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PERFORMANCE LOUVRE |

R A I N D E F E N C E L O U V R E

Established in the year **1989**

Our expertise is supported by over **32**
years of specialist experience

Completed over **20**
installations in the last **2** years

We are CIDB Gred **7**
Certified Contractor

We are an **ISO 9001:2015**
company



**GOLDEN BULL
AWARD 2019**
2019 金牛奖

企业金牛奖
PLATINUM
BUSINESS AWARDS

MISSION

Professionalism and credibility are woven into our very souls and served as the principles that upheld the company through thick and thin over the years. When it comes to the brand Colt Engineering, reliability was never in doubt.

VISION

To be the finest comprehensive architectural solutions provider in the nation and beyond to integrate value and protection in our effort to safeguard the welfare of our clients and society at large.

FEATURES & BENEFITS

Aesthetically
Pleasing

Colt louvre systems have a distinctive sharp louvre profile.

Reduced
Energy Costs

Colt louvre systems are highly aerodynamically efficient. This reduced air resistance allows the plant and the aperture to be smaller thereby saving running costs.

Enhanced
Performance

Colt louvre systems are both aerodynamically efficient and have a remarkably high resistance to weather.

Proven
Performance

All Colt louvre systems have been tested to EN 13030:2001.

Easy To Install

Colt louvre systems can be either be delivered to site preassembled or as a kit of parts.

Upgradeable Louvre

Colt can upgrade “live” areas to double or triple bank configurations at a later stage than the installation.

A Wide Range

Colt louvre systems are available in various shapes, configurations, materials, finishes and coatings to meet the requirements of almost any project. Louvres can be extruded or roll formed; polyester powder painted, precoated or anodised, perforated, or stucco embossed. Besides aluminium and stainless steel profiles, there are all manner of glass, textile, wood, terracotta clay and translucent acrylic louvres available depending upon aesthetic and energetic requirements. There are also a wide range of accessories, including single skin or insulated blanking panels, acoustic modules, guards and meshes, doors and turrets.

Design Input Provided by Colt

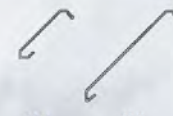
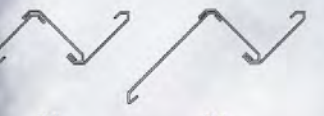
Colt louvre systems can be uniquely configured to provide the solution to your needs. Software programs are freely available to assist with this. It’s easy to size a panel according to a maximum pressure drop, or to specify the appropriate louvre bank configuration based on a set flow rate and maximum pressure drop.

Project MRT Line 1 - Bukit Bintang & Intervention Shaft 2



TYPE OF PERFORMANCE LOUVRES

Our louvre panel systems offer a wide variety of applications but not limited to industrial, commercial buildings and infrastructure facilities. Purpose can be to control light entry, to provide ventilation whilst maintaining rain defence, to provide screening, or a combination of these. A way of providing necessary airflow, both intake and exhaust to HVAC and heavy plant machinery.

				
Type of louvres	1UL Single Bank Universal Louvre	2UL Double Bank Universal Louvre	3UL Triple Bank Universal Louvre	EWL Extruded Weather Louvre
Application	1UL used for screening and / or ventilation. It is very often used as plant room louvre, or indeed anywhere where plant needs to be covered up. 1UL is a single bank louvre system designed for screening or cladding applications when rain defence is not of primary importance. Where rain defence is needed, we recommend the use of either 2UL or 3UL.	2UL is a double bank louvre system which provides high airflow performance with a good degree of rain defence. When rain defence is needed, we recommend the use of either 2UL or 3UL. When rain defence is not of primary importance, we recommend the use of 1UL.	3UL louvre is a roll-formed triple bank louvre system designed for applications requiring ventilation with the maximum degree of rain defence. When high level rain defence is needed, we recommend the use of either 2UL or 3UL. When rain defence is not of primary importance, we recommend the use of 1UL.	WL is a single bank extruded weather louvre, providing high performance rain defence. Suitable for applications requiring screening and ventilation. Class a rain defence EWL is a single bank louvre system with comparable performance to a double bank louvre, achieving Class A up to 3 m/s.
System Type	Universal Louvre 1UL/SH Single bank shallow section, front louvres at 50mm pitch. Universal Louvre 1UL/DH Single bank deep section, front louvres at 100mm pitch.	Universal Louvre 2UL/SH - Single bank shallow section, front louvres at 50mm pitch. Universal Louvre 2UL/DH Single bank deep section, front louvres at 100mm pitch.	Universal Louvre 3UL/SH - Triple bank shallow section, front louvres at 50mm pitch. Universal Louvre 3UL/DH Triple bank deep section, front louvres at 100mm pitch.	



