

**Trafalgar Group**

**Assessment for retrofit BladeRUNNER collar  
through a Concrete Slab**

*AS 4072.1:2005 including amendment 1 Assessment*

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## TABLE OF CONTENTS

1	Assessment and Use of reports .....	4
1.1	Purpose .....	4
1.2	Use of reports and validity.....	4
1.3	Referenced Test Data .....	5
2	Construction/ Product Installation Details .....	6
2.1	Details of Components and Material Properties .....	6
2.1.1	Description of horizontal fire separation .....	6
2.2	Penetration assessment .....	6
2.2.1	Services penetrations permitted .....	8
2.2.2	Fire Stopping of Penetrations.....	8
2.3	Penetration Variation - Off Centre Installation.....	9
3	Conclusion.....	10

## FIGURES

Figure 2-1 - Trafalgar BladeRUNNER installation showing existing cast in collar on a Ø100mm uPVC floor waste gully.....	7
Figure 2-2 - Trafalgar BladeRUNNER mini installation showing existing cast in collar on a Ø50mm uPVC floor waste gully. ....	7
Figure 2-3 Trafalgar BladeRUNNER installation with Maxilite floor upgrade for Ø100mm uPVC floor waste gully .....	8

## TABLES

Table 2-1: Services penetration installation details, furnace side. ....	9
Table 3-1: Assessed fire resistance level for services penetrations.....	10

# 1 ASSESSMENT AND USE OF REPORTS

## 1.1 Purpose

This assessment evaluates the performance of the following products with guidance from, AS 4072.1-2005 (R2016) including Amendment 1 Components for the protection of openings in fire-resistant separating elements. Part 1: Service penetrations and control joints and AS 1530.4:2014 Methods for fire tests on building materials, components, and structures - Part 4: Fire-resistance test of elements of building construction (AS1530.4).

The purpose of this assessment is to assess the performance of the BladeRUNNER when installed as a retro fit additional to an existing cast-in collar with respect to floor waste gully penetrations.

The following services penetrations were assessed with an overall slab thickness of 180mm for typical concrete slabs, and 175mm for concrete slab upgrades using Trafalgar Maxilite as per AS3600,

- Ø100mm uPVC Floor Waste Gully with/without socket
- Ø50mm uPVC Floor Waste Gully with/without socket

The concrete slab is expected to achieve an FRL of 240/240/240. These services are to have a generic cast in fire collar installed flush to the underside of the concrete slab. It is also expected that the generic cast in collar will not achieve the required FRL of -/240/240. The Trafalgar BladeRUNNER and BladeRUNNER Mini is assessed to achieve an FRL of -/240/240 when used in conjunction with a generic cast in fire collar, and the presence of generic cast in fire collar will not prejudice the performance of the Trafalgar BladeRUNNER and BladeRUNNER Mini.

The services penetrations were fire stopped using the following products (the exact application is penetration dependent):

- Trafalgar BladeRUNNER-FW-100
- Trafalgar BladeRUNNER-FW-Mini

Further information on the assessed systems and fire resistance expected if the systems were tested in accordance with AS1530.4:2014 is contained in the following sections.

## 1.2 Use of reports and validity

Holmes Solutions accepts no responsibility or liability for the relevance, suitability, or usefulness of this report or of the subject matter for any purpose or application by Trafalgar Group or any other party.

This information is applicable to the Trafalgar BladeRUNNER fire collar and its installation as detailed only. Any variations or modifications to the listed details contained herein are not covered under this assessment.

This report details the expected results for the specific element of construction described herein. Any variation with respect to size, construction details, loads, stresses, edge, or end conditions, other than that allowed for under the field of direct application in the relevant test method, is not covered in this report.

Because of the nature of fire resistance testing and assessments, and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy for this assessment.

In particular, the report may only be used for the following purposes:

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### **1.3 Referenced Test Data**

The opinions stated in this assessment are based on various test data configurations and experience from Holmes Solutions LP's knowledge base.

