



Weather Louvre Test

475/L.075W

Report 59126/7

Carried out for
nv RENSON Sunprotection-Projects sa

By Andrew Freeth

27 April 2016



Weather Louvre Test 475/L.075W

Carried out for:

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Contract: **Report 59126/7**

Date: **27 April 2016**

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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 13 January – 4 February 2016.

Items received for test

Test Item	BSRIA ID
475/L.075W	59126A7

1.1 TEST ITEM INFORMATION

Contract	59126
Date	16-12-15
Manufacturer	nv RENSON Sunprotection-Projects sa
Louvre Model	475/L.075W
Material	Aluminium
Painted	Yes – dark grey
Blade Height	1010 mm
Blade Width	1000mm
Blade Depth	75 mm
Frame Depth	83 mm
No. of Blades	13
Blade Pitch	75 mm
Blade Angle	45° approx.
No. of Banks	1
Guard Type	Insect
Guard Spacing	10 mm
Side Channels	No
Water Drip Tray	Yes
Blade Orientation	Horizontal

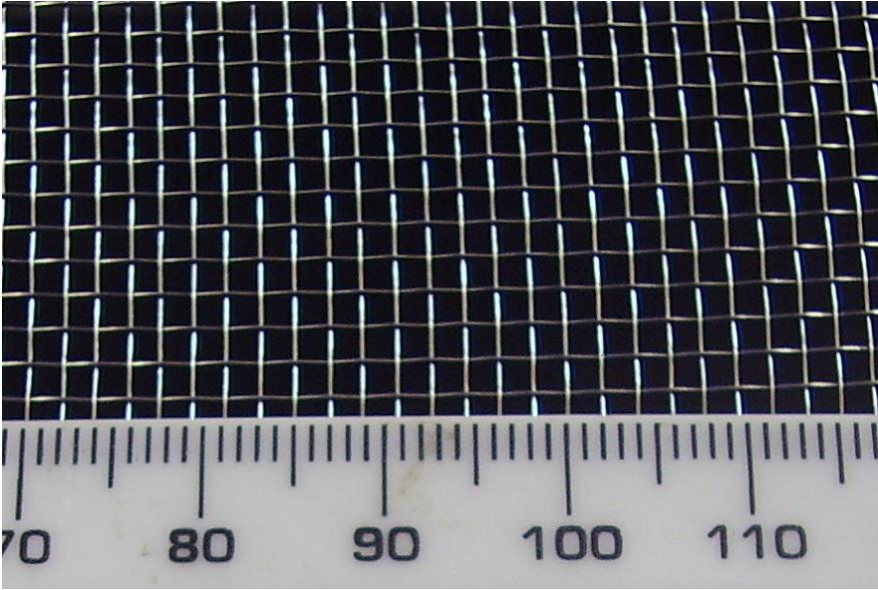
Figure 1 Test item 59126A7 (front)



Figure 2 Test item 59126A7 (rear)

