

# Certificate

**Certificate No: 53355/1**

**Issue No: 1    Date of issue: 22 September 2009**

This is to certify that

**BSRIA Limited**

Has tested a sample of the product described below in accordance with the test methods contained within EN 13030 : 2001 and has determined the item met the detailed classification shown on pages 3, 4 and 5 of this certificate. For further details of the test item see Page 2 of this certificate

<b>Manufacturer/Agent</b>	Renson Projects Maalbeekstraat 6 8790 Waregem Belgium
<b>Product</b>	Renson Louvre 491
<b>Test location</b>	BSRIA Ltd Old Bracknell Lane West Bracknell Berkshire, RG12 7AH
<b>Date of test</b>	14 August to 17 September 2009
<b>Expiry date</b>	22 September 2012
<b>Test engineer</b>	M Roper/ A Coulson

**Quality approved**    Phil Stonard  
Laboratory Manager  
Testing & Certification

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### TEST ITEM INFORMATION

<b>Contract</b>	53355A
<b>Date</b>	14/08/2009
<b>Manufacturer</b>	Renson
<b>Louvre Model</b>	491
<b>Material</b>	Aluminium
<b>Painted</b>	No
<b>Blade Height</b>	1000 mm
<b>Blade Width</b>	1000 mm
<b>Blade Depth</b>	22 mm
<b>Frame Depth</b>	35 mm
<b>No.of Blades</b>	29
<b>Blade Pitch</b>	33 mm
<b>Blade Angle</b>	30 Degrees
<b>No.of Banks</b>	1
<b>Guard Type</b>	Bird
<b>Guard Spacing</b>	8mm
<b>Side Channels</b>	No
<b>Water Drip Tray</b>	Yes (17mm Deep)
<b>Blade Orientation</b>	Horizontal



