BUILDING MATTER **Roof Design using a Box Gutter System**

This Final Report and/or Performance Solution is not valid if applied to non-genuine Dam Buster imitation copies. Dam Buster patented products have name plate ID and / or serial number ID as well as unique security features known only to Dam Buster. Patent and Intellectual Property infringers will be vigorously pursued.

PROJECT ADDRESS

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PROBLEM – Deemed to Satisfy (DtS) box gutter solution is not suitable for roof layout and / or is not aesthetically acceptable

Available DTS box gutter solutions provided in AS/NZS 3500.3 are not suitable for this project in one or more locations, as discussed in the Performance Based Design Brief.

SOLUTION – Use of proprietary box gutter devices

It is proposed to use the following **Dam Buster®** box gutter device(s) in lieu of the DtS box gutter solutions specified in AS/NZS 3500.3.

a) Box gutter overflow devices

- **Dam Buster®** Rainhead
- **Dam Buster®** Side Outlet* and Rainhead combination
- **Dam Buster®** Side Outlet* and Sump combination
- **Dam Buster®** Sump and **Dam Buster®** Continuous Sump & **Dam Buster®** Back-to-Back Sump

  * T Side Outlet, End Side Outlet, Corner Side Outlet, and Cruciform Side Outlet

Note - cross out devices not used

NOTES

1. Box gutters discharging to **Dam Buster®** box gutter overflow devices must be designed for free flow (in both the normal flow and overflow conditions), in accordance with Appendix H, Figure H.1 of AS/NZS 3500.3, for flows between 3 L/s and 16 L/s. All box gutters with calculated flow rates lower than 3L/s must be designed for a minimum of 3L/s.
2. In the normal flow condition, the **Dam Buster®** rainhead is fully compliant with AS/NZS 3500.3.
3. Testing of the **Dam Buster®** in the overflow condition was carried out by the AHSCA Research Foundation, and each rainhead was determined to have an overflow capacity exceeding 16 L/s.
4. Further to Note 1, all box gutters discharging to **Dam Buster®** devices can be designed 'independently'* of the **Dam Buster®** device in accordance with AS/NZS 3500.3 and are therefore considered to be 'Deemed-To-Satisfy' Solutions (when correctly designed and installed). Consequently, compliance is achieved in accordance with NCC Governing Provision **A2.4 *A combination of solutions***, where:
   - The box gutter(s) is **Deemed-to-Satisfy**
   - The **Dam Buster®** device(s) is a **Performance Solution**

   * The AS/NZS 3500.3 DTS Sump and Side overflow device, and Sump / High-capacity overflow device, are designed integrally with the box gutter(s) because, in the overflow condition, backwatering must occur in the box

gutter(s) itself i.e. the flow within the box gutter is no longer 'free flow' (as it is in the 'normal flow' condition').

5. The **Dam Buster®** Side Outlet may only be used in combination with a **Dam Buster®** Rainhead or the AS/NZS 3500.3 DTS rainhead or the **Dam Buster®** Sump. Similar to the **Dam Buster®** Elbow, the four types of **Dam Buster®** Side Outlets incorporate a specific step-down dimension to facilitate a change in direction of one or more box gutters and are hydraulically similar to the **Dam Buster®** Elbow and **Dam Buster®** Junction.

b) Change of direction in box gutter (not an overflow device)

- **Dam Buster®** Elbow
- **Dam Buster®** Junction**

** Tee Junction and Corner Junction

Note - cross out devices not used

NOTE

The **Dam Buster®** Elbow and **Dam Buster®** Junction devices incorporate a specific step-down dimension and are effectively sumps with one open side. Hydraulic analysis by Dam Buster's Expert, and testing, demonstrates the step-down more than compensates for the energy loss in the bend, and consequently backwatering cannot occur in the upstream box gutter. The upstream box gutter(s) discharges into the 'open sided sump' and is designed in accordance with Figure H.1 of AS/NZS 3500.3 using the design flow rate (refer to the Product Technical Statement for the design methodology). Note, it is not necessary to design the downstream box gutter, which will automatically have sufficient depth due to the step-down.

Proposed roof drainage installation plans

Refer to the attached plans showing the proposed location of **Dam Buster®** products

Details / numbers of attached plans / sketches:

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Evidence of Suitability of Dam Buster® products

Refer to the **Dam Buster®** website for the current versions of the following documents:
Dam Buster® – Product Technical Statement
Dam Buster® – Evidence of Suitability
www.dambuster.com.au

Installation

Refer to the **Dam Buster®** website for the current version of the following document:
Dam Buster® - Installation manual

Relevant Performance Requirements (PCA) Victoria

Vic Part E3 Stormwater – Roof drainage systems .

Performance Requirements

Vic E3P1 Roof drainage systems
A roof drainage system must dispose of stormwater flows from rainfall events having an *average recurrence interval* appropriate to:

(a) The importance of the building;
(b) The severity of potential damage to property, *loss* of *amenity*, illness or injury that would result from the failure of such a system.

Vic E3P2 Overflow
A roof drainage system must provide an overflow device to transfer stormwater flows by extreme rainfall events.

Vic E3P3 Watertightness
All internal roof drainage components must be *watertight.*

Vic E3P4 Design, construction and installation
A roof drainage system must ensure the following:

(a) Stormwater is transferred to a *point of connection;*
(b) Access for maintenance and clearing *blockages.*

A roof drainage installation must avoid the following:

(a) *Loss* of *amenity* due to *blockages* and *uncontrolled discharge.*
(b) Foul air and gases accumulating in the roof drainage system.
(c) Loss to buildings and property *amenity* due to *blockages* and *uncontrolled discharge*

Final report prepared by:

Roof Plumber's Name: _____

Company: _____ Phone No: _____

Licensing authority: _____ License # _____

Signed: _____ Date: _____

Attached – Performance Based Design Brief.