

Weather Louvre Test 412 (mesh 2,3) with drain profile

Report 59126/2

Carried out for
nv RENSON Sunprotection-Projects sa

By Andrew Freeth

18 December 2015



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Carried out for:

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Contract: Report 59126/2

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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 7 – 16 October 2015.

Items received for test

Test Item	BSRIA ID
412 (mesh 2,3) with drain profile	59126A2

1.1 TEST ITEM INFORMATION

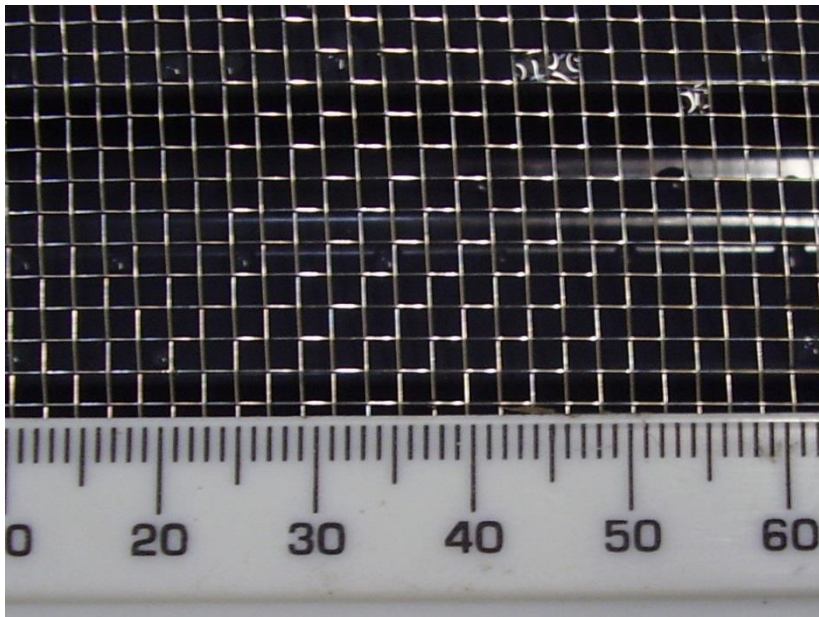
Contract	59126
Date	5-10-15
Manufacturer	nv RENSON Sunprotection-Projects sa
Louvre Model	412 (mesh 2,3) with drain profile
Material	Aluminium
Painted	Yes – dark grey
Blade Height	986 mm
Blade Width	1000 mm
Blade Depth	25 mm
Frame Depth	30 mm
No. of Blades	47
Blade Pitch	20 mm
Blade Angle	45° approx.
No. of Banks	2
Guard Type	Insect
Guard Spacing	5 mm
Side Channels	No
Water Drip Tray	Yes
Blade Orientation	Horizontal

Figure 1 Test item 59126A2 (front)



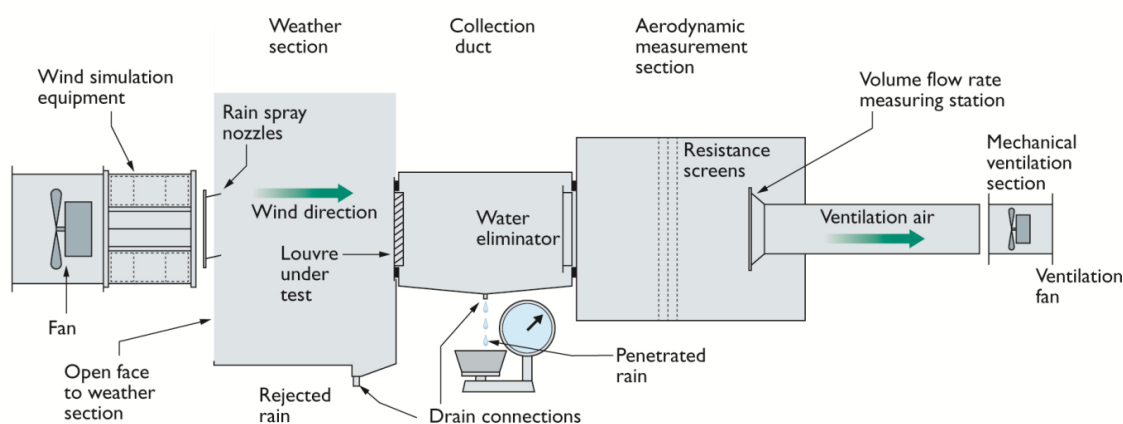
Figure 2 Test item 59126A2 (rear)



