunction Dam Buster publications titled 'Product Technical Statement' and 'Installation Manual'. Together, these documents form Evidence of Suitability for both the BCA & PCA in accordance with governing provisions A5.2 & A5.3.

EVIDENCE OF SUITABILITY

Version 5.0 (21 August 2023)

CERTIFIED PRODUCT
(DAM BUSTER RAINHEAD)

For testing of the Overflow Performance of Dam Buster rectangular rainheads.

GOOD DESIGN AWARD® WINNER

PRODUCT DESIGN
HARDWARE AND BUILDING

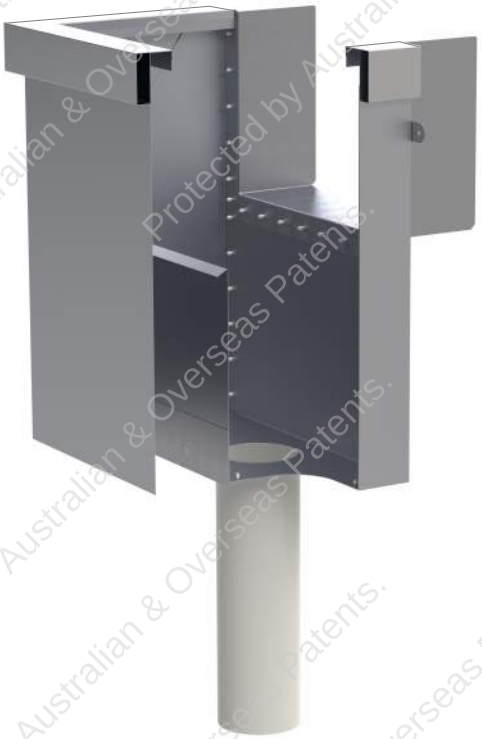
DAM BUSTER
RAINHEAD

"The Architectural Choice"

www.dambuster.com.au

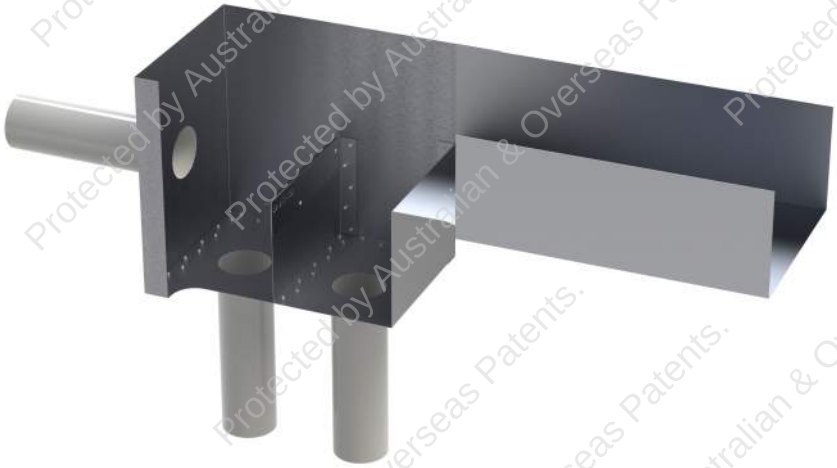
Dam Buster Roof Drainage System - Product Range

Overflow devices (1 of 2)