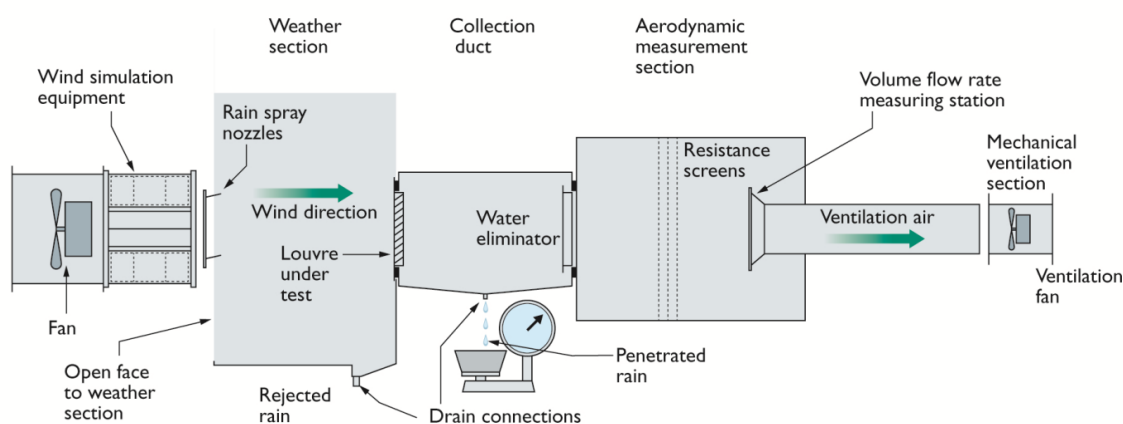


Figure 3 Close-up of guard



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	09-04-16
Rain measuring system	353	09-04-16
Airflow cones	364	09-04-16
Micromanometer	5	16-02-17
Micromanometer	682	05-01-17
Scales (water)	332	09-04-16

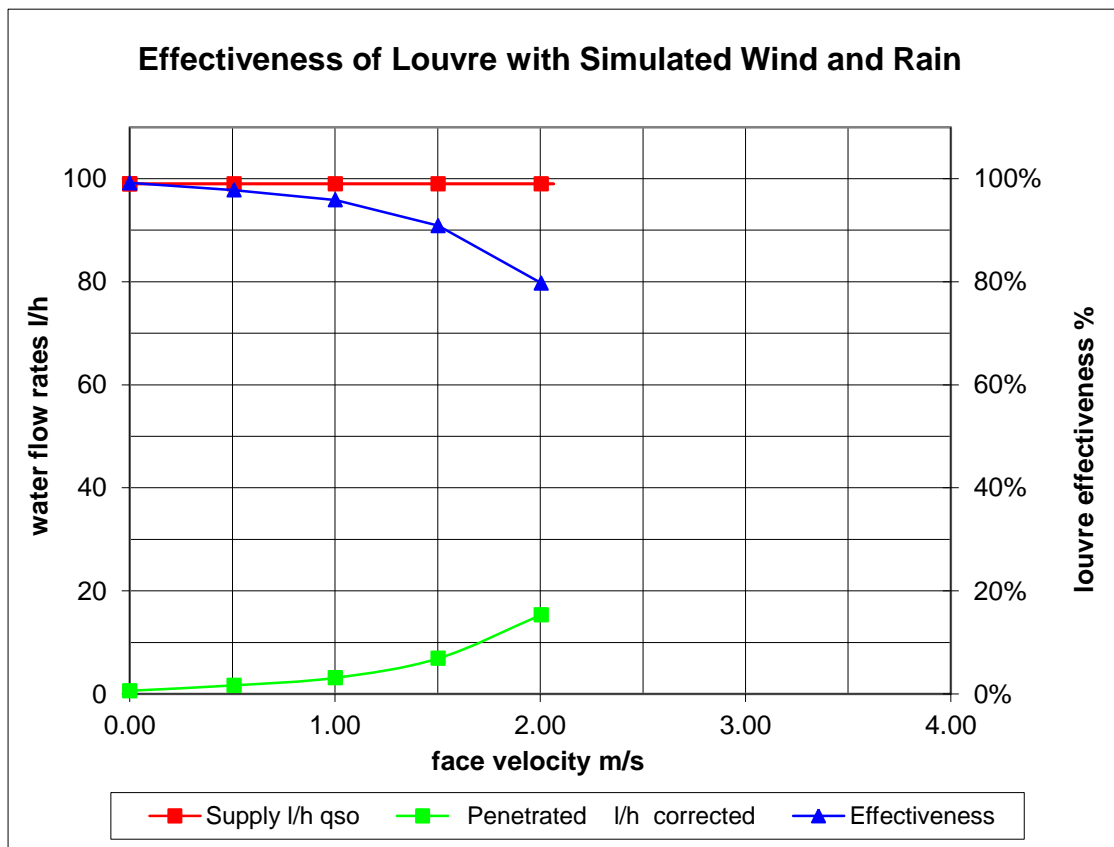
3 RESULTS

3.1 RAINWATER PENETRATION

MANUFACTURER nv RENSON Sunprotection-Projects sa Date 13/01/2016
 MODEL 475/L.075W Contract 59126

Simulated rainfall 75 mm/hr louvre height 1010 mm
 Wind speed 13.0 m/s louvre width 1000 mm
 louvre area 1.010 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	0.6	99.2%	A
0.51	0.51	99.0	1.7	97.8%	B
1.01	1.00	99.0	3.1	95.9%	B
1.52	1.50	99.0	6.9	90.9%	C
2.02	2.00	99.0	15.4	79.7%	D



NOTE: Test was halted at 2.0 m/s at the client's request.