The assessment of the variation to the tested systems and determination of the expected performance is based on the following reports (all prepared by CSIRO Australia),

- FSP 1989 dated 19 June 2019
- FSP 2317 dated 14 November 2022
- FSP 2342 dated 9 March 2023

## 2 CONSTRUCTION/ PRODUCT INSTALLATION DETAILS

The sample construction and assessed systems are detailed within the following sections.

### 2.1 Details of Components and Material Properties

#### 2.1.1 Description of horizontal fire separation

The horizontal fire separations covered in this assessment are for an overall slab thickness of 180mm for typical concrete slabs, and 175mm for concrete slab upgrades using Trafalgar Maxilite as per AS3600:2018. They are intended to achieve a fire separation with a fire resistance level (FRL) of -/240/240. All specification aspects of the concrete slab shall follow manufacturer's details at the time of this assessment.

#### 2.2 Penetration assessment

Floor waste gully penetrations through the concrete slab are to be installed with the following guidelines.

Generally, the horizontal fire separation shall achieve a fire resistance level (FRL) of -/240/240 and adhere to the additional requirements,

- Minimum overall slab thickness of 180mm for typical concrete slab<sup>[1]</sup> or 175mm for concrete slab upgrades with Trafalgar Maxilite as per AS3600:2018.
- A generic cast in fire collar sitting flush to the underside of the concrete slab.
- The penetration is additionally retro fitted with the Trafalgar BladeRUNNER collar.

<sup>[1]</sup> Typical concrete slab consists of 150mm concrete with 30mm build up (e.g., screed, grout, cement, concrete or other material of similar density and fire performance).

The following details indicate the acceptable fire stop installations that can be adopted dependent on specific site conditions.

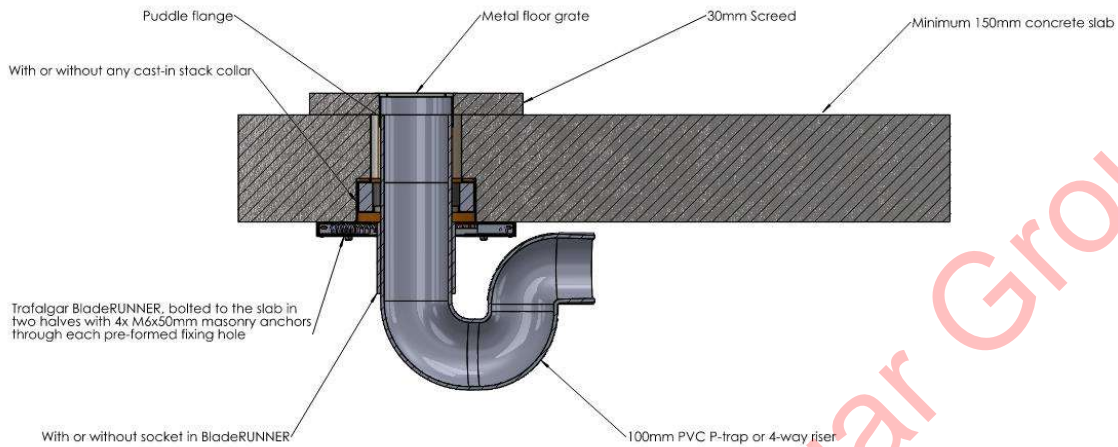


Figure 2-1 - Trafalgar BladeRUNNER installation showing existing cast in collar on a Ø100mm uPVC floor waste gully.