Dam Buster Rainhead

Dam Buster Curved Fronted Rainhead



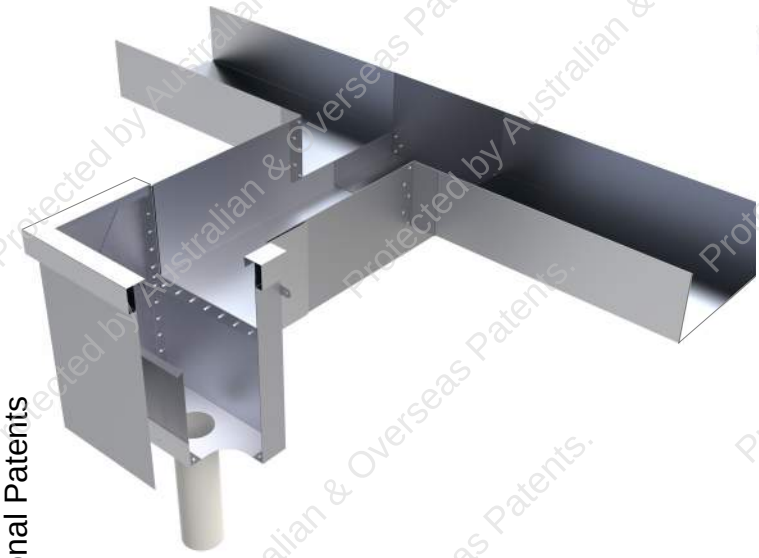
Dam Buster Sump

Dam Buster Back-to-Back Sump

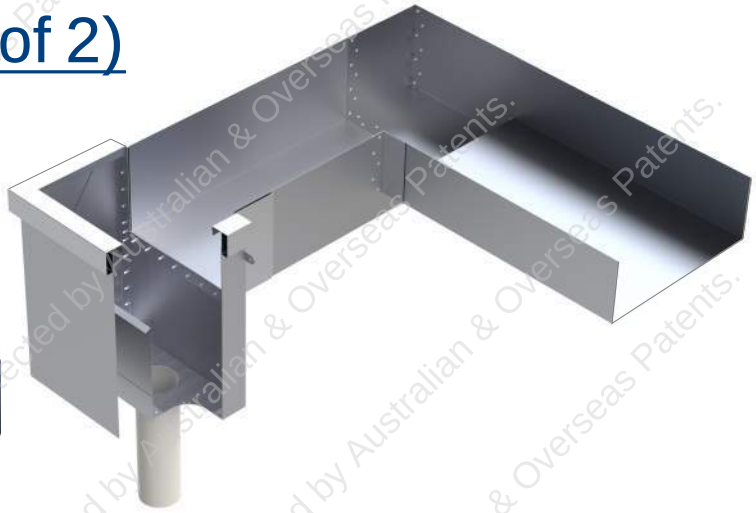
Dam Buster Continuous Sump

Dam Buster Roof Drainage System - Product Range (cont)

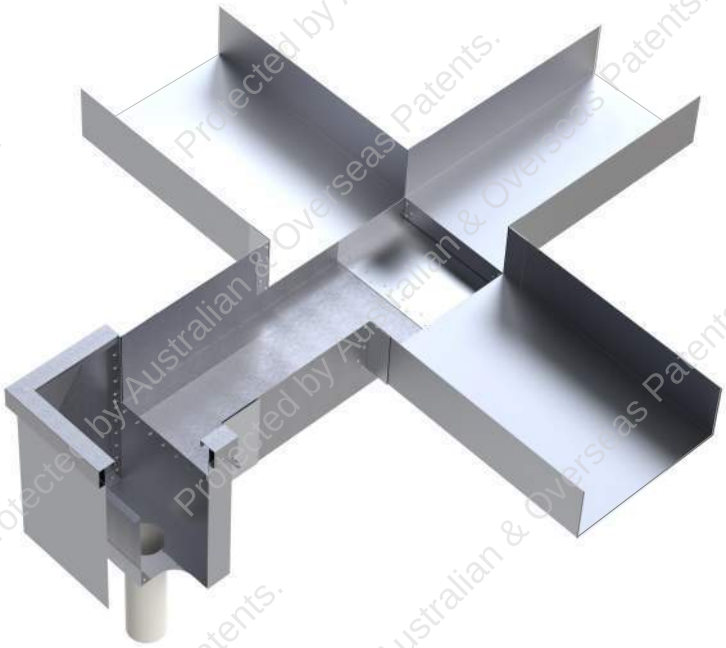
Overflow devices (2 of 2)



Dam Buster T Side Outlet & Rainhead



Dam Buster END Side Outlet & Rainhead
(LH & RH forms available)



Dam Buster CRUCIFORM Side Outlet & Rainhead

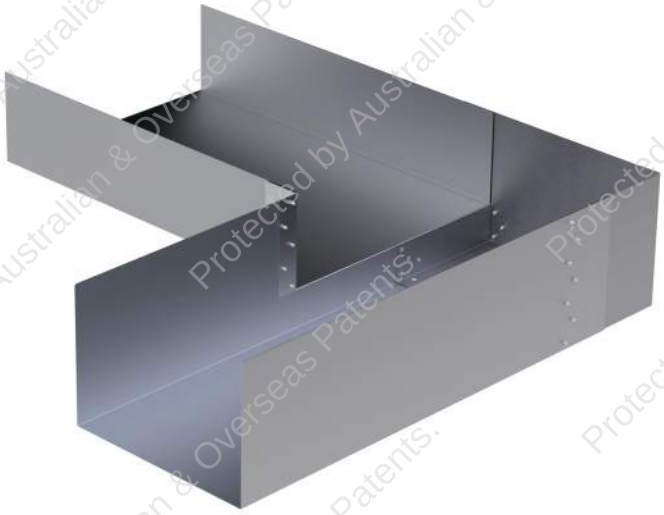
Dam Buster CORNER Side Outlet & Rainhead
(LH & RH forms available)

Dam Buster END Side Outlet & Sump
(LH & RH forms available)

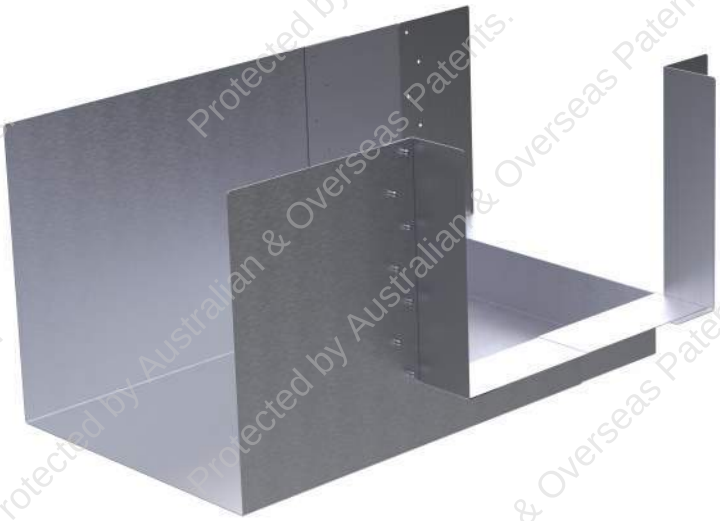
NOTE
The following Side Outlet & Sump combinations are also possible
Dam Buster T Side Outlet & Sump
Dam Buster Corner Side Outlet & Sump
Dam Buster Cruciform Side Outlet & Sump

