

Weather Louvre Test 451 (mesh 6) without drain profile

Report 59126/4

Carried out for
nv RENSON Sunprotection-Projects sa

By Andrew Freeth

18 December 2015



Weather Louvre Test 451 (mesh 6) without drain profile

Carried out for:

nv RENSON Sunprotection-Projects sa
IZ 2 Vijverdam
Maalbeekstraat 10
B-8790 Waregem
Belgium

Contract: **Report 59126/4**

Date: **18 December 2015**

Issued by: **BSRIA Limited**
Old Bracknell Lane West,
Bracknell,
Berkshire RG12 7AH UK

Telephone: +44 (0)1344 465600

Fax: +44 (0)1344 465626

E: bsria@bsria.co.uk W: www.bsria.co.uk

Compiled by:

Name: Andrew Freeth

Title: Senior Test Engineer

Approved by:

Name: Mark Roper

Title: Principal Test Engineer

This report must not be reproduced except in full without the written approval of an executive director of BSRIA. It is only intended to be used within the context described in the text.

CONTENTS

1	INTRODUCTION.....	5
1.1	Test item information	5
2	TEST METHOD	8
2.1	Water penetration	8
2.2	Pressure drop	8
2.3	Test equipment used	8
3	RESULTS.....	9
3.1	Rainwater Penetration	9
3.2	Coefficient of Entry	10

APPENDICES

APPENDIX: A	MANUFACTURER'S DRAWING.....	11
-------------	-----------------------------	----

FIGURES

Figure 1	Test item 59126A4 (front).....	6
Figure 2	Test item 59126A4 (rear).....	6
Figure 3	Close-up of guard	7

1 INTRODUCTION

This report concerns tests conducted on a louvre to determine the Rainwater Penetration and the Pressure Drop versus Airflow Curve, with the associated Coefficient of Entry using the test methods contained within EN 13030 : 2001. The work was commissioned by nv RENSON Sunprotection-Projects sa and was carried out at BSRIA on 7 – 20 October 2015.

Items received for test

Test Item	BSRIA ID
451 (mesh 6) without drain profile	59126A4

1.1 TEST ITEM INFORMATION

Contract	59126
Date	5-10-15
Manufacturer	nv RENSON Sunprotection-Projects sa
Louvre Model	451 (mesh 6) without drain profile
Material	Aluminium
Painted	Yes – dark grey
Blade Height	1020 mm
Blade Width	1000 mm
Blade Depth	50 mm
Frame Depth	60 mm
No. of Blades	15
Blade Pitch	65 mm
Blade Angle	45° approx.
No. of Banks	1
Guard Type	Bird/vermin
Guard Spacing	5 mm
Side Channels	No
Water Drip Tray	Yes
Blade Orientation	Horizontal

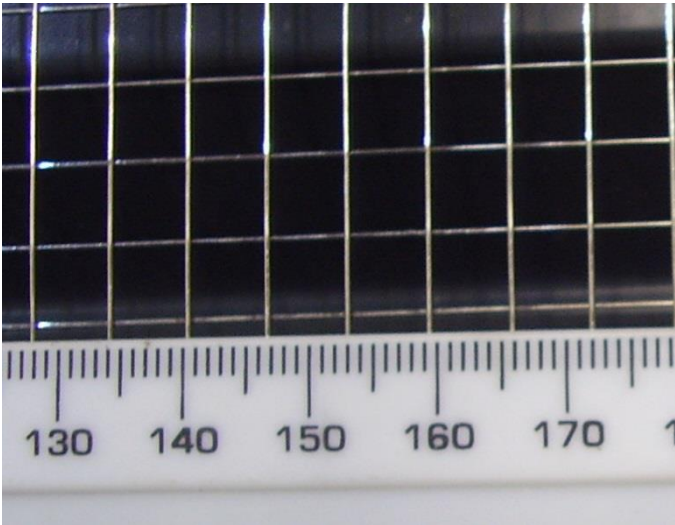
Figure 1 Test item 59126A4 (front)



Figure 2 Test item 59126A4 (rear)