Project MRT Line 1 - Pasar Seni Station



TECHNICAL INFORMATION

Specifying louvre is always a compromise and requires some judgement to take into account the particular needs of each application. At one end of the scale for example 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.

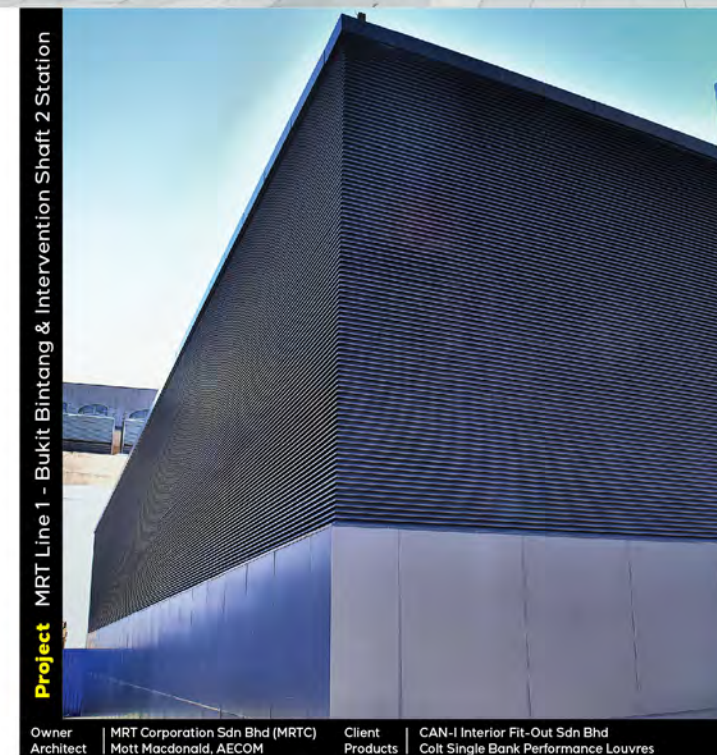
The ideal design solution is to produce a louvre system that offers the best **RAIN DEFENCE** and **AERODYNAMIC PERFORMANCE**. Unfortunately, this seems to be unachievable. But nothing matches the overall performance standards set by the Colt Universal Louvre range.

Screening and ventilation whilst maintaining rain defence

The principal objective of screening louvre is to obstruct line of sight from normal vantage points by virtue of its design or orientation. Generally each run of louvre will have a continuous appearance unbroken by framing so as to blend in with the building, but it also can be made to provide contrast so as to provide an architectural feature.

Whilst the screening application is certainly the simplest from a performance perspective, it is arguably the most demanding from the viewpoint of aesthetics and configuration.

Colt Louvre allows maximum airflow with minimum resistance and are ideal for screening areas such as plant rooms and car parks.



Project MRT Line 1 - Bukit Bintang & Intervention Shaft 2 Station

Owner	MRT Corporation Sdn Bhd (MRTC)	Client	CAN-I Interior Fit-Out Sdn Bhd
Architect	Mott MacDonald, AECOM	Products	Colt Single Bank Performance Louvres

1 WEATHER LOUVRE

A device intended to allow the passage of inlet or exhaust air while minimising the ingress of rain (HEVAC).

2 FREE AREA

The minimum area through which air can pass. Determined by multiplying the sum of the minimum distance between intermediate blades, top blade, head and bottom blade and cill by the minimum distance between jambs (AMCA).

In performance terms Free Area is a wholly meaningless measure.

3 MEASURED FREE AREA

A term used to indicate the open area between frame members with the louvre blades removed and used with the aerodynamic co-efficient (C_v) to calculate the aerodynamic free area and thus the pressure drop through a louvre. This is now sometimes referred to as the "core area".

