



# Weather Louvre Test

## L.066IM1

Report 58743/1

Carried out for  
nv Renson Ventilation sa

By Andrew Freeth

25 March 2015





# Weather Louvre Test L.066IM1

**Carried out for:**

**nv Renson Ventilation sa**  
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Belgium

Contract: **Report 58743/1**

Date: **25 March 2015**

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## 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 58743A1 (front).....	6
Figure 2	Test item 58743A1 (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 Ventilation sa and was carried out at BSRIA on 4 – 5 March 2015.

## Items received for test

Test Item	BSRIA ID
L.066IM1	58743A1

## 1.1 TEST ITEM INFORMATION

<b>Contract</b>	58743
<b>Date</b>	4-3-15
<b>Manufacturer</b>	nv Renson Ventilation sa
<b>Louvre Model</b>	L.066IM1
<b>Material</b>	Aluminium
<b>Painted</b>	Grey
<b>Blade Height</b>	1015 mm
<b>Blade Width</b>	1000 mm
<b>Blade Depth</b>	52 mm
<b>Frame Depth</b>	62 mm
<b>No. of Blades</b>	15
<b>Blade Pitch</b>	66 mm
<b>Blade Angle</b>	45°
<b>No. of Banks</b>	1
<b>Guard Type</b>	Insect
<b>Guard Spacing</b>	See drawing in APPENDIX
<b>Side Channels</b>	No
<b>Water Drip Tray</b>	Yes
<b>Blade Orientation</b>	Horizontal

**Figure 1 Test item 58743A1 (front)**



**Figure 2 Test item 58743A1 (rear)**

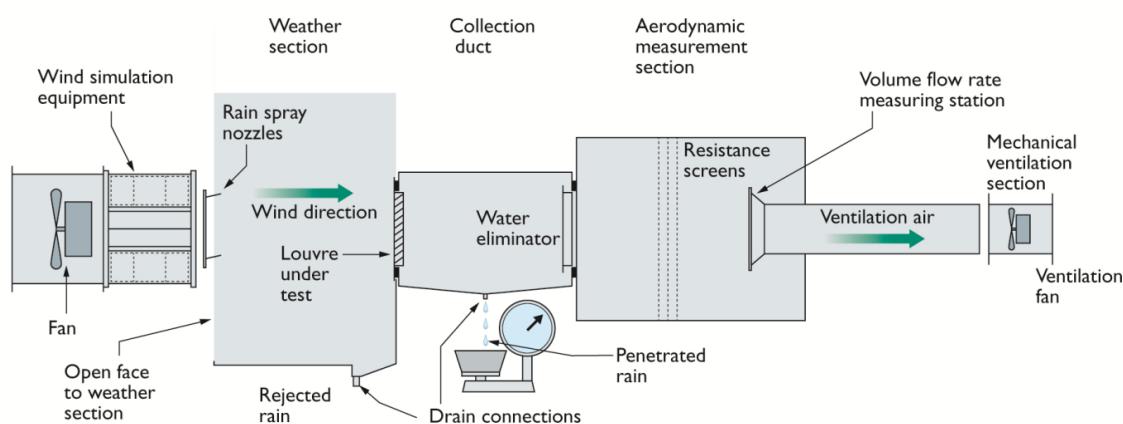


Figure 3 Close-up of guard



## 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	502	1-10-16
Micromanometer	682	7-1-16
Scales (water)	1364	9-2-16