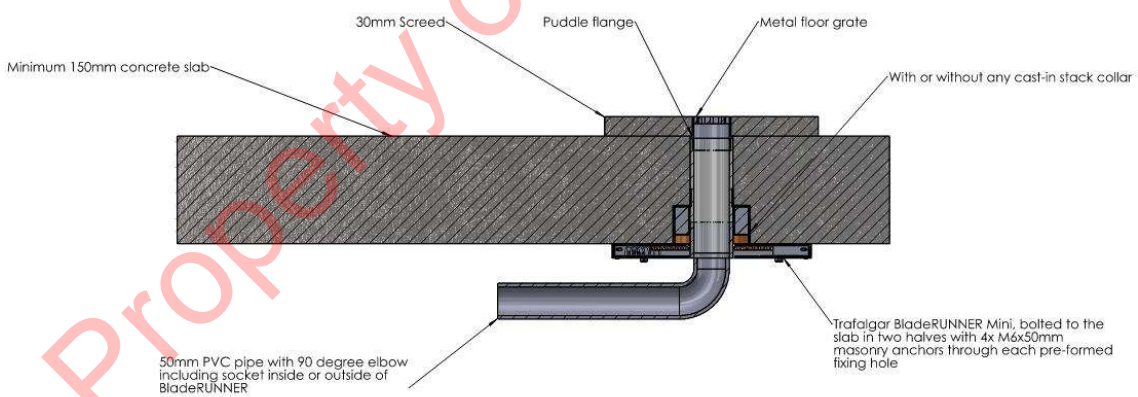


Figure 2-2 - Trafalgar BladeRUNNER Mini installation showing existing cast in collar on a Ø50mm uPVC floor waste gully.

Where required, Trafalgar Maxilite boards may be installed from the underside of the slab to achieve the required floor thickness by AS3600 design. Maxilite boards and BladeRUNNER collars are to be installed with M6 masonry anchors. Masonry anchors are to extend a minimum of 40mm into the concrete slab whether fixing the Maxilite or the BladeRUNNER collar as shown in Figure 2-3.

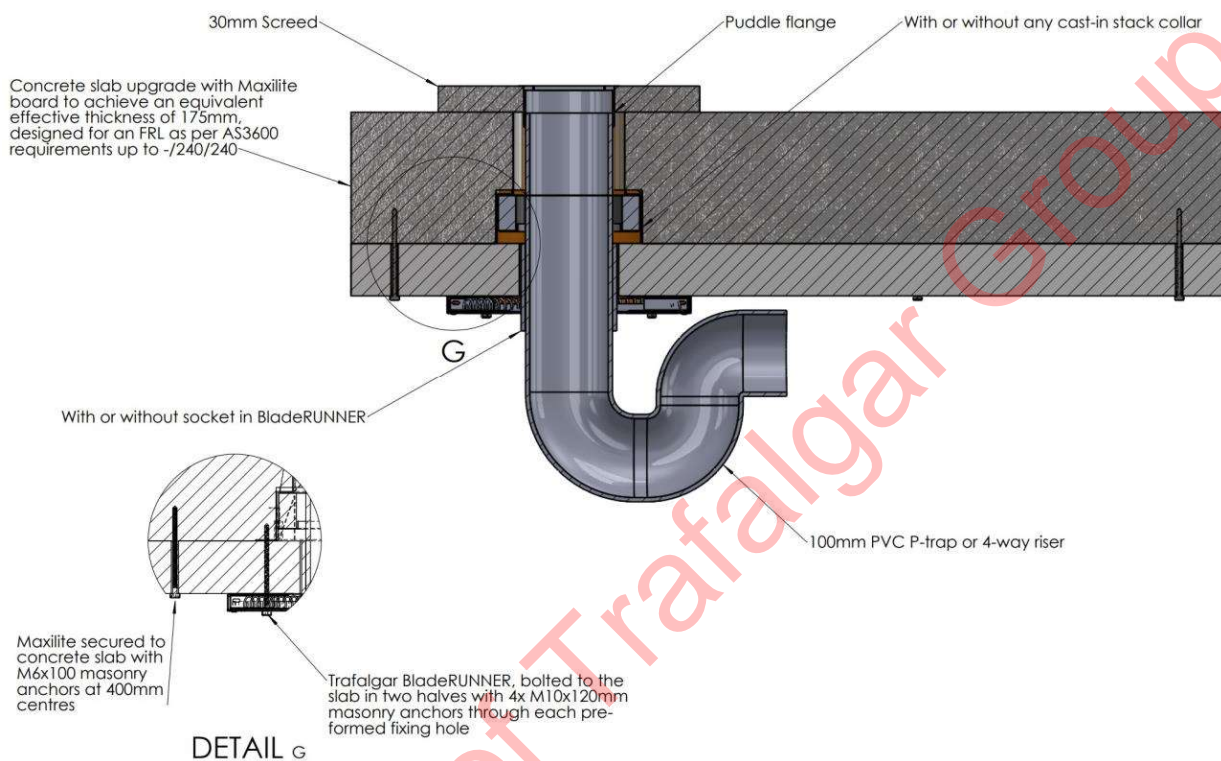


Figure 2-3 Trafalgar BladeRUNNER installation with Maxilite floor upgrade for Ø100mm uPVC floor waste gully