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 tapings 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

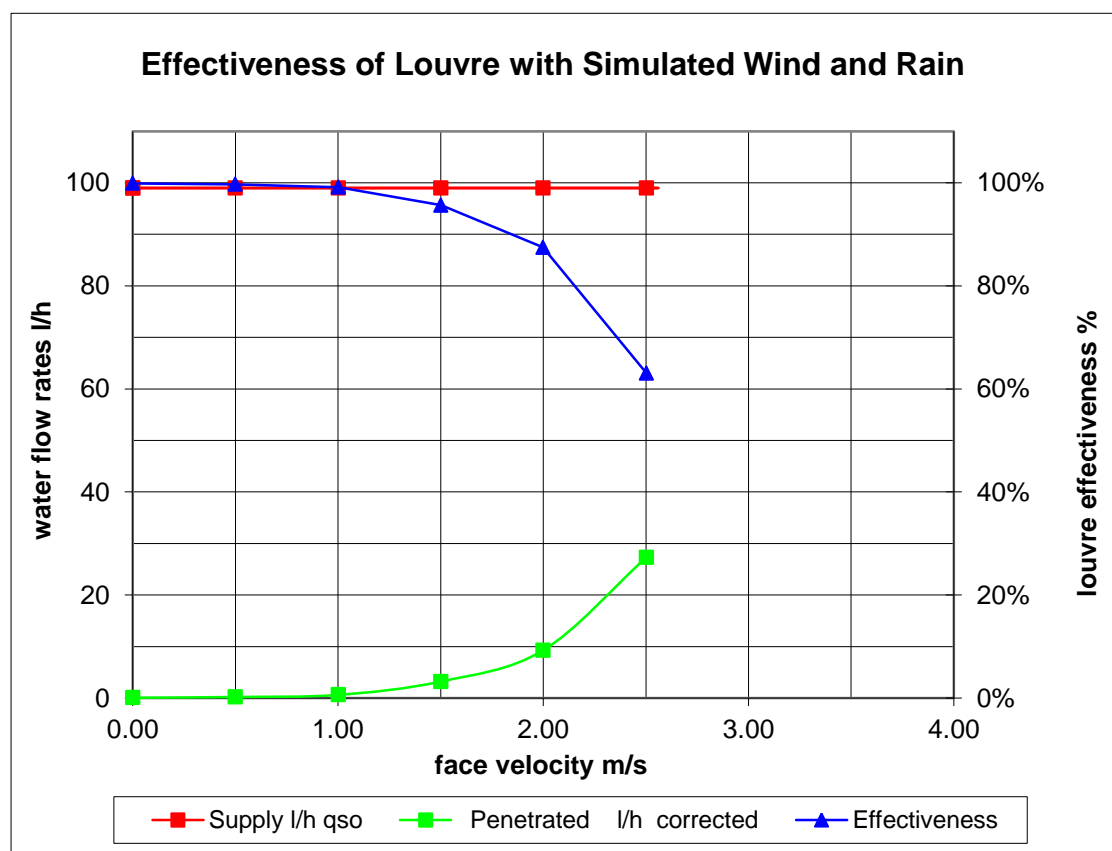
3 RESULTS

3.1 RAINWATER PENETRATION

MANUFACTURER nv RENSON Sunprotection-Projects sa Date 06/10/2015
 MODEL 412 (mesh 2,3) with drain profile Contract 59126