Dam Buster Roof Drainage System - Product Range (cont)

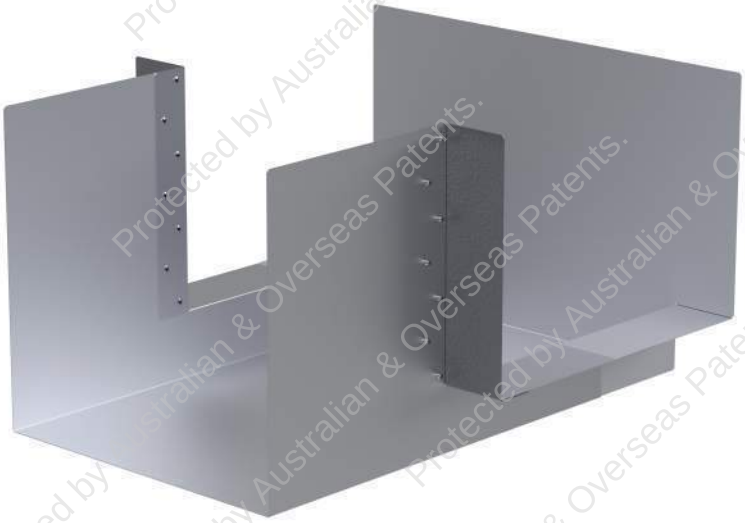
Upstream devices



Dam Buster Elbow



Dam Buster Corner Junction



Dam Buster T Junction

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NOTE

Where this document refers to any code, guide or manual, this reference should be interpreted as being for the current legal version of the code, guide or manual for the relevant state or territory, unless noted otherwise.

1.0 DAM BUSTER PRODUCTS

The components which form the Dam Buster Roof Drainage System can be used in both domestic (including multi-residential) and commercial roof plumbing applications.

Dam Buster products are comprised of Zincalume, Colorbond or other approved metal materials suitable for use in domestic and/or commercial roof drainage systems.

Models:

- Dam Buster **Rainhead**
- Overflow device comprising a **Dam Buster Side Outlet** (4 available types) and a **Dam Buster Rainhead** or a **Dam Buster Sump**
- Dam Buster **Sump**, **Continuous Sump** and **'Back-to-Back' Sump** ('free flow' sumps)
- Dam Buster **Elbow** & Dam Buster **Junctions** (2 available types)

2.0 COMPLIANCE WITH THE NCC

2.1 Governing requirements and Compliance Solutions

In all states and territories, roof drainage falls under the relevant sections of the NCC volumes 1 and 2 (i.e. the Building Code of Australia or BCA). However, in Victoria and Tasmania (only) there are state additions for roof drainage within the NCC Volume 3 (i.e. the Plumbing Code of Australia or PCA), enabling roof drainage to also be carried out as regulated plumbing work under the relevant state Plumbing Regulations.

There are different pathways through the NCC, but in all cases it is necessary to comply with both the **Governing Requirements** and the relevant **Performance Requirements** (which differ, but are similar, between the BCA and the PCA). Note the Part A Governing Provisions of the NCC is the same for each volume.

Part A2 of the NCC, titled '**Compliance with the NCC**' explains the possible methods of demonstrating compliance with the NCC. It explains the various '**Compliance Solutions'** available, and the appropriate steps that must be taken for each of these pathways. Part A2 includes the following chapters:

- A2G1 Compliance
- A2G2 Performance Solutions
- A2G3 Deemed-to-Satisfy Solution
- A2G4 A combination of solutions

2.2 Part A2G1 Compliance

Part A2G1 states:

(1) Compliance with the NCC is achieved by complying with-

(a) the Governing Requirements of the NCC; and

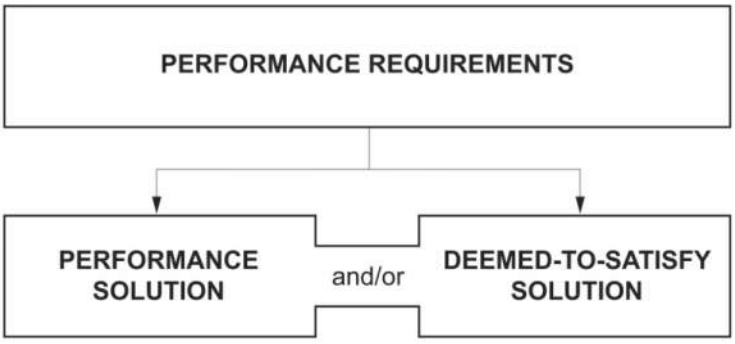
(b) the *Performance Requirements*

(2) *Performance Requirements* are satisfied by one of the following, as shown in Figure A2G1:

(a) Performance Solution

(b) Deemed-to-Satisfy Solution

(c) A combination of (a) and (b)



2.3 Part A2G2 Performance Solution

Part A2G2 Performance Solution states:

(1) A *Performance Solution* is achieved by demonstrating –

(a) compliance with all relevant *Performance Requirements;* or

(b) the solution is at least equivalent to the *Deemed-to-Satisfy Provisions*

(2) A *Performance Solution* must be shown to comply with the *Relevant Performance Requirements* through one or a combination of the following *Assessment Methods*:

(a) Evidence of suitability in accordance with Part A5 that show the use of material, product, plumbing and drainage product, form of construction or design meets the relevant Performance Requirements

(b) A *Verification Method* including the following:

i. The *Verification Methods* provided in the NCC

ii. Other *Verification Methods*, accepted by the appropriate authority that show compliance with the relevant Performance Requirements

(c) Expert Judgement

(d) Comparison with the *Deemed-to-Satisfy Provisions*

Section (4) of A2G2 provides details of the **Performance Solution Process** that is required to be followed when preparing a Performance Solution. The four main steps for this process are:

1. Prepare a **Performance Based Design Brief ('PBDB')**
2. Carry out an analysis
3. Evaluation the results
4. Prepare a **Final Report**

As discussed in section 3.2 of this document, it may be necessary to use Dam Buster products under a Performance Solution. However, Dam Buster has prepared Performance Solution templates for the PBDB and Final report, which make this process straightforward.

2.4 Part A2G3 Deemed-to-Satisfy Solution

Part A2G3 Deemed-to-Satisfy Solution states:

(3) A solution that complies with the *Deemed-to-Satisfy Provisions* is deemed to have met the Performance Requirements.

(4) A *Deemed-to-Satisfy Solution* can show compliance with the *Deemed-to-Satisfy Provisions* through one or more of the following *Assessment Methods:*

(a) Evidence of suitability in accordance with Part A5 that shows the use of a material, product, *plumbing* and *drainage product*, form of construction or design meets a *Deemed-to-Satisfy Provision*

(b) Expert Judgement

3.0 COMPLIANCE OF THE DAM BUSTER BOX GUTTER SYSTEM

3.1 Compliance of BOX GUTTERS discharging to a Dam Buster device

Box gutters discharging to all Dam Buster devices operate under 'free flow' in both the normal flow and overflow conditions. This means that all box gutters discharging to Dam Buster box gutter overflow devices must be designed in accordance with Appendix H, Figure H.1 of AS/NZS 3500.3-2021 in order to be certified as Deemed to Satisfy (DtS) solutions suitable for use with Dam Buster's free flow products.

The design of the upstream box gutter discharging to a Dam Buster Elbow is slightly different; it is designed for a flow rate equivalent to the total catchment area of the roof sections discharging to both the upstream and downstream box gutters, however it is still designed in accordance with Figure H.1. Note, it is not necessary to design the downstream box gutter from the Dam Buster Elbow, as it will automatically comply with Figure H.1 due to its increased depth as a direct result of the vertical drop within the Elbow. The Dam Buster Junctions are however designed slightly differently - please refer to the Product Technical Statement.

Note that all box gutters discharging to Dam Buster devices must be designed for a minimum of 3L/s and a maximum flow rate of 16L/s. If the calculated flow rate is less than 3 L/s, the minimum design flow rate of 3L/s should be adopted instead. Where more than one box gutter discharges into a Dam Buster box gutter overflow device, the overflow device is designed for the total of the actual design flows, but again not less than 3L/s.

The fact that all box gutters discharging to Dam Buster devices operate under free flow in both the normal flow and overflow conditions allows them to be designed 'independently' of the device itself.

In summary, all box gutters (which have been correctly designed for 'free flow' in accordance with Figure H.1, Appendix H, of AS/NZS 3500.3) utilised in conjunction with correctly sized and installed Dam Buster products are Deemed-to-Satisfy Solutions (unless otherwise covered by a separate box gutter Performance Solution, if necessary).

3.2 Compliance Solutions for Dam Buster DEVICES

Compliance of Dam Buster devices can be achieved by using either of the following **Compliance Solutions**:

1. Part A2G3(2)(b) – Deemed-to-Satisfy ('DtS') by Expert Judgement

   OR

2. Part A2G2 – Performance Solution

The first method, DtS by Expert Judgement, is preferred, however, if not accepted by the Regulatory Authority and / or Building Surveyor / Certifier, second method, Performance Solution can be used.

3.3 Compliance of Dam Buster DEVICES via Expert Judgement

All Dam Buster devices themselves have been certified as **Deemed-to-Satisfy by Expert Judgement** under part A2G3 (2)(b). Refer to section 6 for details of Dam Buster's hydraulics expert, Adjunct Associate Professor Robert Keller ('Keller').