### 3 RESULTS

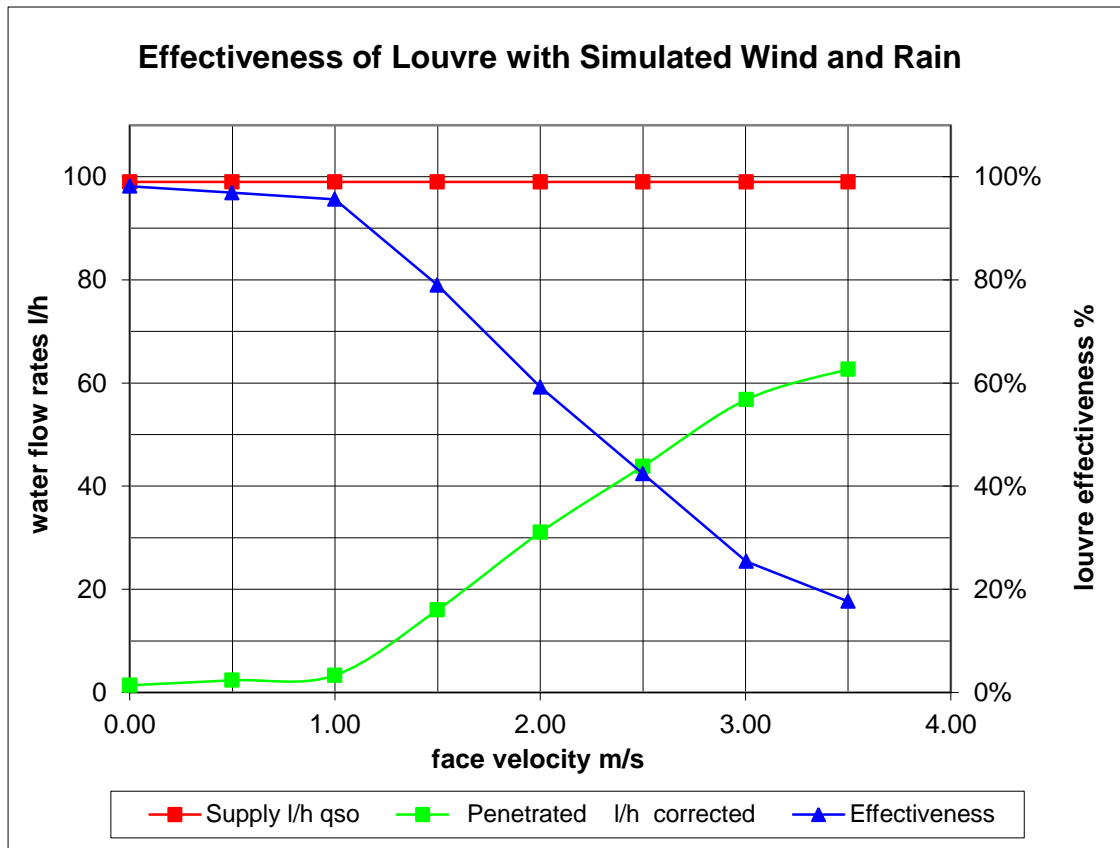
#### 3.1 RAINWATER PENETRATION

MANUFACTURER nv Renson Ventilation sa  
 MODEL L.066IM1

Date 04/03/2015  
 Contract 58743

Simulated rainfall 75 mm/hr  
 Wind speed 13.0 m/s  
 louvre height 1015 mm  
 louvre width 1000 mm  
 louvre area 1.015 m<sup>2</sup>

VENTILATION RATE		WATER FLOW RATES		Effectiveness	Class
Volume m <sup>3</sup> /s	Velocity m/s	Supply l/h	Penetrated l/h		
0.00	0.00	99.0	1.4	98.2%	B
0.51	0.50	99.0	2.4	96.9%	B
1.01	1.00	99.0	3.3	95.6%	B
1.52	1.50	99.0	16.0	79.0%	D
2.03	2.00	99.0	31.1	59.2%	D
2.54	2.50	99.0	43.9	42.4%	D
3.05	3.00	99.0	56.8	25.4%	D
3.55	3.50	99.0	62.7	17.7%	D