Simulated rainfall 75 mm/hr
 Wind speed 13.0 m/s
 louvre height 986 mm
 louvre width 1000 mm
 louvre area 0.986 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	0.1	99.9%	A
0.49	0.50	99.0	0.2	99.7%	A
0.99	1.00	99.0	0.6	99.2%	A
1.48	1.50	99.0	3.2	95.6%	B
1.97	2.00	99.0	9.3	87.5%	C
2.47	2.50	99.0	27.3	63.1%	D



3.2 COEFFICIENT OF ENTRY

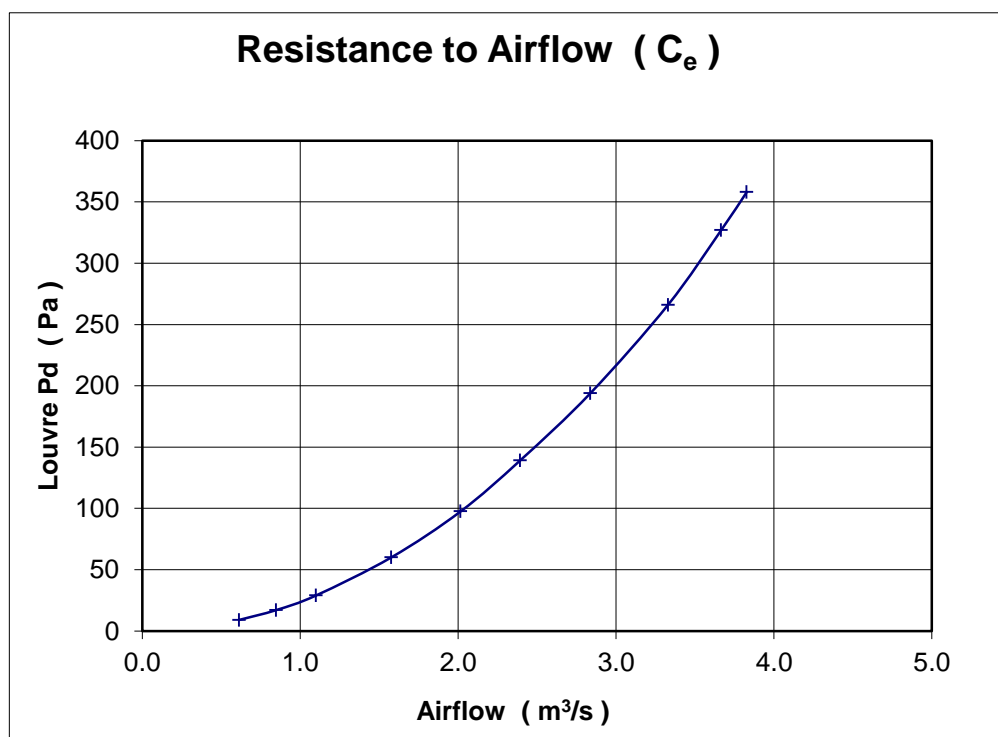
MANUFACTURER nv RENSON Sunprotection-Projects sa
MODEL 412 (mesh 2,3) with drain profile

Date 07/10/2015
Contract 59126

air temperature 16.1 °C
barometer 997.9 mbar
air density 1.197 kg/m³

louvre height 986 mm
louvre width 1000 mm
louvre area 0.986 m²

louvre pd Pascals	louvre face velocity	air flow rate		coefficient C _e
	m/s	test m ³ /s	theoretical m ³ /s	
9.0	0.62	0.614	3.823	0.161
17.0	0.86	0.847	5.255	0.161
29.0	1.12	1.101	6.863	0.160
60.0	1.60	1.577	9.872	0.160
97.5	2.04	2.016	12.584	0.160
139.0	2.43	2.392	15.026	0.159
194.0	2.88	2.838	17.751	0.160
266.0	3.38	3.329	20.786	0.160
327.0	3.72	3.666	23.047	0.159
358.0	3.88	3.828	24.114	0.159
mean C _e				0.160
Class				4



APPENDIX: A MANUFACTURER'S DRAWING

