

# Certificate

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**Certificate No: 52921/3**

**Issue No: 1**

**Date of issue: 23 July 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 13181 : 2001 and have determined the item met the detailed classification shown on pages 3 and 4 of this certificate. For further details of the test item see Page 2 of this certificate

**Manufacturer/Agent** Beijing JangHo Curtain wall Co.,Ltd  
No. 5, Niuhui North 5th Street  
Shunyi District  
Beijing, Prc

**Product** JH-STL-01

**Test location** BSRIA  
Old Bracknell West  
Bracknell  
Berkshire RG12 7AH

**Date of test** 29 June 2009

**Expiry date** 23 July 2012

**Test engineer** A Coulson

**Quality approved** Phil Stonard  
Laboratory Manager  
MicroClimate & Test

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**BSRIA Limited**

Old Bracknell Lane West, Bracknell, Berkshire RG12 7AH UK

T: +44 (0)1344 426511 F: +44 (0)1344 487575

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E: [bsria@bsria.co.uk](mailto:bsria@bsria.co.uk) W: [www.bsria.co.uk](http://www.bsria.co.uk)

**TEST ITEM INFORMATION**

**Contract** 52921A  
**Date** 01/07/2009  
**Manufacturer** Beijing JangHo Curtain wall Co.,Ltd  
**Louvre Model** JH-STL-01  
**Material** Aluminium  
**Painted** No  
**Blade Height** 1000 mm  
**Blade Width** 1033 mm  
**Blade Depth** 175 mm  
**Frame Depth** 175 mm  
**No.of blade types** 3

|                          |             |
|--------------------------|-------------|
| <b>Blade position</b>    | Front       |
| <b>Blade Orientation</b> | Horizontal  |
| <b>No.of Blades</b>      | 13          |
| <b>Blade Pitch</b>       | 75 mm       |
| <b>Blade Angle</b>       | 45 Degrees  |
| <b>Blade position</b>    | Middle      |
| <b>Blade Orientation</b> | Vertical    |
| <b>No.of Blades</b>      | 7           |
| <b>Blade Pitch</b>       | 45 mm       |
| <b>Blade Angle</b>       | N/A degrees |
| <b>Blade position</b>    | Rear        |
| <b>Blade Orientation</b> | Vertical    |
| <b>No.of Blades</b>      | 8           |
| <b>Blade Pitch</b>       | 45 mm       |
| <b>Blade Angle</b>       | N/A degrees |

**Distance between middle and rear blades** 40 mm

**Guard Type** None  
**Guard Spacing** N/A  
**Side Channels** No  
**Water Drip Tray** Yes



SAND REJECTION

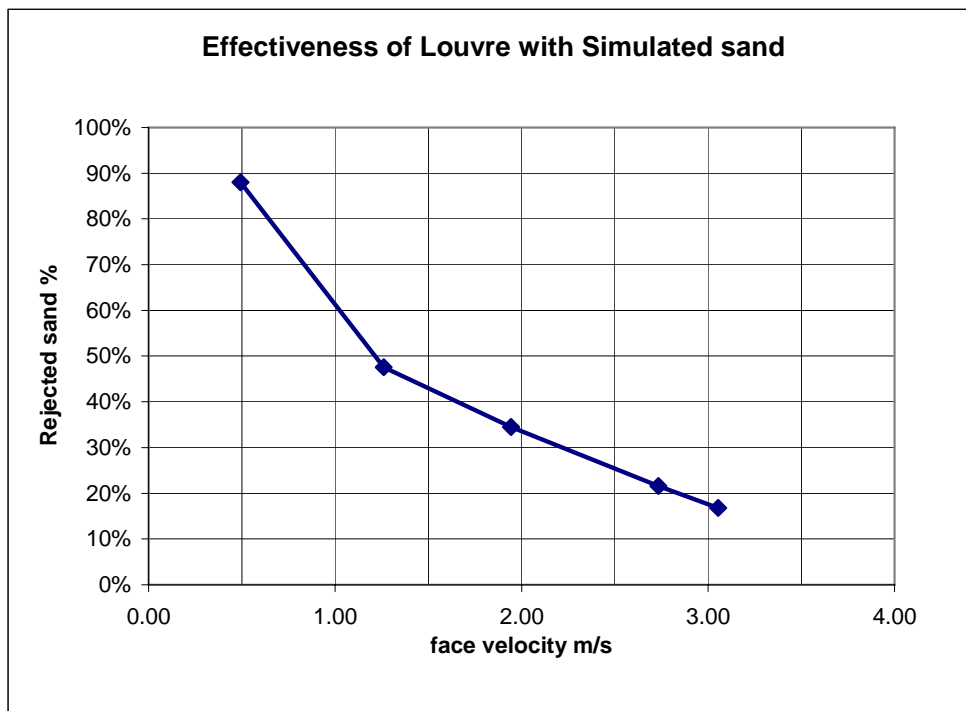
Certification test

MANUFACTURER JH Curtain Wall  
 MODEL JH-STL-01

Date 29/06/2009  
 Contract 52921A

louvre height 1000 mm  
 louvre width 1033 mm  
 louvre area 1.033 m<sup>2</sup>

| VENTILATION RATE            |                 | SAND MASS      |                | Effectiveness |
|-----------------------------|-----------------|----------------|----------------|---------------|
| Volume<br>m <sup>3</sup> /s | Velocity<br>m/s | Injected<br>kg | Rejected<br>kg |               |
| 0.51                        | 0.49            | 1.0            | 0.9            | 88.0%         |
| 1.30                        | 1.26            | 1.0            | 0.5            | 47.6%         |
| 2.01                        | 1.94            | 2.0            | 0.7            | 34.5%         |
| 2.82                        | 2.73            | 2.0            | 0.4            | 21.6%         |
| 3.16                        | 3.05            | 2.0            | 0.3            | 16.8%         |