Keller has reviewed the Dam Buster Box Gutter System, and prepared a number of expert opinions, based on the following:

- Physical testing of Dam Buster rainheads in the overflow condition by Associate Professor Dr. Terry Lucke, AHSCA Research Foundation.
- Physical testing of Dam Buster devices, carried out by Dam Buster, under the supervision of Keller.
- Analyses of Dam Buster devices using hydraulics theory
- Comparison of the physical testing results with the analyses using hydraulics theory
- Benchmark comparison of Dam Buster device with the three DtS box gutter overflow devices in AS/NZS 3500.3, i.e.
  - Rainhead
  - Sump and Side Outlet
  - Sump / High-Capacity Overflow device
- Assessment of whether the Dam Buster devices comply with the general principles in AS/NZS 3500.3

Keller's expert opinions contain commercially sensitive information, and consequently are not publicly available. However, aspects of these opinions which consider whether Dam Buster devices comply with the general principles of AS/NZS 3500.3 are included in section 4 of this document.

3.4 Compliance of Dam Buster DEVICES via Performance Solution

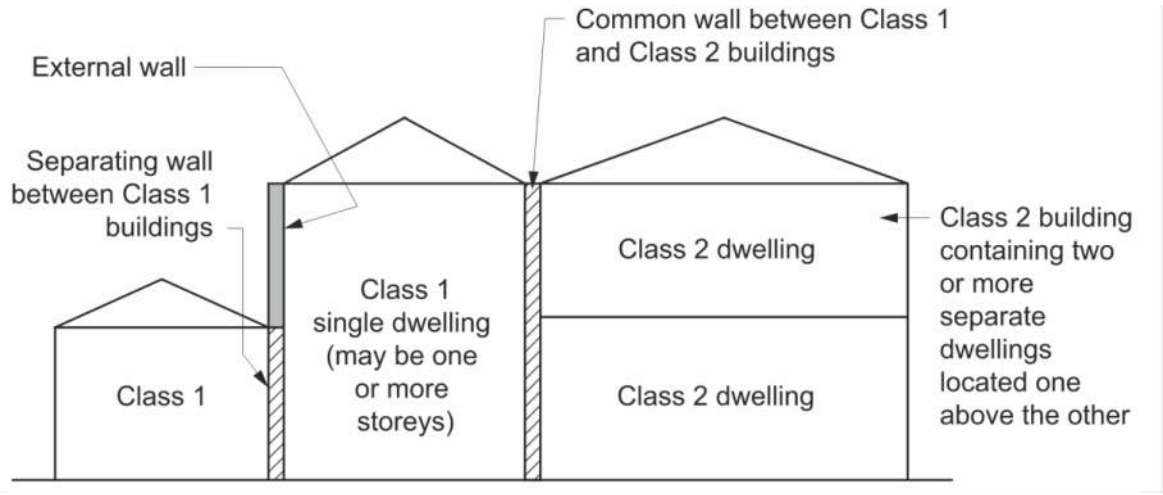
In order to simply the Performance Solution Process, Dam Buster has prepared the following templates, which may be downloaded from the website.

Performance Based Design Brief template

- This may be used for all volumes of the NCC
- It applies to all classes of buildings

Final Report templates

- The Performance Requirements between the different volumes of the NCC are similar, with some variations. Final report templates are available for
  - BCA Volume 1 – Class 2 to 9 buildings
  - BCA Volume 2 – Class 1 and Class 10 buildings
  - PCA (Victoria)
  - PCA (Tasmania)
- Notes-
  - Individual houses, including townhouse are Class 1
  - Where individual dwellings are location above or below other individual dwellings, they become Class 2, as shown below:



Class 1 & Class 2 dwellings

Refer to the last page of Dam Buster's Quick Guide for a summary of the steps required in the **Performance Solution Process.**

4.0 REVIEW OF DAM BUSTER DEVICES IN RELATION TO AS/NZS 3500.3

The main outcomes of Keller's opinions in relation to his comparison with the general principles of AS/NZS 3500.3 are discussed below.

4.1 Hydraulic operation

- All Dam Buster devices operate under 'Free flow' in both the 'design flow' and 'overflow' conditions. This compares to the three prescribed DtS devices as follows:
    - *Rainhead*
        - Free flow in the design flow and overflow conditions
    - *Sump & Side Outlet* ('SSO') and Sump / *High-Capacity Overflow* ('HCO') devices:
        - Free flow in the design flow condition
        - Backwatering is required in the overflow condition. This flow regime is hydraulically very complicated.

    Consequently, the nature of the flow within Dam Buster's devices is not as complex as the SSO and HCO devices.
- 3500.3 requires that the overflow capacity be at least equal to the design flow capacity. All Dam Buster overflow devices have an overflow capacity at least equal to (or greater than) their design flow capacity.

