

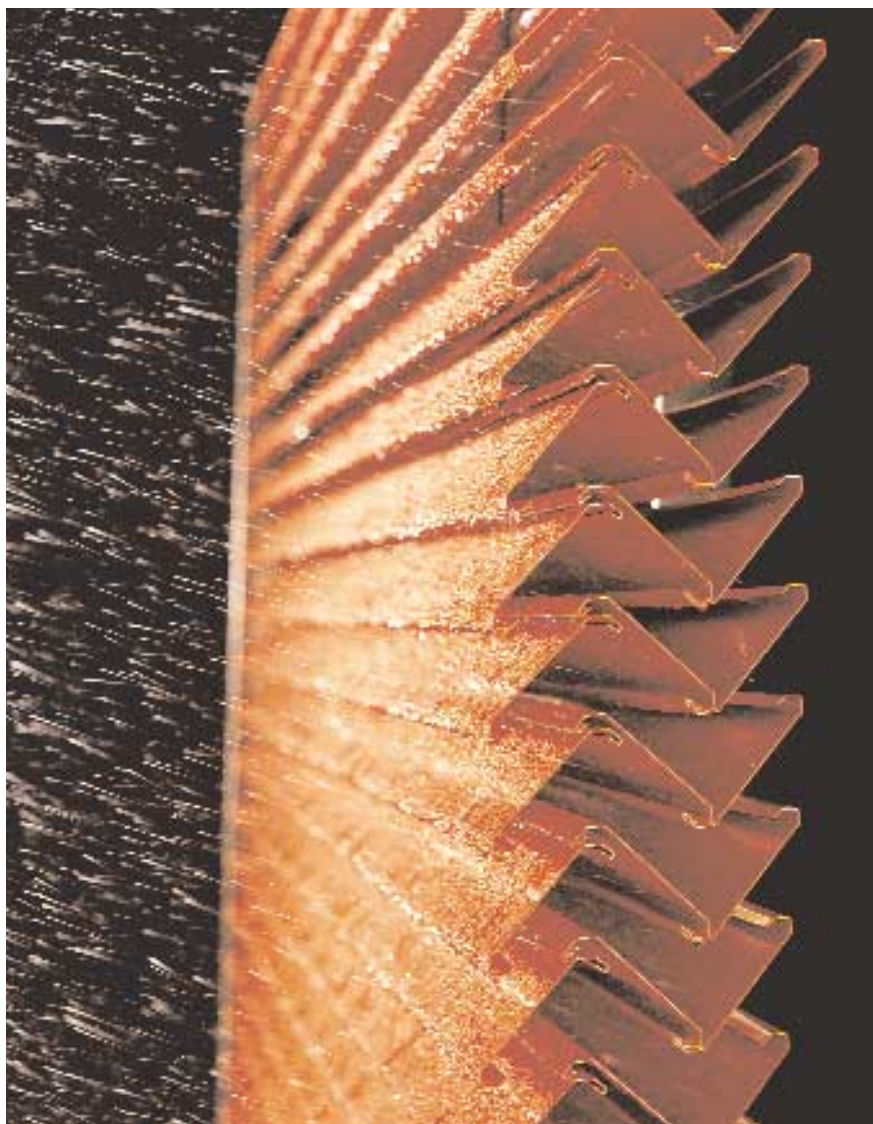
Weather Louvre Selection

- A Brief Guide

Specifying Louvre is always a compromise, and requires some judgement to take into account the particular needs of each application. For example, at one end of the scale, a car park may require maximum ventilation but little protection from rain penetration. Alternatively, a plant room containing special machinery or electrical equipment may still need high levels of ventilation but with maximum protection from water entry.

The ideal design solution is to produce a louvre system which offers the best **RAIN DEFENCE** and **AERODYNAMIC PERFORMANCE**. Unfortunately this seems to be unachievable, however, nothing matches the overall performance set by the **Colt Universal Louvre** range.

Products manufactured by Colt use **100% recycled** aluminium for the principal aluminium components.