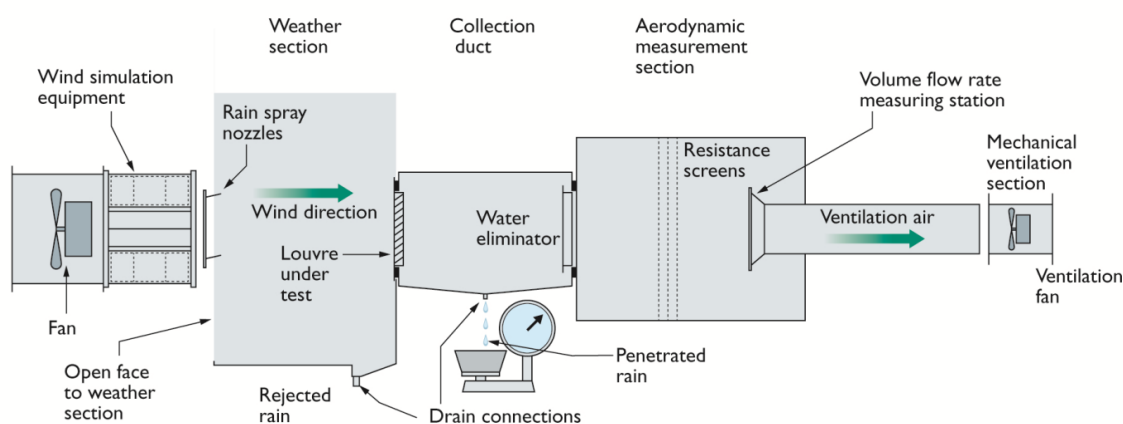


Figure 3 Close-up of guard



2 TEST METHOD

A schematic representation of the rig used during testing



The test comprises of two parts:

2.1 WATER PENETRATION

The weather louvre is subjected to fan driven wind at a speed of 13 m/s and water sprayed as rainfall at a rate of 75 l/h. In addition to the simulated wind and rain, air is drawn through the louvre at various set velocities (0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0 and 3.5 m/s).

Each test is preceded by a suitable 'pre-test' soak which is typically around 30 minutes. Each test is run until the results become stable, and in any case, for a minimum of 30 minutes.

The penetrated water is collected in the collection duct and is measured and recorded against time elapsed.

A range of measurements are taken to give the characteristic curve for the test louvre.

2.2 PRESSURE DROP

For this test, the Aerodynamic Measuring Section (AMS) is separated from the main rig. The louvre is then mounted in the upstream opening of the AMS.

Pressure tappings in the plenum walls of the AMS allow measurement of the static pressure within the plenum during testing. The airflow volume is calculated from the differential pressure at the measuring cones. The plenum has a set of settling screens within to produce even flow through the cones and therefore gives an accurate reading of the total volume.

By adjusting the fan speed, the total airflow through the system varies and therefore changes the pressure on the louvre under test. A range of measurements are taken to give the characteristic curve for the test louvre.

2.3 TEST EQUIPMENT USED

Test equipment	BSRIA ID	Calibration Expiry Date
Water supply measurement	352	9-1-16
Rain measuring system	353	9-1-16
Airflow cones	364	9-1-16
Micromanometer	5	17-2-16
Micromanometer	682	7-1-16
Scales (water)	332	9-2-16