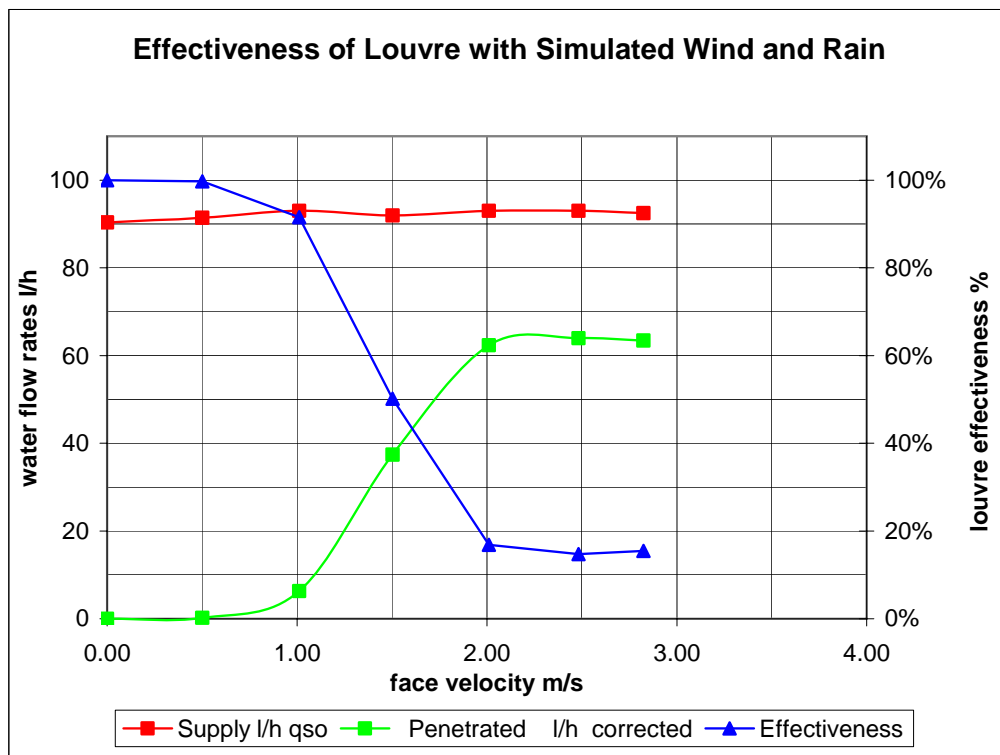
WATER PENETRATION

MANUFACTURER Renson  
 MODEL 491

Date 14/08/2009  
 Contract 53355A

Simulated rainfall 75 mm/hr  
 Wind speed 13.0 m/s  
 louvre height 1000 mm  
 louvre width 1000 mm  
 louvre area 1.000 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	90.3	0.0	100.0%	A
0.50	0.50	91.4	0.2	99.7%	A
1.01	1.01	93.0	6.3	91.6%	C
1.50	1.50	92.0	37.4	50.1%	D
2.01	2.01	93.0	62.3	16.9%	D
2.48	2.48	93.0	63.9	14.7%	D
2.82	2.82	92.5	63.4	15.4%	D



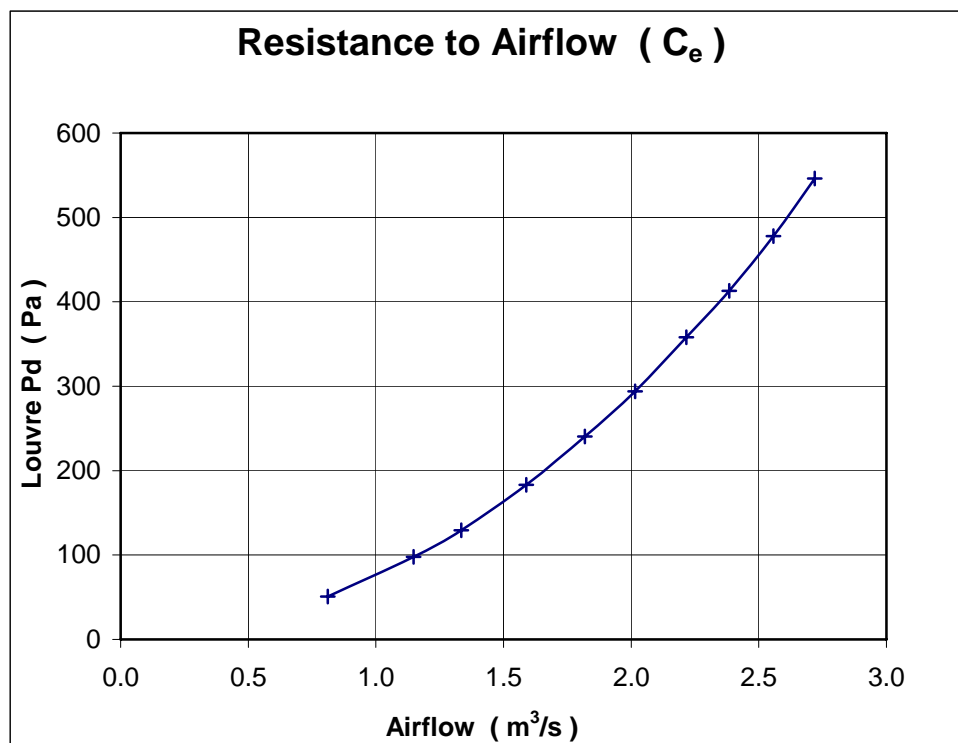
ENTRY LOSS COEFFICIENT

MANUFACTURER Renson  
 MODEL 491

Date 26/08/2009  
 Contract 53355A

air temperature	19.6 °C	louvre height	1000 mm
barometer	1002 mbar	louvre width	1000 mm
air density	1.188 kg/m <sup>3</sup>	louvre area	1.000 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	
50.8	0.81	0.811	9.249	0.088
97.8	1.15	1.147	12.834	0.089
129.2	1.33	1.334	14.751	0.090
183.3	1.59	1.589	17.570	0.090
240.5	1.82	1.819	20.125	0.090
294.1	2.02	2.015	22.255	0.091
358.2	2.22	2.216	24.561	0.090
413.0	2.38	2.384	26.373	0.090
477.9	2.56	2.557	28.369	0.090
546.0	2.72	2.719	30.323	0.090
mean C <sub>e</sub>				0.090
Class				4