### 2.2.1 Permitted Services Penetrations

This assessment has been prepared to cover the following penetrations when installed additional to a preinstalled and suitably tested cast-in fire collar:

- Ø100mm uPVC Floor Waste Gully with/without socket
- Ø50mm uPVC Floor Waste Gully with/without socket

### 2.2.2 Fire Stopping of Penetrations

Trafalgar BladeRUNNER (Ø100mm uPVC pipe) and BladeRUNNER mini (Ø50mm uPVC pipe) are to be fitted to the underside of a minimum overall slab thickness of 180mm for typical concrete slab<sup>[1]</sup>, or 175mm for concrete slab upgrades using Trafalgar Maxilite as per AS3600. All generic cast in collars are to be flush to the underside of the concrete slab and may be kept in place.

The Trafalgar BladeRUNNER and BladeRUNNER mini are fitted to the concrete slab with 4 x M6x50mm masonry anchors through its pre-formed fixing holes.



[1] Typical concrete slab consists of 150mm concrete with 30mm build up (e.g., screed, grout, cement, concrete or other material of similar density and fire performance).

The following table details the components of the fire stop installation.

Table 2-1: Services penetration installation details, furnace side.

Specimen	Number permitted in opening	Fire Stop	Sealant	Minimum fire rated slab thickness
100mm uPVC Floor Waste Gully	1	Trafalgar BladeRUNNER <sup>1</sup>	-	180mm overall thickness (150mm slab + 30mm additional build up <sup>2</sup> )  OR  175mm overall thickness with upgrades using Trafalgar Maxilite as per AS3600:2018.
50mm uPVC Floor Waste Gully		Trafalgar BladeRUNNER mini <sup>1</sup>		

Notes:

1. All generic cast in collars are to be flush with the underside of the concrete slab.
2. Additional build up may comprise of screed, grout, cement, concrete or other material of similar density and fire performance.

Installation on the unexposed side is to be representative of that in which the BladeRUNNER was tested. This typically includes a polypropylene puddle flange, acrylonitrile-butadiene-styrene base and a chrome plated brass grate.

Removal of any sealant on the unexposed side, as part of any tested stack system, is permitted to allow installation of the floor waste gully.

### 2.3 Penetration Variation - Off Centre Installation

The BladeRUNNER-100 fire collar has a neck size of 130mm diameter to suit the size of a nominal 100mm PVC pipe (actual outside diameter of 110mm) with and without an additional PVC socket or elbow. The BladeRUNNER has been tested in both configurations and achieved FRL's of -/240/240 without the cast in collar based on the referenced test data (Section 1.3).

The referenced test data (Section 1.3) indicates that selected services of the tested specimen has been installed 'off centre' to the BladeRUNNER's opening. With the variation of the location of the services penetration, it is expected to achieve a similar performance.

Given the test data above, we believe that services penetration installed 'off centre' to the BladeRUNNER's opening will not prejudice the overall performance of the BladeRUNNER and BladeRUNNER-Mini.