Profiles



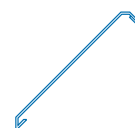
1 UL/SH



2 UL/SH



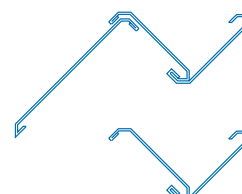
3 UL/SH



1 UL/DH



2 UL/DH



3 UL/DH

Weather Louvre Selection

- HEVAC Classification Method

Specifying Louvre

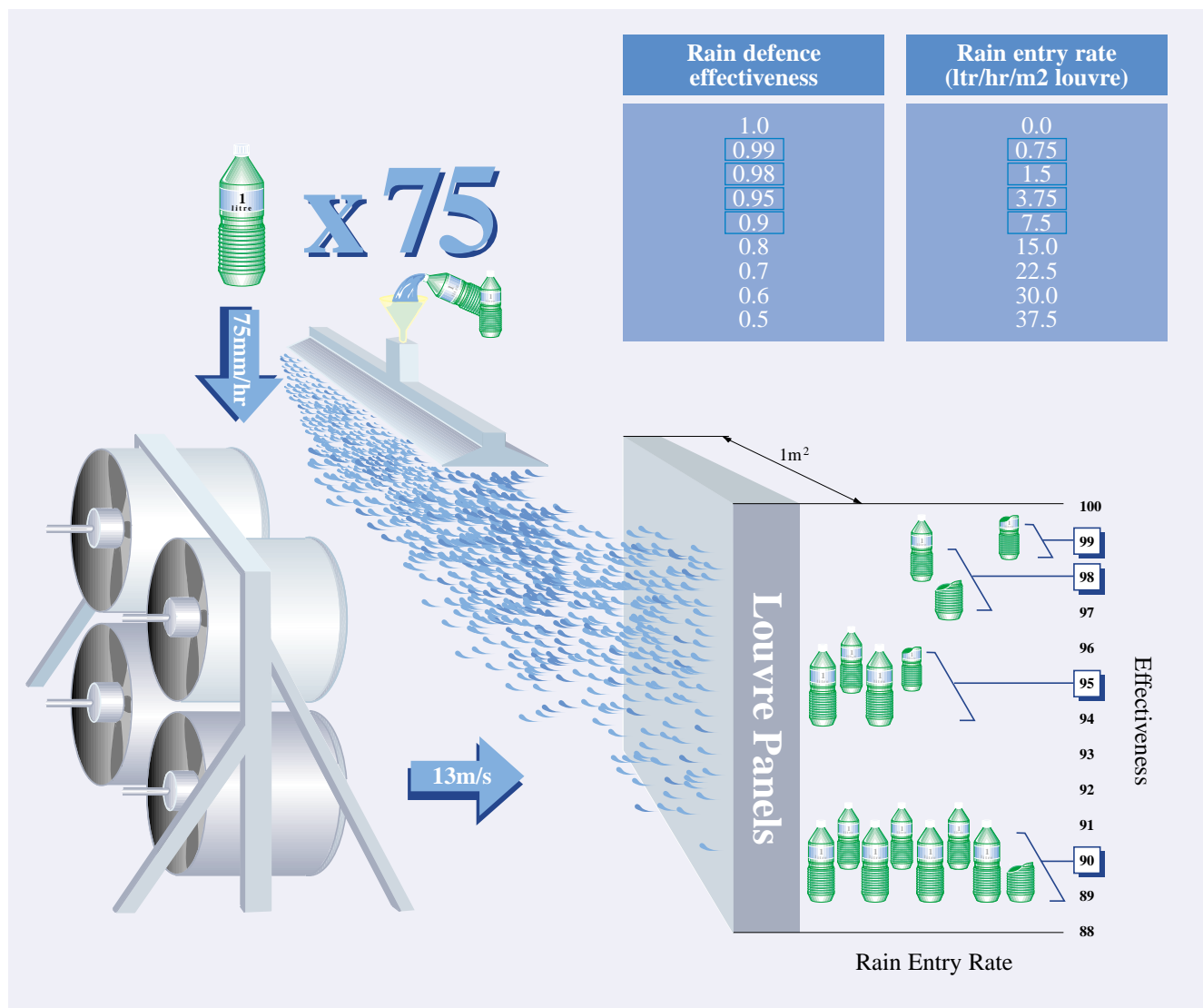
There has been a problem for many years in quantifying the performance of louvre systems due to the competing test standards and lack of application guidance for designers.

