

FIRE ASSESSMENT REPORT

FC10394-01

ASSESSMENT OF THE FIRE RESISTANCE OF SNAP METAL RETRO COLLARS APPLIED TO PROTECTING RAUPIANO PENETRATIONS IN A PLASTERBOARD WALL

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ASSESSMENT OBJECTIVE

To assess the fire resistance of SNAP metal retro collars applied to protecting penetrations with Raupiano pipes in a 128 mm thick plasterboard wall with 2 x 16 mm sheets either side of 64 mm steel studs.

CONCLUSION

It is considered that the SNAP collars fitted each side of a 128 mm thick plasterboard wall with 2 x 16 mm sheets either side of 64 mm steel studs protecting 50 mm to 90 mm diameter Raupiano pipes, would achieve FRLs as specified in the table below, if tested in accordance with AS 1530.4: 2014 and AS 4072.1 – 2005.

Product	Pipe dia, mm	Pipe type	FRL	Test or Assessment
50R	40	Raupiano	- /180/180	FSP 1716
50R	50	Raupiano	- /180/120	FC11124
65-80R	75	Raupiano	- /180/120	FC11124
110R	90	Raupiano	- /180/120	FC11124
110R	110	Raupiano	- /180/180	FSP 1716

LIMITATION

This report is subject to the accuracy and completeness of the information supplied.

BRANZ reserves the right to amend or withdraw this assessment if information becomes available which indicates the stated fire performance may not be achieved.

This assessment report may only be quoted or reproduced in full.

TERMS AND CONDITIONS

This report is issued in accordance with the Terms and Conditions as detailed and agreed in BRANZ Services Agreement for this work.

The results reported here relate only to the item/s described in this report.

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DOCUMENT REVISION STATUS

ISSUE NO.	DATE ISSUED	EXPIRY DATE	DESCRIPTION
01	8 February 2019	8 February 2029	Initial Issue

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1. INTRODUCTION

This report gives BRANZ's assessment of the fire resistance in accordance with AS 1530.4:2014 and AS 4072.1 - 2005 of the fire resistance of a range of SNAP metal retro collars applied to protecting penetrations with Raupiano pipes in a 128 mm thick plasterboard wall with 2 x 16 mm sheets either side of 64 mm steel studs.

2. BACKGROUND

This assessment is considered on the basis of the fire resistance performance of SNAP retrofit collars coded 50R and 110R established in CSIRO fire resistance test FSP 1716, as summarised in Table 1.

Table 1: Summary of supporting test results of SNAP collars in a 128 mm thick plasterboard wall with 2 x 16 mm sheets either side of 64 mm steel studs

Test Report	Pen. #	Product	Pipe dia, mm	Pipe type	FRL
FSP 1716	3	110R	110	Raupiano	-/180/180
FSP 1716	4	50R	40	Raupiano	-/180/180

The fire test was performed in accordance with AS 1530.4-2005 "Fire resistance Tests of Elements of Building Construction", and AS 4072.1-2005 "Service Penetrations and Control Joints".

Additional test data to compare the fire resistance performance of the 50R collars on PVC pipes was established in BRANZ pilot test FP 4847 as shown in Table 2.

Table 2: Summary of supporting test results of SNAP collars on PVC pipes in a plasterboard wall with 2 x 16 mm sheets either side of 64 mm steel studs

Test Report	Pen. #	Product	Pipe dia, mm	Pipe type	FRL
FP 4874	1	110R	90	PVC	-/180/120
FP 4874	9	65-80R	80	PVC	-/180/120
FP 4874	6	50R	40	PVC	-/180/120

Test FP 4847 was performed in accordance with AS 1530.4-2005 "Fire resistance Tests of Elements of Building Construction", and AS 4072.1-2005 "Service Penetrations and Control Joints".

Time-temperature records for the R collar/pipe combinations listed in Table 1 and Table 2 above indicated peak temperature rises of varying amounts below 130 K , as measured on the pipe 25 mm from the unexposed surface, indicating that the collar had activated and closed the pipe. The closure behaviour did not indicate any significant differences between the two types of plastic materials.

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3. DISCUSSION

The test results in Table 1 and Table 2 are considered in assessing the FRL of three additional penetrations in a 128 mm thick plasterboard wall with 2 x 16 mm sheets either side of 64 mm steel studs using Raupiano and PVC pipes with a range of R series collars as listed in Table 3.

Table 3: Assessment Raupiano pipes in a 128 mm thick plasterboard wall with 2 x 16 mm sheets either side of 64 mm steel studs

Test Report	Product	Pipe dia, mm	Pipe type
FSP 1716	110R	110	Raupiano
Assessed	110R	90	Raupiano
Assessed	65-80R	75	Raupiano
Assessed	50R	50	Raupiano
FSP 1716	50R	40	Raupiano

The FRL of the first penetration in Table 3, the 110R retrofitted fire collar protecting a 110 mm diameter Raupiano pipe achieved a test result in FSP 1716 of no failures of either Integrity or Insulation at 181 minutes achieving an FRL of -/180/180. The other tested penetration in FSP 1716, the 50R retrofitted fire collar protecting a 40 mm diameter Raupiano pipe achieved an identical test result of no failures of either Integrity or Insulation at 181 minutes thus achieving an FRL of -/180/180.

Intermediate pipe and collar size test results are available for PVC pipes, as shown in Table 2, these performed satisfactorily, albeit with failed Insulation prior to 180 minutes by exceeding 180 K between 162 and 168 minutes on either the top of the collar or the top of the pipe. So, the FRL being assessed is therefore reduced to -/180/120 for the Raupiano pipes in the intermediate sizes.

3.1 AS 1530.4-2005 vs AS 1530.4:2014

The test report FP 4847 referenced in this assessment was tested in accordance with AS 1530.4- 2005. A review has been undertaken between the 2005 and 2014 versions of AS 1530.4 with respect to penetration testing. Based on the review it is considered the changes in versions would not have changed the reported performance of the penetrations. Therefore, it is expected had the penetrations been tested in accordance with AS 1530.4:2014 a similar result for Integrity and Insulation would be expected.

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4. CONCLUSION

It is considered that the SNAP collars fitted each side of a 128 mm thick plasterboard wall with 2 x 16 mm sheets either side of 64 mm steel studs protecting 50 mm to 90 mm diameter Raupiano pipes, would achieve a FRL's of - /180/180 as specified in the Table 4, if tested in accordance with AS 1530.4: 2014 and AS 4072.1 – 2005.

Table 4: Summary Table for R series SNAP Collars with Raupiano pipes in a 28 mm thick plasterboard wall with 2 x 16 mm sheets either side of 64 mm steel studs

Product	Pipe dia, mm	Pipe type	FRL	Test or Assessment
50R	40	Raupiano	- /180/180	FSP 1716
50R	50	Raupiano	- /180/120	FC11124
65-80R	75	Raupiano	- /180/120	FC11124
110R	90	Raupiano	- /180/120	FC11124
110R	110	Raupiano	- /180/180	FSP 1716

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