4 AERODYNAMIC AREA

The product of measured free area and the aerodynamic coefficient. Equal to the total area of a theoretically perfect opening. This value is used for the calculation of the pressure drop

TERMINOLOGY CHECK



Project MRT Line 1 - Muzium Negara Station

TESTED TO THE LATEST STANDARD

The European Standard EN 13030:2001 “Ventilation for buildings – Terminals – Performance testing of louvres subjected to simulated rain” helps by providing 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.

EN 13030:2001 AND EQUIVALENT STANDARDS

British manufacturers of louvre systems in conjunction with HEVAC and BSRIA developed a test and classification method to help designers differentiate between alternative louvre systems to suit specific applications. The HEVAC standard formed the basis for the European standard EN 13030, which is technically identical.

During testing, the resistance to airflow is assessed and the louvres are subjected to 75mm/hr of water, blown against a 1m x 1m louvre at a velocity of 13m/s.

The louvre is then given a 3 part classification:

- 1 Effectiveness
- 2 Discharge Loss Coefficient
- 3 Overall Performance

RAIN DEFENCE EFFECTIVENESS

This classification rated A-D designates the effectiveness class of the weather louvre against water (rain) penetration.

Louvre performance is dependent on the intake velocity. A louvre may be class A at 0m/s but at 3.5m/s it might be a D. Historical weather conditions at the site need to be considered to establish the maximum and minimum expected face velocity.

BS EN13030 Test Results			
Rain Defence Classification	Effectiveness (1.0 – 100%)	Rain Defence Effectiveness (%)	Actual Rain Entry Rate (Litres/Hr/M2 Louvre)
Class A	1 to 0.99	100 - 99	0 - 0.75
Class B	0.989 to 0.95	98 - 95	1.5 - 3.75
Class C	0.949 to 0.80	90 - 80	7.5 - 15
Class D	Below 0.8	70 - 60 - 50	22.5 - 30.0 - 37.5

To help put the performance classifications into perspective the table above shows how “effectiveness” relates to actual rain entry under standard test conditions, which are representative of bad Northern European weather. The effectiveness classification should be specified for the design air inlet velocity through the louvre since it is velocity dependent.

AIRFLOW CLASSIFICATION

This classification, rated 1-4 designates the louvres ability to allow air to pass through it and is determined by establishing the Discharge Loss Coefficient (DLC) at various airflow velocities. Each class covers a specific range, as can be seen in the table below. The higher the DLC the less resistant to air the louvre is. The Airflow Class gives a guide to M&E consultants of how the louvre performs at various ventilation rates and the actual DLC figure is used to establish the actual area of louvre required.

Aerodynamic Performance



A high coefficient means low resistance and high airflow performance.

APPLICATIONS

Recommendations for the selection of rain defence louvres, based on actual design inlet air velocities (for exhaust louvres take a velocity of 0 m/s, representing the worst case with the exhaust system switched off) :

Class A Solution	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 Solution	Where excellent rain defence is required and core velocities are up to 1m/s. 2 UL No appreciable water penetration
Class B Solution	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 B Solution	Where good rain defence is required and core velocities are up to 1.5m/s. E Series ERD Some water entry
Class C Solution	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 C Solution	Where reasonably good rain defence is of benefit and core velocities are between 1.5m/s and 2.3m/s. E Series ERD Some water entry
Class D Solution	Where maximum airflow is required but rain defence is not considered important. 1 UL Only limited protection from wind driven rain
Class D Solution	Where maximum airflow is required but rain defence is not considered important. E Series ESC Only limited protection from wind driven rain

CLASSIFICATIONS FOR COLT LOUVRE SYSTEMS

3 UL (Triple Bank)	Class A3 up to 3.5m/s
2 UL (Double Bank)	2 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
ERD (Single Bank)	Class A2 at 0m/s Class B2 up to 1.5 m/s Class C2 from 1.5m/s to 2.3 m/s Class D2 from 2.3m/s to 3.5 m/s
1 UL (Single Bank)	Class D1 all velocities
ESC (Single Bank)	Class D1 all velocities



UPGRADEABLE LOUVRE

Establishing the louvre material, colour and louvre blade arrangement is relatively straightforward. However when it comes to rain defence performance this can present problems relating to an appropriate specification, particularly at the stage in a project before full ventilation design requirements have been established. If a basic louvre is specified, there is a risk that water penetration may occur resulting in later problems on a completed project, often with only limited and / or expensive solutions being available.