The HEVAC Standard “**LABORATORY TESTING AND RATING OF WEATHER LOUVRES WHEN SUBJECTED TO SIMULATED RAIN**” (currently under discussion as a CEN European Standard), helps by including a useful classification method. However, the responsibility for recommending classifications for particular applications still remains with the designer or specifier. This guide is therefore intended to assist designers and specifiers to select the most appropriate louvre performance classification to suit each specific application.

Considerations

- * Site location and **exposure**
- * Severity of local (site) **weather conditions**
- * **Location** and exposure of louvres on building
- * **Airflow rate** and direction through louvre
- * Maximum acceptable **pressure drop**
- * Degree and **depth of water penetration** acceptable
- * Special solutions for sloping applications

To get the effectiveness classes into perspective, this illustration shows water penetration rates for 75mm/hr rainfall, 13m/s wind and no inlet velocity, which is reasonably representative of **bad** UK weather.



Weather Louvre Selection

- HEVAC Classification Method

British manufacturers of louvre systems in conjunction with HEVAC and BSRIA have developed a test standard which will help designers differentiate between louvres to suit specific applications. Many factors may affect louvre performance, but the test environment at 13m/sec (30mph) wind-speed and 75mm/hr (3 inches) for a period of 30 to 60 minutes is fairly extreme.

Rain Defence Classification

HEVAC Test Results

Aerodynamic Performance

Class	Effectiveness (1.0 = 100%)	Rain Defence Effectiveness (%)	Actual Rain Entry Rate (litres/hr/m ² louvre)	Class	Coefficient
A	1.00 0.99	100% 99%	0.0 0.75	1	0.40 and above
B	0.989 0.95	98% 95%	1.5 3.75	2	0.30 to 0.399
C	0.949 0.80	90% 80%	7.5 15.0	3	0.20 to 0.299
D	below 0.80	70% 60% 50%	22.5 30.0 37.5	4	below 0.20

A high coefficient means low resistance and high airflow performance

The effectiveness classification should be specified for the **design air inlet (core) velocity** through the louvre, because it is **velocity dependent**. To help put this into perspective the table above shows how “effectiveness” relates to **actual rain entry** under standard test conditions, which is representative of severe UK weather.

Applications

Recommendations for the selection of rain defence louvre, based upon actual **design inlet air velocities**.

Class A -	Where excellent rain defence is required and core velocities are above 1m/s and up to 3.5m/s.	3 UL No appreciable water penetration
Class A -	Where excellent rain defence is required and core velocities are up to 1m/s.	2 UL No appreciable water penetration
Class B -	Where good rain defence is required and core velocities are between 1m/s and 2.2m/s.	2 UL Some water entry but limited depth of penetration
Class C -	Where reasonably good rain defence is of benefit and core velocities are between 2.2m/s and 3.5m/s.	2 UL Significant water entry but limited depth of penetration
Class D -	Where maximum airflow is required but <u>rain defence is not considered important.</u>	1 UL Only limited protection from wind driven rain

The classifications for Colt Universal Louvre are:

3 UL (Triple bank) Class A3 up to 3.5m/s

2 UL (Double bank) Class A2 up to 1.0 m/s Class B2 from 1.0m/s to 2.2 m/s Class C2 from 2.2m/s to 3.5 m/s

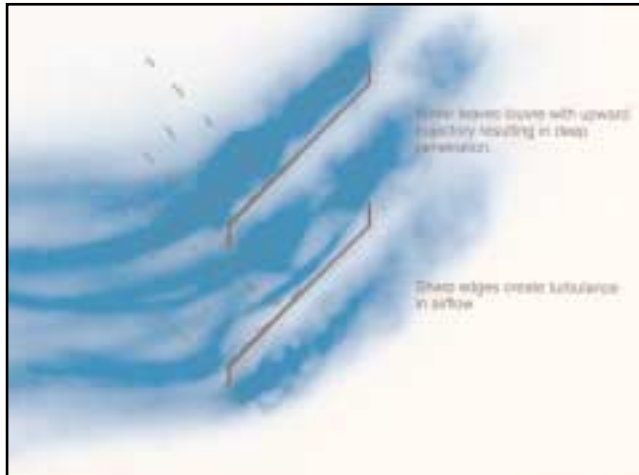
1 UL (Single bank) Class D1 all velocities

Performance specifications should always include the design air inlet (core) velocity.