4.2 Design flow range

- 3500.3 is limited to a maximum of 16 L/s.
- All Dam Buster devices are designed for:
    - A minimum of 3 L/s
    - A maximum of 16 L/s
- Dam Buster adopts the philosophy that for flows less than 3 L/s, the device is designed for 3L/s. 3500.3 does not specifically state that the minimum design flow is 3L/s, however, in general, solutions are only provided for flow between 3 L/s to 16 L/s. The Victorian Building Authority (VBA) has also endorsed this approach in recent webinars and fact sheets.

4.3 Sizing

- 3500.3 requires the width of box gutters to be in the range 200mm to 600mm
- The width of all Dam Buster products is also in the range 200mm to 600mm.
- It is noted that 3500.3, clause 3.7 Box Gutter Systems, sub-clause *3.7.3 Limitations*, NOTE 3, states *'The minimum width of box gutters used for commercial construction is 300mm. Box gutters 200mm wide may be used for domestic construction, but they are more prone to blockages. Additional height is recommended where possible.'* This clause implies the higher risk of blockage in a narrower gutter can be mitigated by adopting a deeper box gutter (than required).
- This is essentially the philosophy adopted in the design of the DB *Side Outlet, Elbow* and *Junction* devices i.e. the '*Downstream*' or '*Outlet*' box gutter is significantly deeper than that required by Figure H.1 of 3500.3 in recognition of the possible increased risk in blockage due the effective change in direction. However, this risk is also mitigated by the step in the device itself, due to the turbulence created within the open sided 'sump'.
- The depth of the '*Downstream*' box gutter is greater than the depth of the '*Upstream*' box gutter by the height of the step in the above noted device.
- Analyses show that backflow cannot occur within the 'Upstream' box gutter.
- As a consequence of the above noted geometrical constraints, and design philosophy, the freeboard in the '*Downstream*' box gutter (excluding the device itself) is greater than that implied when designed in accordance with Figure H.1 of 3500.3 by an amount which is equal to, or greater than, the height of the step in the device, plus the fall in the '*Upstream*' box gutter.
- As a further consequence of the above noted geometrical constraints and design philosophy, the depth of the '*Downstream*' box gutter (excluding the device itself) automatically exceeds the depth required by Figure H.1 of 3500.3.

4.4 Dam Buster Rainhead

In the design flow condition, the Dam Buster rainhead is designed and constructed in accordance with 3500.3, Figures H.1, H.2 and H.3. The construction of the Dam Buster rainhead, having a box gutter receiver, also facilitates a compliant seal (in accordance with section 4 *Installation* of 3500.3) between the box gutter and the rainhead. It is noted that, in practice, box gutters are typically either not sealed to the rainhead, or not sealed in a compliant manner.

With reference to Figure H.2, NOTE 4 requires *the front of the rainhead to be left open above the overflow weir.* The Dam Buster rainhead complies with this requirement.

There are no other design restrictions specified in 3500.3.

Testing of Dam Buster Rainheads by the AHSCA Research Foundation

Independent testing of all Dam Buster rainheads was carried out by the AHSCA Research Foundation ('AHSCA-RF') at the stormwater research facility located at the University of the Sunshine Coast, Queensland. This testing was primarily for the overflow capacity of the rectangular rainheads, and all Dam Buster rectangular rainheads achieved overflow rates of at least 16 L/s.

The normal flow capacities of all Dam Buster rainheads have been determined in accordance with AS/NZS 3500.3 ('3500.3'), and the flow capacities have also been checked and independently certified by Dr Keller, in addition to the certifications issued by the AHSCA-RF.

Overflow Performance Test Certificates issued by Dr Terry Lucke and Mark Alexander are available on the AHSCA Research Foundation's website at the following web address:

https://www.ahscaresearch.com.au/dam-buster-rainheads/

NOTE: The AHSCA-RF also tested the 200-1 rainhead for normal flow capacity with a 100x50mm DP since although 3500.3 permits the usage of this size DP, the 3500.3 design charts have not been updated to include this size.

In summary, the Dam Buster rainhead complies with all the requirements of 3500.3 and is therefore considered to be DtS by Expert Judgement.

4.5 Dam Buster Sump

The Dam Buster Sump could be considered in general terms as an 'internal rainhead'.

In the design flow condition, the Dam Buster *Sump* operates in the same manner as a Rainhead.

In the overflow condition, the Dam Buster *Sump* operates in the same manner as a *Sump* to Figure H.4. Testing has confirmed that the overflow capacity of the Dam Buster *Sump* exceeds its design flow capacity.

The Dam Buster *Sump* has the following additional safety features:

- A minimum downpipe size of 100mm is adopted (even when a 90mm downpipe is hydraulically adequate)
- Where possible, an 'overflow indicator' is added by the installer. The purpose of this is to alert the building owner or occupant of the (unlikely) event that both the design and overflow downpipes are blocked, and also acts as a secondary overflow to a certain degree (but significantly less than the design flow)

In summary, the Dam Buster sump complies with all the requirements of 3500.3 and is therefore considered to be DtS by Expert Judgement.