Alternatively, if the need for high performance 'rain defence' louvre is accepted, often requiring double or triple bank configurations, it may be difficult to determine the location and areas of 'functional' louvre required at an early enough stage. This can result in large areas of double or triple bank louvre being installed but subsequently blanked off. Clearly this can add unnecessary cost.

Colt has developed a design solution for Universal Louvre. This allows a basic installation of single bank louvres, which can be blanked off as part of an initial installation, but with the capability to be 'upgraded' at any later date, to suit either final design requirements or later modifications and use requirements.

This solution allows complete design flexibility at optimum cost.



Project MRT Line 1 - Semantan North Portal Station

Owner Architect | MRT Corporation Sdn Bhd (MRTC) Mott MacDonald, AECOM Client Products | CSRG Engineering Sdn Bhd Colt Single Bank & Double Bank Performance Louvres



Project MERDEKA PNB118 TOWER (KL118)

Owner Architect | PNB Merdeka Ventures Sdn Bhd RSP ARCHITECT Sdn Bhd Client Products | PERMASTEELISA Pacific Holdings LTD Colt Double Bank Performance Louvres

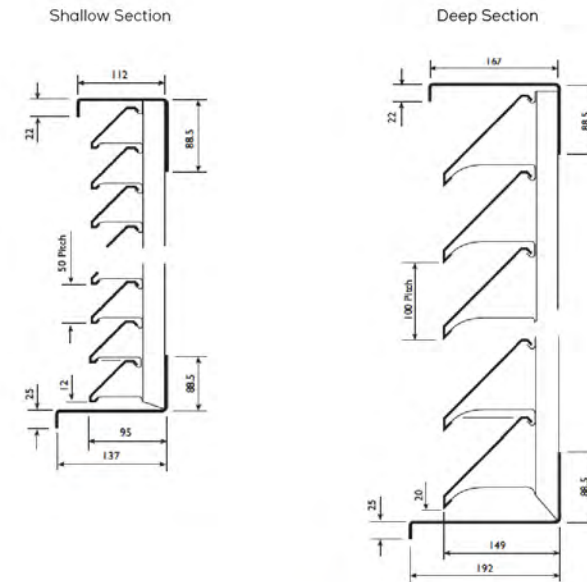
PERFORMANCE DATA

PRODUCT SPECIFICATIONS

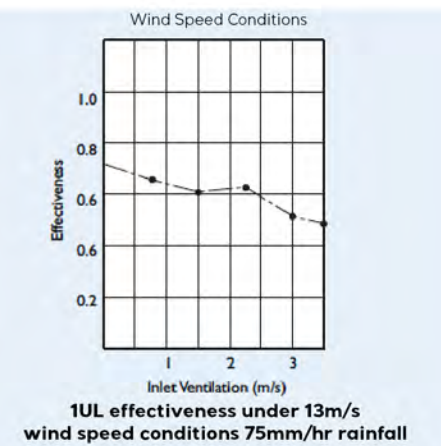
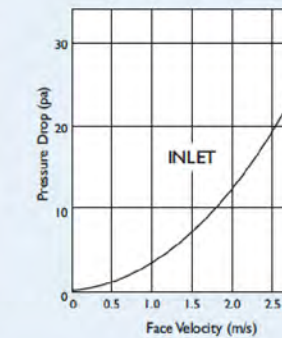
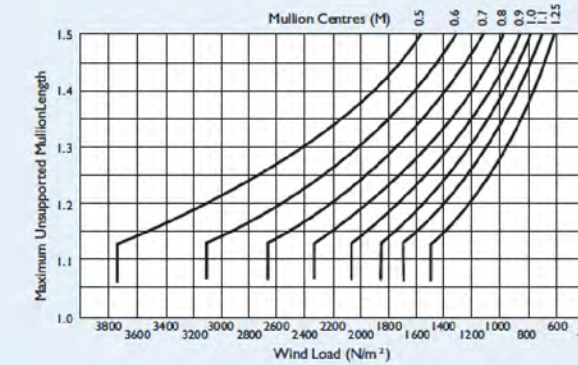
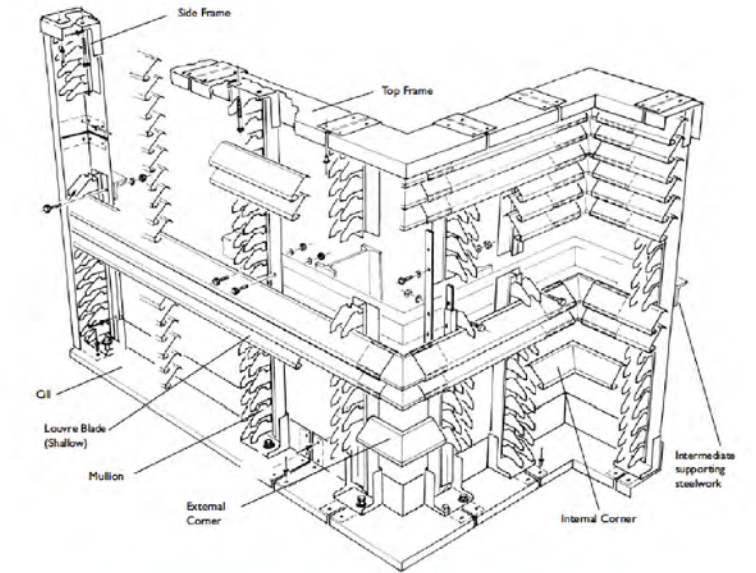
1UL - Single Bank Universal Louvre