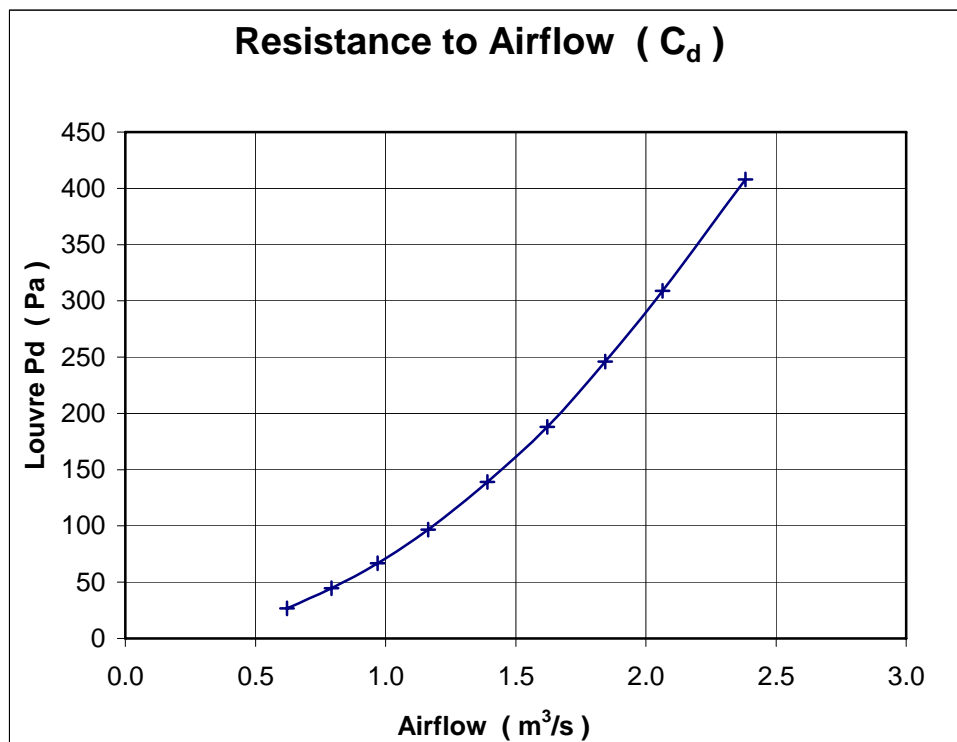
DISCHARGE LOSS COEFFICIENT

MANUFACTURER Renson  
MODEL 491

Date 17/09/2009  
Contract 53355A

air temperature	18.9 °C	louvre height	1000 mm
barometer	1014 mbar	louvre width	1000 mm
air density	1.205 kg/m <sup>3</sup>	louvre area	1.000 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	
26.8	0.62	0.621	6.670	0.093
44.7	0.79	0.792	8.614	0.092
66.8	0.97	0.970	10.531	0.092
96.7	1.16	1.164	12.670	0.092
139.0	1.39	1.391	15.191	0.092
188.0	1.62	1.622	17.667	0.092
246.0	1.84	1.844	20.209	0.091
309.0	2.06	2.064	22.649	0.091
408.0	2.38	2.382	26.026	0.092
mean C <sub>e</sub>				0.092
Class				4



## CLASSIFICATION OF WEATHER LOUVRES

Weather louvres shall be classified by their ability to reject simulated rain.

### Penetration Classification

Table 1 shows the different classifications based on the maximum simulated rain penetration per square metre of louvre. The classification is determined in accordance with section 8 of EN 13030:2001.

Water penetration rating at a given louvre face velocity is determined by the water penetration while the louvre is subjected to a  $13 \text{ ms}^{-1}$  simulated wind velocity and a simulated rain fall at the nominal rate.

**Table 1 Penetration classification**

Class	Effectiveness	Maximum allowed penetration of simulated rain $\text{l.h}^{-1}.\text{m}^{-2}$
A	1 TO 0,99	0,75
B	0,989 TO 0,95	3,75
C	0,949 TO 0,80	15,0
D	Below 0,8	Greater than 15,0

These classifications apply to various core velocities.

### Discharge Loss Coefficient

The discharge loss coefficient given in Table 2, shall be determined in accordance with section 7.2 of test standard EN13030:2001.

**Table 2 Discharge loss coefficient classification**

Class	Discharge Loss Coefficient
1	0,4 and above
2	0,3 to 0,399
3	0,2 to 0,299
4	0,199 and below

(Note: The above also applies to entry loss coefficient)