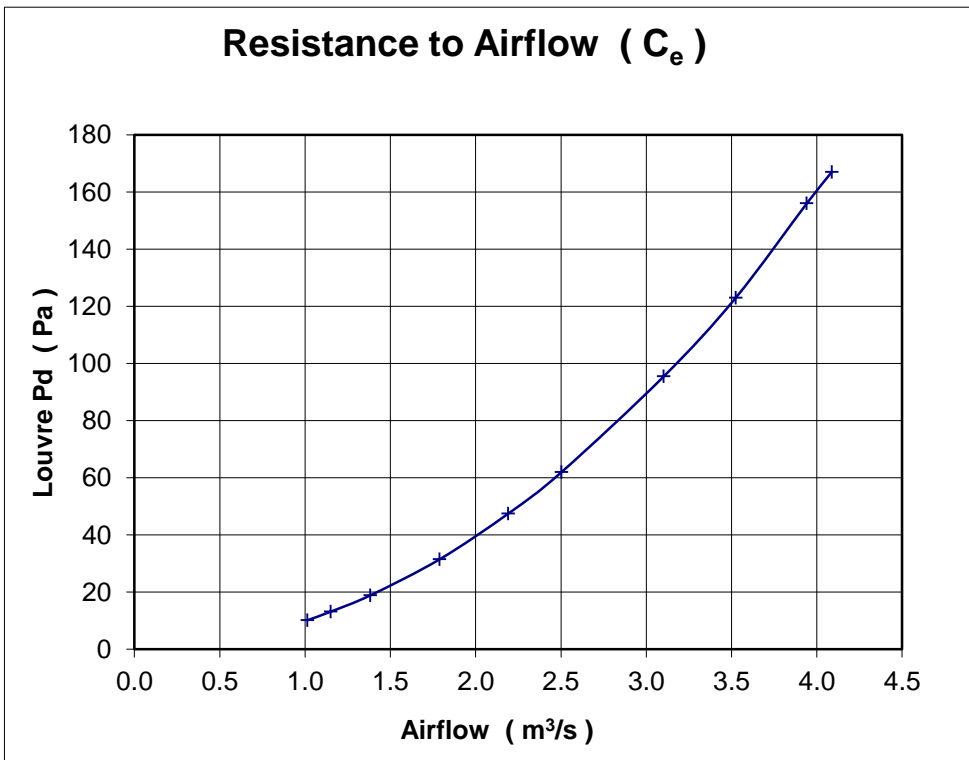
**3.2 COEFFICIENT OF ENTRY**

MANUFACTURER nv Renson Ventilation sa  
 MODEL L.066IM1

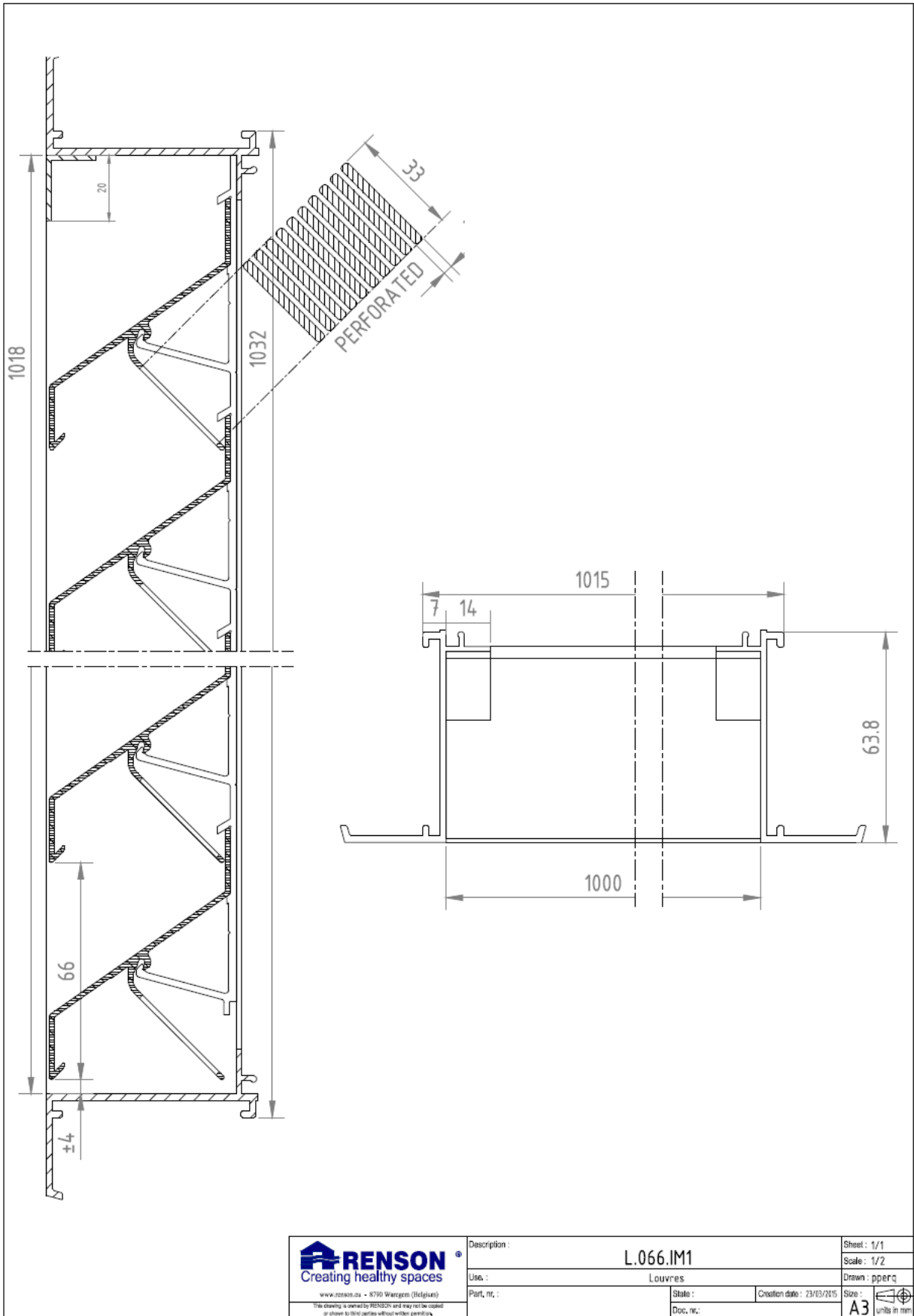
Date 05/03/2015  
 Contract 58743



air temperature 18 °C                      louvre height 1015 mm  
 barometer 1030 mbar                      louvre width 1000 mm  
 air density 1.228 kg/m<sup>3</sup>                      louvre area 1.015 m<sup>2</sup>

louvre pd Pascals	louvre face velocity	air flow rate		coefficient C <sub>e</sub>
	m/s	test m <sup>3</sup> /s	theoretical m <sup>3</sup> /s	
10.2	1.00	1.015	4.138	0.245
13.2	1.13	1.151	4.707	0.244
18.9	1.36	1.383	5.632	0.246
31.5	1.76	1.789	7.272	0.246
47.5	2.16	2.191	8.929	0.245
62.0	2.47	2.503	10.202	0.245
95.5	3.06	3.103	12.661	0.245
123.0	3.47	3.525	14.369	0.245
156.0	3.88	3.941	16.182	0.244
167.0	4.03	4.088	16.743	0.244
mean C <sub>e</sub>				0.245
Class				3



**APPENDIX: A MANUFACTURER'S DRAWING**



 <p><b>RENSON</b> Creating healthy spaces www.renon.eu - 8790 Waargen (Belgium) <small>This drawing is owned by RENSON and may not be copied or shown to third parties without written permission.</small></p>	Description :		L.066.IM1	Sheet : 1/1
	Use :		Louvers	Scale : 1/2
	Part, nr. :	State :	Creation date : 23/03/2015	Drawn : pperq
	Doc. nr. :			Size :  A3 units in mm