Dimensions

Note : All dimensions are given as internal, external dimensions will vary depending upon material thickness



Assembly





**1UL -
Single Bank Universal Louvre**

**SINGLE BANK
UNIVERSAL LOUVRE**

Its consistent appearance and installation flexibility makes the Single Bank Universal Louvre ideal for screening and cladding applications. Single Bank Universal Louvre, 1UL (one louvre deep) is an aerodynamically shaped louvre and has two standard louvre profiles:

- Shallow (50mm pitch) and
- Deep (100mm pitch)

1UL also has two arrangements:

- Horizontal
- Vertical

Both arrangements can be inverted for roof screens, which is important when wishing to hide items which are high up, such as the lift plant on high rise apartments.

**FINISHING
OPTIONS**

There are three standard material options for the principal components:

- Aluminium
- Mild Steel
- Stainless Steel (50mm pitch only)

There are many decorative finish options, including:

- Mill Finish
- Stoved Polyester Powder Paint
- Anodised

Perforated, Stucco and Pre-Coated Louvres are also available on request for larger applications.

The applied finishes can be supplied in two coverage levels:

- Total (all principal components)
- Partial (louvres and frames only)

**OPTIONAL
EXTRAS**

There are a large selection of optional accessories such as:

- Mitred Corners
- Blanking Panels (Single Skin or Insulated)
- Special Shapes
- Acoustic Modules
- Guards (Bird / Insect* / Security)
- Doors
- Turrets

* Insect mesh will result in reduced airflow and additional resistance.

**PERFORMANCE
SPECIFICATION**

A multi purpose louvre system shall be provided to achieve minimum resistance to airflow, with louvre blades to be aerodynamically shaped with no sharp edges or protrusions, to ensure the highest efficiency airflow performance.

Airflow

The following minimum aerodynamic the louvre panel is tested to EN 13030:

Air Inlet - 0.43

Air Extract - 0.38

The above aerodynamic coefficients shall be established as a result of full scale wind tunnel tests.

Rain Defence

Single bank louvres are ideally applied in sheltered locations or where rain penetration may be acceptable. The louvre system will achieve Class D1 when tested at all velocities to EN 13030:2001.

**PRODUCT
SPECIFICATION**

Colt Single Bank Universal Louvre type 1UL having louvre blades at 50mm pitch (shallow section) or 100mm pitch (deep section).

Construction throughout shall be from high quality corrosion resistant aluminium alloy type 3005 (Colterra) or 3105 to BS1470.

Louvre blades shall not be drilled but shall be clipped and not rivetted or screwed to structural supporting mullions. Thus allowing for expansion and contraction along their length without distortion and to provide a continuous external appearance if required.

Mullions shall be concealed at 1250mm maximum centres and their points of support along their length shall be in accordance with prevailing site wind pressures (as calculated and specified by a structural engineer) in accordance with BS 6399 part 2. Manufactured from 2mm sheet so that associated support steelwork is reduced to a minimum.

Cill and frames shall contain all peripheral fixings and be manufactured from 1.6mm sheet.