4.6 Dam Buster Continuous Sump

The Dam Buster continuous sump is simply a series of Dam Buster Sumps connected in sequence. An additional safety feature is provided – the end wall of the overflow compartment, and the upstream wall of the next sump in the series are both cut down by 60mm (which is twice the freeboard specified in 3500.3), such as to allow overflow from the box gutter into the next sump in the series, if necessary.

4.7 Dam Buster Back-to-Back Sump

The Dam Buster Back-to-Back Sump is simply two Dam Buster Sumps joined back-to-back. The rear walls of the overflow compartments are also cut down by 60mm as an additional safety feature.

4.8 Change of Direction – Dam Buster Side Outlets, Elbows & Junctions

- 3500.3 states that:
  - Box gutters must be straight, without change in direction
  - Box gutters must discharge to a sump or a rainhead
- Correctly installed, all box gutters discharging to, and discharging from, a Dam Buster device are straight, and do not change direction.
- As discussed above, the Dam Buster *Side Outlet*, *Elbow* and *Junction* devices are considered to be shallow, open sided sumps, not box gutters, with the deeper '*Downstream*' or '*Outlet'* box gutter discharging through the one open side wall in the 'sump'. Critically, the open sided 'sump' component itself is entirely designed to facilitate an engineered change of direction and thereby transfer discharge from the (straight) '*Upstream*' box gutter to the (straight) '*Downstream*' box gutter. The open sided 'sump' is therefore not designed to retain any water.
- There are two critical aspects of the hydraulic design and operation of the above noted devices, as follows:
  - The depth of the 'sump' or 'step' into the device must exceed the energy loss which occurs within the device due to the change of direction being facilitated. Testing, as well as hydraulic analyses, confirms that this is true for all these devices.
  - The minimum required freeboard within the box gutter and device must be maintained at all locations within the device. Testing, as well as hydraulic analyses, also confirms this to be true for all these devices.

In summary, the *Side Outlet*, *Elbow* and *Junction* devices safely **facilitate** a change in direction, however critically the *Upstream* and *Downstream* box gutters **do not change direction** or contravene 3500.3 in any way. **All box gutters are straight and discharge to either rainheads or sumps***

***** The Dam Buster Side Outlet, Elbow and Junction devices are all considered to be open ended sumps.

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4.3.9 Summary

Keller's opinions include detailed comparisons of Dam Buster's devices with the DTS provisions within AS/NZS 3500.3 (i.e. for the design of box gutters and overflow devices within this standard). These comparisons indicate that Dam Buster devices are as safe as the DTS provisions.

In particular, it is demonstrated that the freeboard is always at least equal to, or greater than, the freeboard required by the standard. Additionally, the overflow capacity of Dam Buster's box gutter overflow devices significantly exceeds the normal flow capacity in all cases.

5.0 RESPONSIBILITY OF INSTALLING PLUMBER

It is the licensed roof plumber's responsibility to certify all works associated with the installation of the box gutters and Dam Buster devices in accordance with the specific requirements of that State or Territory.

6.0 DAM BUSTER'S EXPERT

Dam Buster's Expert, Adjunct Associate Professor Dr Robert Keller of Monash University. Dr Keller is a highly reputable hydraulic engineer with the qualifications and experience to determine that the Dam Buster roof drainage system devices meet the relevant Performance Requirements of the NCC. Dr Keller has over forty years of experience in Civil Engineering Hydraulics. Currently a consulting engineer, his main areas of expertise are steady and transient flow analyses of pipe network systems, physical and numerical modelling of river works and hydraulic structures, river stability, bank and bed protection, scour studies, and urban storm drainage analyses. He has conducted many technical courses for practising engineers in Australia, New Zealand and Southeast Asia.

Adjunct Associate Professor Dr Robert Keller

Dr Keller was previously an Associate Professor at Monash University, retiring in 2008, and is currently an Adjunct Associate Professor at Monash University who continues to consult in his area of expertise. Dr Keller is the author or co-author of over 120 technical papers in addition to numerous consulting reports and has received various honours and awards for his work.

7.0 EVALUATION METHODS

This Evidence of Suitability applies to all sizes of the following components of the Dam Buster Roof Drainage System:

A. Dam Buster **Rainhead** overflow device

B. Overflow device comprising a Dam Buster **Side Outlet** (4 available types) and a Dam Buster **Rainhead** or **Dam Buster Sump**

C. Dam Buster **Sump,** Dam Buster **Continuous Sump** or Dam Buster **Back-to-Back Sump** overflow devices

D. Dam Buster **Elbow** & Dam Buster **Junctions**

Testing of Dam Buster Rainheads by the AHSCA Research Foundation

Independent testing of all Dam Buster rainheads (product A above) was carried out by the AHSCA Research Foundation ('AHSCA-RF') at the stormwater research facility located at the University of the Sunshine Coast, Queensland. This testing was primarily for the overflow capacity of the rectangular rainheads, and all Dam Buster rectangular rainheads achieved overflow rates of at least 16 L/s.

The normal flow capacities of all Dam Buster rainheads have been determined in accordance with AS/NZS 3500.3 ('3500.3'), and the flow capacities have also been checked and independently certified by Dr Keller in addition to the certifications issued by the AHSCA-RF.