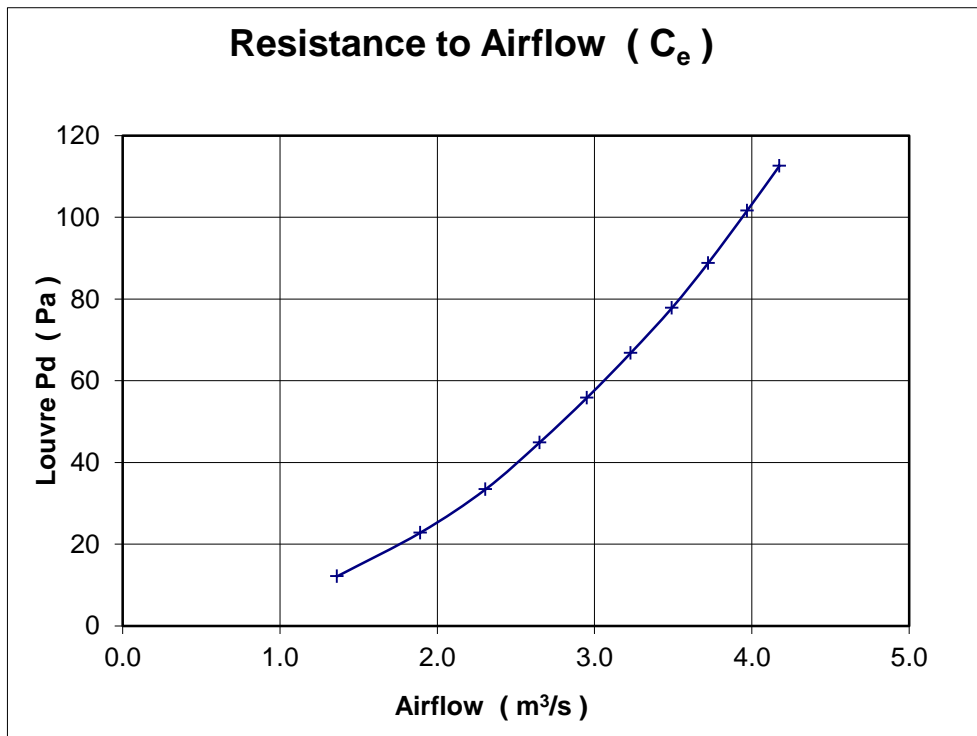
3.2 COEFFICIENT OF ENTRY

MANUFACTURER nv RENSON Sunprotection-Projects sa
 MODEL 475/L.075W

Date 13/01/2016
 Contract 59126

air temperature 18 °C louvre height 1010 mm
 barometer 1006 mbar louvre width 1000 mm
 air density 1.199 kg/m³ louvre area 1.010 m²

louvre pd Pascals	louvre face velocity	air flow rate		coefficient C _e
	m/s	test m ³ /s	theoretical m ³ /s	
12.1	1.35	1.362	4.537	0.300
22.8	1.87	1.892	6.228	0.304
33.4	2.28	2.306	7.538	0.306
44.9	2.62	2.651	8.740	0.303
55.8	2.92	2.951	9.743	0.303
66.8	3.20	3.230	10.660	0.303
77.8	3.46	3.492	11.505	0.304
88.8	3.69	3.722	12.291	0.303
101.6	3.93	3.970	13.147	0.302
112.6	4.13	4.176	13.840	0.302
mean C _e				0.303
Class				2



APPENDIX: A MANUFACTURER'S DRAWING