**PERFORMANCE
SUMMARY**

- High airflow properties
- Moderate rain defence properties (subject to location and exposure)

Equally suited to applications requiring architectural screening or cladding, Colt Single Bank Louvre is ideal where a high airflow is required and where rain defence is not of primary importance.

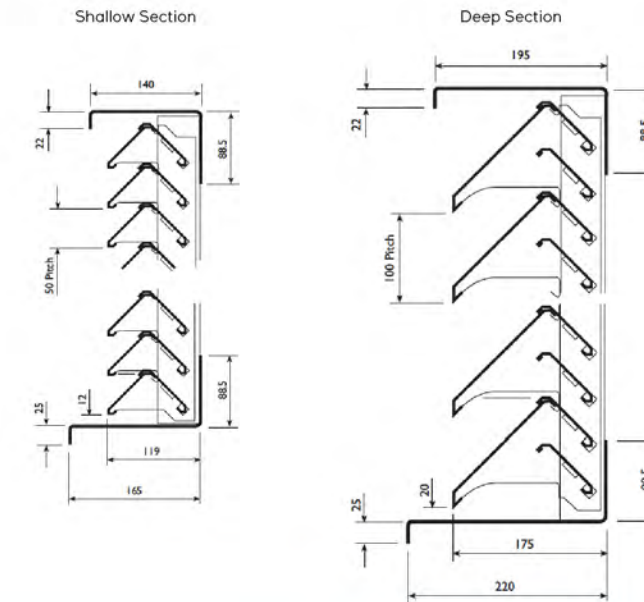
PERFORMANCE DATA

PRODUCT SPECIFICATIONS

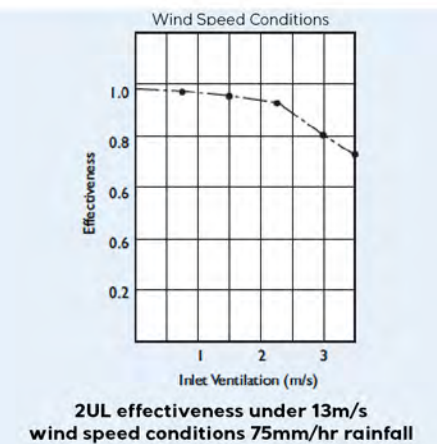
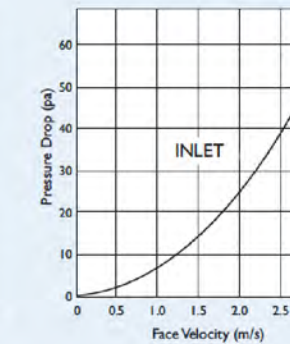
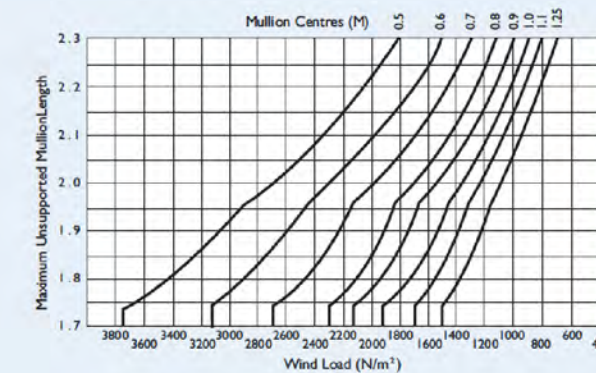
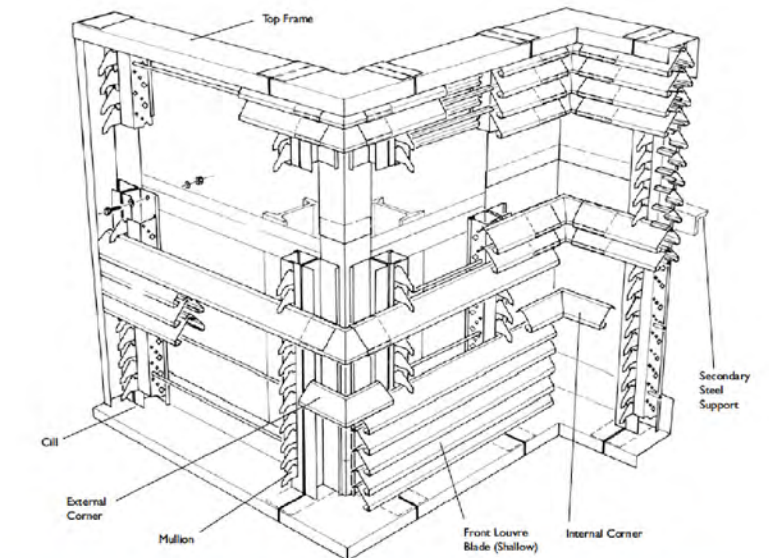
2UL - Double Bank Universal Louvre