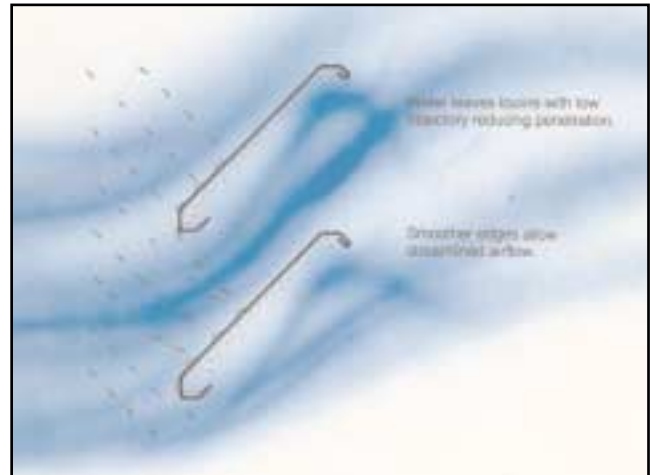
Weather Louvre Selection

- Rain and Air Movement

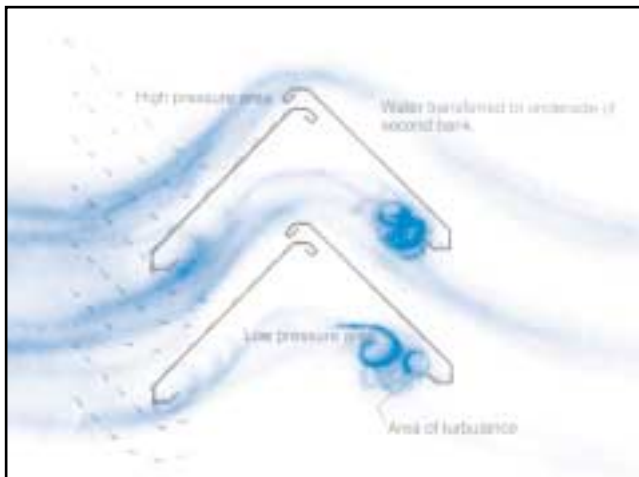
Conventional Louvre



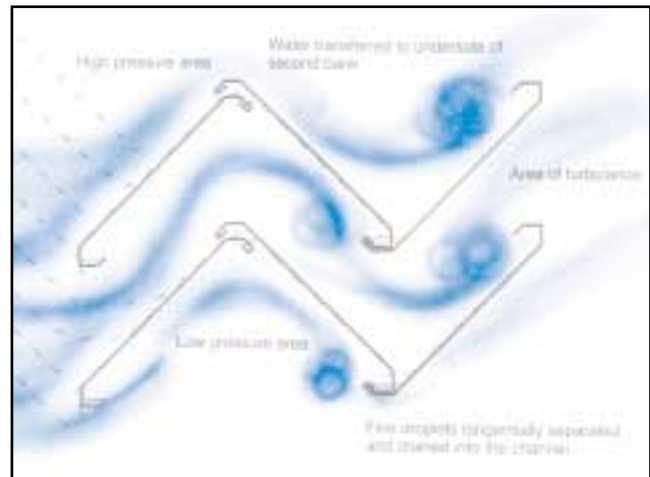
Single Bank Universal Louvre



Double Bank Universal Louvre



Triple Bank Universal Louvre



COLT

A copy of Colt Technical Paper No 364 - Guide to Weather Louvre Selection is available should further detailed technical information be required.

A copy of the HEVAC standard is available from FETA. (Telephone: 01628 531186).

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