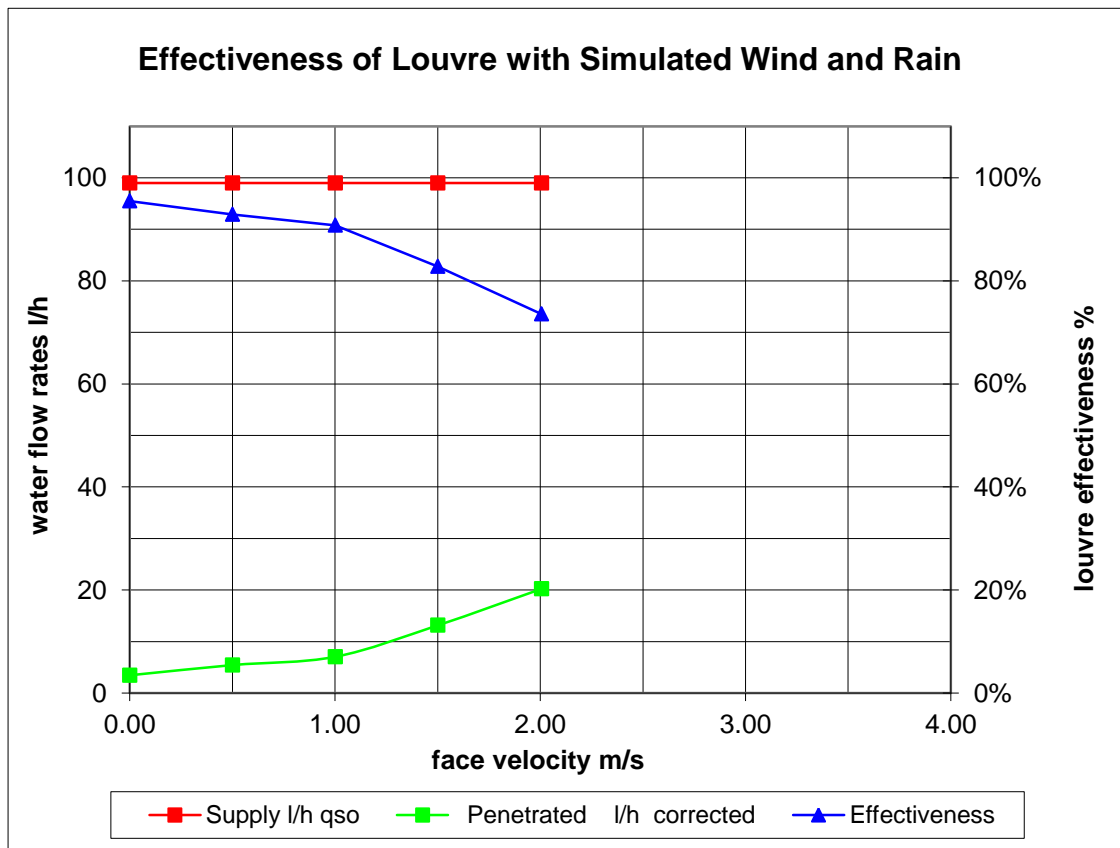
3 RESULTS

3.1 RAINWATER PENETRATION

MANUFACTURER nv RENSON Sunprotection-Projects sa Date 20/10/2015
 MODEL 451 (mesh 6) without drain profile Contract 59126

Simulated rainfall 75 mm/hr louvre height 1020 mm
 Wind speed 13.0 m/s louvre width 1000 mm
 louvre area 1.020 m²

VENTILATION RATE		WATER FLOW RATES		Effectiveness	Class
Volume m ³ /s	Velocity m/s	Supply l/h	Penetrated l/h		
0.00	0.00	99.0	3.5	95.5%	B
0.51	0.50	99.0	5.4	92.9%	C
1.02	1.00	99.0	7.1	90.8%	C
1.53	1.50	99.0	13.2	82.8%	C
2.05	2.01	99.0	20.2	73.6%	D



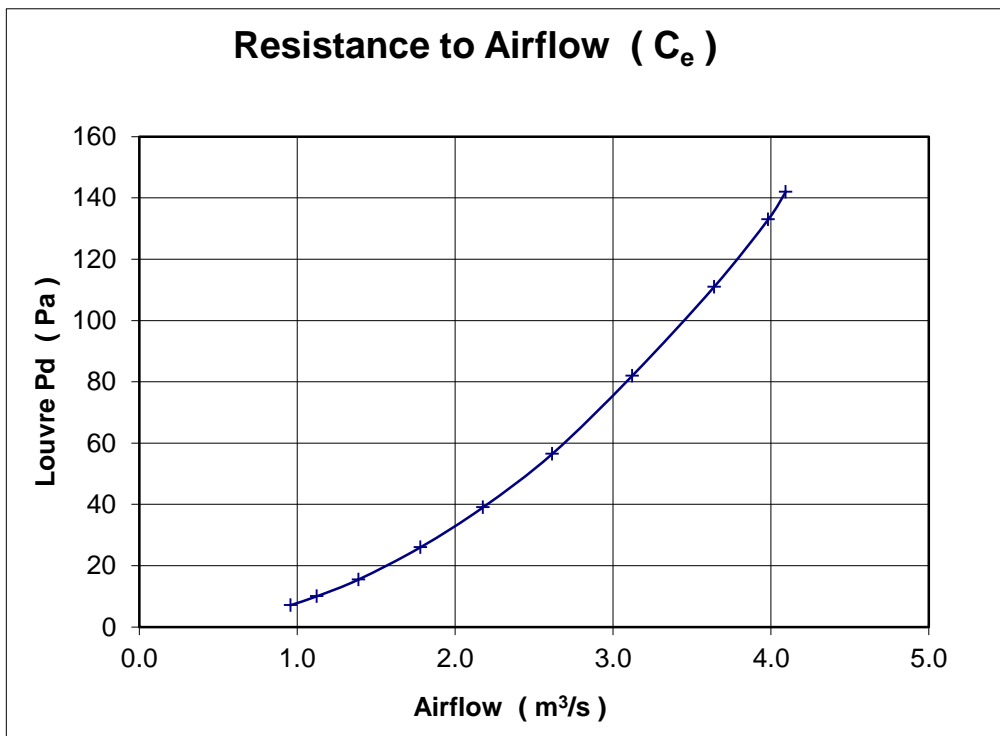
3.2 COEFFICIENT OF ENTRY

MANUFACTURER nv RENSON Sunprotection-Projects sa
 MODEL 451 (mesh 6) without drain profile

Date 07/10/2015
 Contract 59126

air temperature 16.4 °C louvre height 1020 mm
 barometer 998.5 mbar louvre width 1000 mm
 air density 1.197 kg/m³ louvre area 1.020 m²

louvre pd Pascals	louvre face velocity	air flow rate		coefficient C _e
	m/s	test m ³ /s	theoretical m ³ /s	
7.1	0.94	0.958	3.514	0.273
10.0	1.10	1.124	4.170	0.270
15.5	1.36	1.389	5.192	0.268
26.0	1.75	1.781	6.724	0.265
39.0	2.13	2.176	8.235	0.264
56.5	2.56	2.616	9.912	0.264
82.0	3.06	3.122	11.941	0.261
111.0	3.57	3.641	13.894	0.262
133.0	3.91	3.983	15.208	0.262
142.0	4.01	4.094	15.714	0.261
mean C _e				0.265
Class				3



APPENDIX: A MANUFACTURER'S DRAWING