Dimensions

Note : All dimensions are given as internal, external dimensions will vary depending upon material thickness



Assembly





**2UL –
Double Bank Universal Louvre**

**DOUBLE BANK
UNIVERSAL LOUVRE**

Double Bank Universal Louvre is ideal for applications requiring ventilation with a good degree of rain defence. Double Bank Universal Louvre, 2UL (two louveres deep) and has two front louvre profiles:

- Shallow (50mm pitch)
- Deep (100mm pitch)

2UL also has two arrangements:

- Horizontal and Vertical

Both arrangements can be inverted.

**FINISHING
OPTIONS**

There are three standard material options for the principal components:

- Aluminium
- Mild Steel
- Stainless Steel (50mm pitch only)

There are many decorative finish options, including:

- Mill Finish
- Stoved Polyester Powder Paint
- Anodised

Perforated, Stucco and Pre-Coated louveres (normally applied to front louveres blades and frames only) are also available on request.

The applied finishes can be supplied in two coverage levels:

- Total (all principal components)
- Partial (louveres and frames only)

**OPTIONAL
EXTRAS**

There are a large selection of optional accessories such as:

- Mitred Corners
- Blanking Panels (Single Skin or Insulated)
- Special Shapes
- Acoustic Modules
- Guards (Bird / Insect* / Security)
- Doors
- Turrets

* Insect mesh will result in reduced airflow and additional resistance.

**PERFORMANCE
SPECIFICATION**

A multi purpose louvre system shall be provided to achieve minimum resistance to airflow, with louvre blades to be aerodynamically shaped with no sharp edges or protrusions, to ensure the highest efficiency airflow performance.

Airflow

The following minimum aerodynamic coefficients shall be achieved when the louvre panel is tested to EN13030:2001:

- Air Inlet - 0.308
- Air Extract - 0.25

Rain defence

The louvre system will achieve the following weathering classification when the louvre panel is tested to EN 13030:2001:

- Class A2 - up to 1m/s suction velocity
- Class B2 - up to 2.2m/s suction velocity
- Class C2 - up to 3.0m/s suction velocity
- Class D2 - up to 3.5m/s suction velocity

The louvre system shall be drained internally through hollow section vertical mullions which shall discharge water onto the cill.

The louvre system shall be capable of combining both double bank functional louvre and single bank aesthetic louvre with rear blanking panels on the same elevation without variation in external profile.

**PRODUCT
SPECIFICATION**

Colt Double Bank Universal Louvre type 2UL having louvre blades at 50mm pitch (shallow section) or 100mm pitch (deep section, front louvre only).

Construction throughout shall be from high quality corrosion resistant aluminium alloy type 3005 (Colterra) or 3105 to BS 1470.

Front louvre blades shall not be drilled but clipped and not rivetted or screwed to structural supporting mullions allowing for expansion and contraction along their length without distortion and to provide a continuous external appearance if required.

Mullions shall be concealed at 1250mm maximum centres and their points of support along their length shall be in accordance with prevailing site wind pressures (as calculated and specified by a structural engineer) in accordance with BS 6399 part 2. Manufactured from 2mm sheet so that associated support steelwork is reduced to a minimum.