Overflow Performance Test Certificates issued by Dr Terry Lucke and Mark Alexander are available on the AHSCA Research Foundation's website at the following web address:

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NOTE: The AHSCA-RF also tested the 200-1 rainhead for normal flow capacity with a 100x50mm DP since although 3500.3 permits the usage of this size DP, the 3500.3 design charts have not been updated to include this size.

Testing of Dam Buster box gutter overflow devices B and C by Dr Keller

Dam Buster P/L carried out testing of overflow devices B (overflow device comprising a Dam Buster Side Outlet and a Dam Buster Rainhead) and C (Dam Buster Sump) in a custom built flow test rig located in Clayton, Victoria and assembled by Dam Buster P/L.

The flow rates were measured using a Flexim Fluxus F601 ultrasonic transit time flow meter, sourced from PriCam Automation P/L, and installed by a technical representative from this company. The flow meter has a stated accuracy of +/- 1%.

All testing was independently supervised and witnessed by Dr Keller, and this testing formed the basis of his Expert Opinion for devices B and C.

Evaluation of Dam Buster device D (Dam Buster Elbow) by Dr Keller

Development of device D (the Dam Buster Elbow) was initiated on the basis of the results of the physical testing of the Dam Buster device C, as the Elbow is hydraulically similar to the Side Outlet device B.

A numerical analysis of the Dam Buster Elbow was carried out by Dr Keller to ensure backwatering (i.e. the impeding of hydraulic free flow) could not occur in the Dam Buster Elbow. The calculations demonstrated that the head loss in the bend is always significantly less than the step down / 'drop' between the 'upstream' (or 'upper') and the 'downstream' (or 'lower') box gutter. This modelling and analysis by Dr Keller formed the basis of the certification and constraints associated with the usage of the Dam Buster Elbow device.

Physical testing of device D was later carried out in a purpose-built test rig located in Kalorama (Victoria), and the flow rates were also measured using the same instrument as for devices B and C. This testing was supervised and witnessed by Dr Keller.

The physical testing produced results which aligned well with the theoretical hydraulic analyses by Dr Keller. Of particular interest was the maximum water level in the Elbow, which occurred at and near the outer corner of the Elbow where the water changes directions (i.e. immediately downstream of the step down, at the Elbow wall impacted by the discharge).

An analysis of the water level at this location, taking into account Dam Buster's design criteria and Elbow geometry, identified that the freeboard at this critical design location was more than satisfactory, and well within the expectations of 3500.3. The detailed review and commentary of the Elbow by Dr Keller also considered the potential effects of debris within the gutter and noted that "*the turbulence generated by the drop was expected to assist with preventing debris from accumulating in the Elbow and clearing debris in the Elbow".*

8.0 MANUFACTURE OF DAM BUSTER PRODUCTS

All Dam Buster licensed manufacturers are subject to strict manufacturing requirements, and Dam Buster maintains close communication with its fabricators to provide technical assistance, and also to ensure that a high quality of the Dam Buster products is maintained. All manufacturing and assembly is carried out in Australia using Australian BlueScope steel products. Sealed aluminium rivets used in assembly of Dam Buster products are sourced from companies having ISO9001 Quality Certification. All Dam Buster products carry clear identification.

9.0 DESIGN & INSTALLATION OF DAM BUSTER PRODUCTS

Design of Dam Buster products should only be carried out in accordance with the **Product Technical Statement** by competent users of AS/NZS 3500.3.

All Dam Buster products must be installed strictly in accordance with the **Dam Buster Roof Drainage System Installation Manual** and the associated box gutters must all be installed in accordance with all relevant codes and standards, as prescribed by the relevant state or territory.

Failure for the Dam Buster devices not to be selected / designed as specified above, or failure to install the devices in accordance with Dam Buster's Installation Manual, will void any warranty on the Dam Buster products and further, Dam Buster Pty Ltd and Dam Buster IP Pty Ltd will not be responsible for any losses whatsoever arising from such failure/s, no matter what their nature, nor how caused.

10.0 LIMITATIONS AND CONDITIONS

Dam Buster products are designed for use in strict compliance with all relevant Australian and New Zealand standards including, but not restricted to, AS/NZS 3500.3. They must not be used for any other purpose or in any way except as permitted in the publication titled '*Dam Buster Product Technical Statement'.* It is the responsibility of the roof plumber and builder to ensure full compliance with this document and with all relevant Australian and New Zealand standards.

11.0 INTELLECTUAL PROPERTY AND KNOW-HOW

Dam Buster is a registered Trademark both in Australia and Overseas, and all Dam Buster products are also protected by a comprehensive range of Australian and Overseas patents. Breaches of Intellectual Property and Know-How rights are serious and will be pursued by Dam Buster Pty Ltd / Dam Buster IP Pty Ltd against any infringers.

With the exception of the AHSCA-RF Overflow Performance Certificates, Dam Buster has chosen not to make testing data which provides evidence of compliance of the Dam Buster products publicly available, due to this being confidential information.