ENTRY LOSS COEFFICIENT

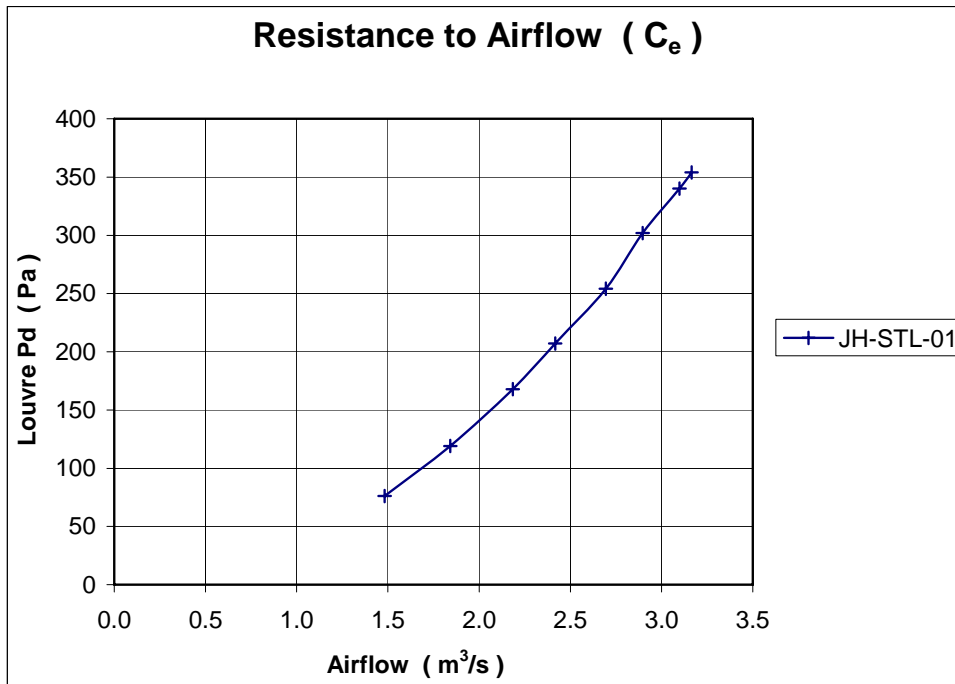
Certification test

MANUFACTURER JH Curtain Wall  
 MODEL JH-STL-01

Date 01/07/2009  
 Contract 52921A1AC

air temperature 29.1 °C                      louvre height 1000 mm  
 barometer 1011 mbar                      louvre width 1035 mm  
 air density 1.161 kg/m<sup>3</sup>                      louvre area 1.035 m<sup>2</sup>

| louvre pd<br>Pascals | louvre face velocity | air flow rate             |                                  | coefficient<br>C <sub>e</sub> |
|----------------------|----------------------|---------------------------|----------------------------------|-------------------------------|
|                      | m/s                  | test<br>m <sup>3</sup> /s | theoretical<br>m <sup>3</sup> /s |                               |
| 76.2                 | 1.43                 | 1.482                     | 11.860                           | 0.125                         |
| 119.0                | 1.78                 | 1.841                     | 14.821                           | 0.124                         |
| 168.0                | 2.11                 | 2.184                     | 17.610                           | 0.124                         |
| 207.0                | 2.34                 | 2.417                     | 19.548                           | 0.124                         |
| 254.0                | 2.60                 | 2.695                     | 21.654                           | 0.124                         |
| 302.0                | 2.80                 | 2.896                     | 23.611                           | 0.123                         |
| 340.0                | 2.99                 | 3.098                     | 25.053                           | 0.124                         |
| 354.0                | 3.06                 | 3.164                     | 25.563                           | 0.124                         |
| mean C <sub>e</sub>  |                      |                           |                                  | 0.124                         |



## CLASSIFICATION OF SAND LOUVRES

### Entry Loss Coefficient

The entry loss coefficient shall be determined in accordance with section 9.2 of the test standard.

### Sand rejection Effectiveness

The sand rejection test is carried out in accordance with section 9.1 of EN13181: 2001.

Table 1 details the core air velocities, weights of sand and sand discharge durations used in the test.

**Table 1 Core air velocities, weights of sand and sand discharge durations**

| Quantity           | Tolerance | Unit             | Values |     |     |     |     |
|--------------------|-----------|------------------|--------|-----|-----|-----|-----|
| Core air velocity  | ± 5%      | ms <sup>-1</sup> | 0.5    | 1.3 | 2   | 2.8 | 3.5 |
| Weight of sand     | ± 5%      | kg               | 1      | 1   | 2   | 2   | 2   |
| Discharge duration | ± 25%     | s                | 200    | 75  | 100 | 70  | 60  |

The grading of test sand conforms with the requirements specified in section 7 of EN13181:2001. Table 2 specifies the mixture requirements for the standard test sand

**Table 2 Requirements for Standard test sand**

| Grade size<br>µm | Mass<br>% |
|------------------|-----------|
| >699             | 0.5       |
| 423 to 699       | 3.0       |
| 353 to 422       | 12.0      |
| 251 to 352       | 30.0      |
| 211 to 250       | 20.0      |
| 152              | 27.0      |
| 104 to 151       | 6.0       |
| 76 to 103        | 1.0       |
| <76              | 0.5       |

Where additional sand types have been used they conform to the following requirements:

FINE – sand between 106 and 150 µm

COARSE – sand between 355 and 425 µm