### 3 CONCLUSION

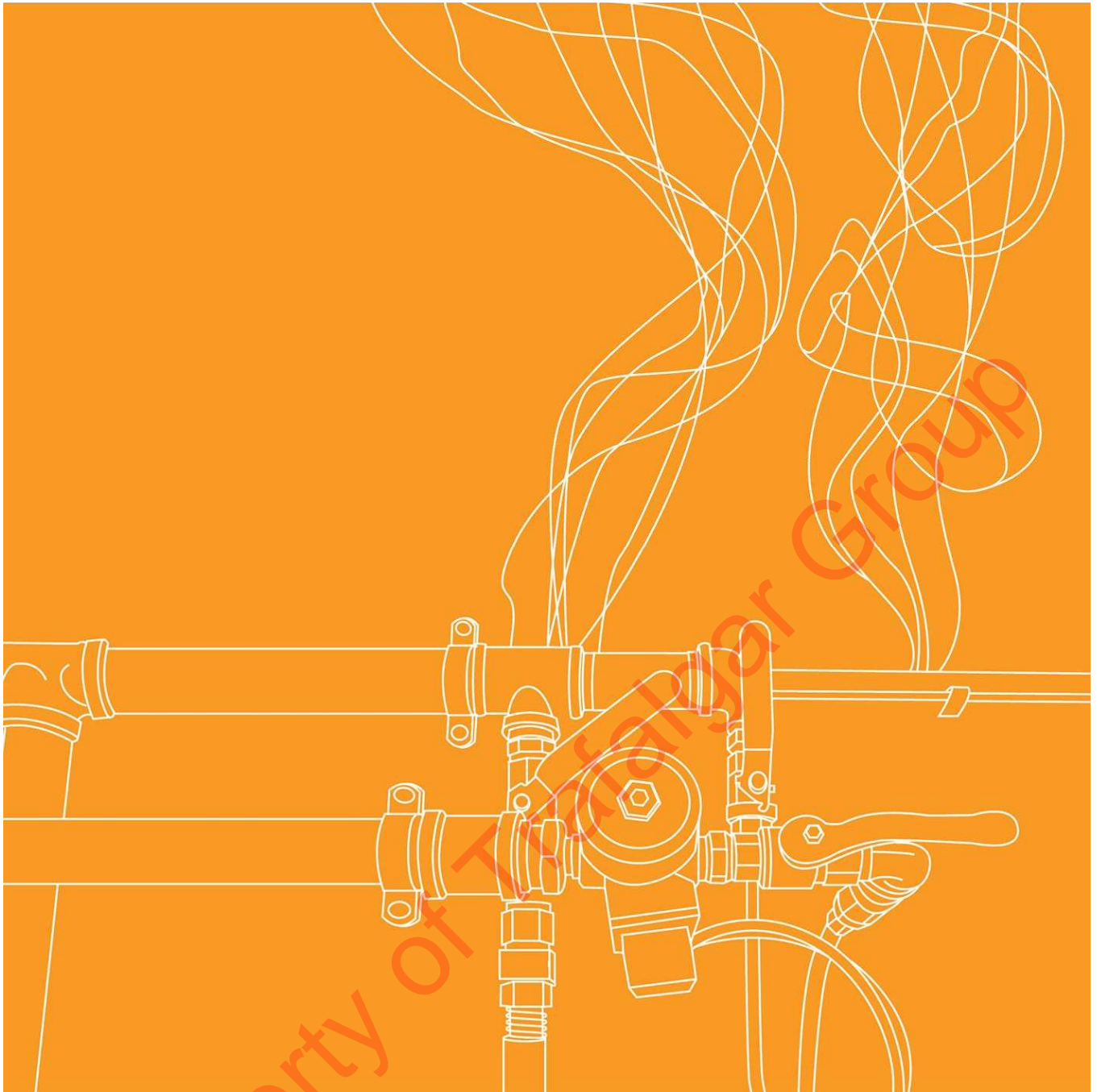
The expected fire resistance of the noted services penetrations has been assessed to achieve the following when treated as a penetration and fire stopped in the manner as described within this assessment.

Table 3-1: Assessed fire resistance level for services penetrations.

Specimen	Integrity	Insulation	FRL
1. Ø100mm uPVC floor waste gully when installed additional to a tested cast-in fire collar	240	240	-/240/240
2. Ø50mm uPVC floor waste gully when installed additional to a tested cast-in fire collar	240	240	-/240/240

No structural performance has been assessed nor included as part of this assessment.

The fire test IP for BladeRUNNER, FyreFLEX Sealant and Maxilite board was sponsored by and is owned by Trafalgar Group Pty. To the best of Holmes Solutions' knowledge there are no fire test reports that contradict the above assessment.



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