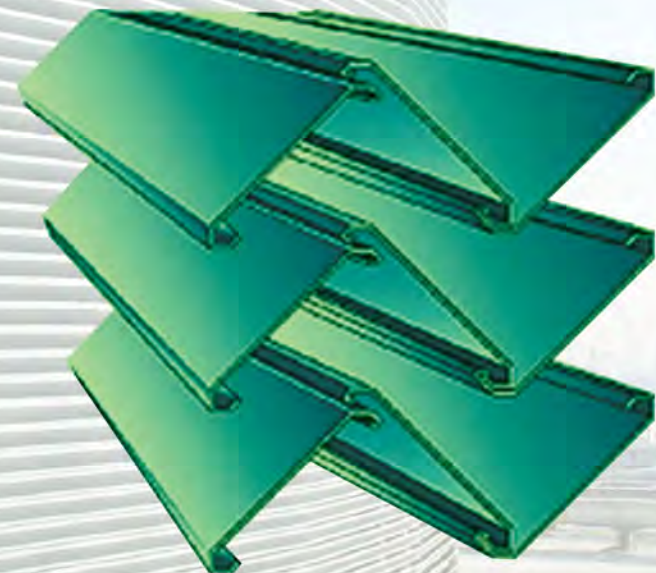
Cill and frames shall contain all peripheral fixings and be manufactured from 1.6mm sheet.

**PERFORMANCE
SUMMARY**

- Good airflow properties
- Good rain defence properties

Equally suited to applications requiring architectural screening or cladding with ventilation and a good degree of rain defence.

PERFORMANCE DATA

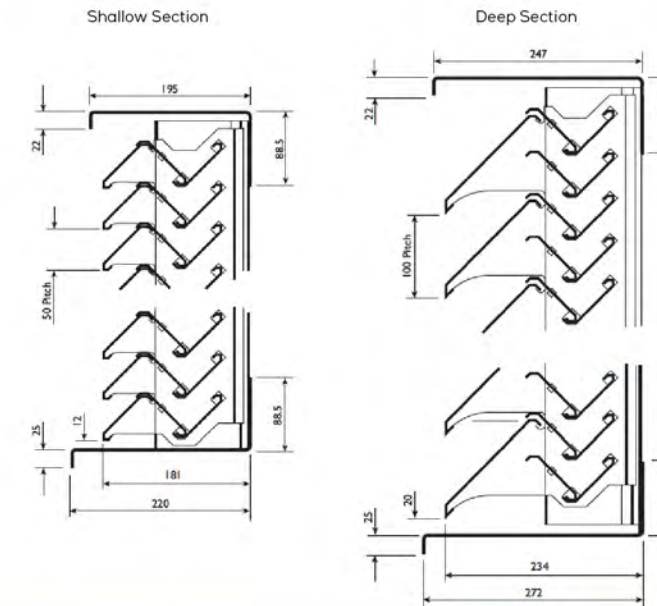


PRODUCT SPECIFICATIONS

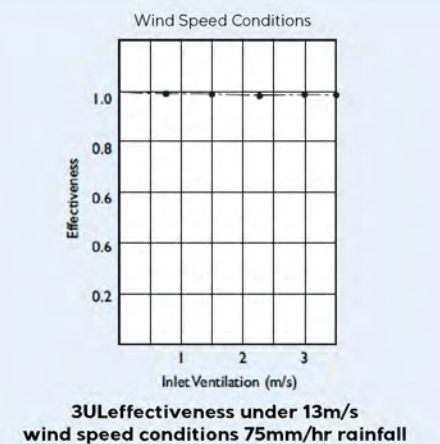
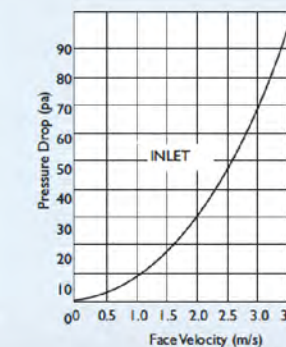
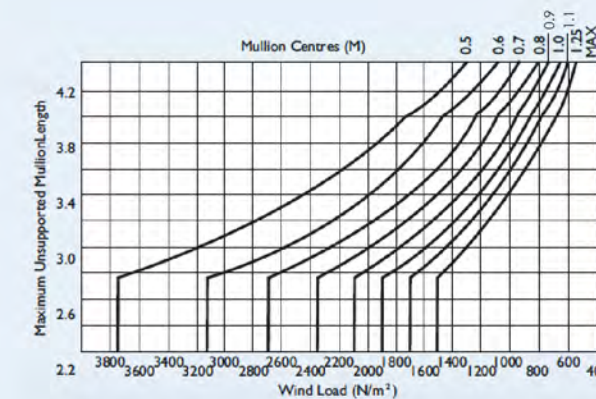
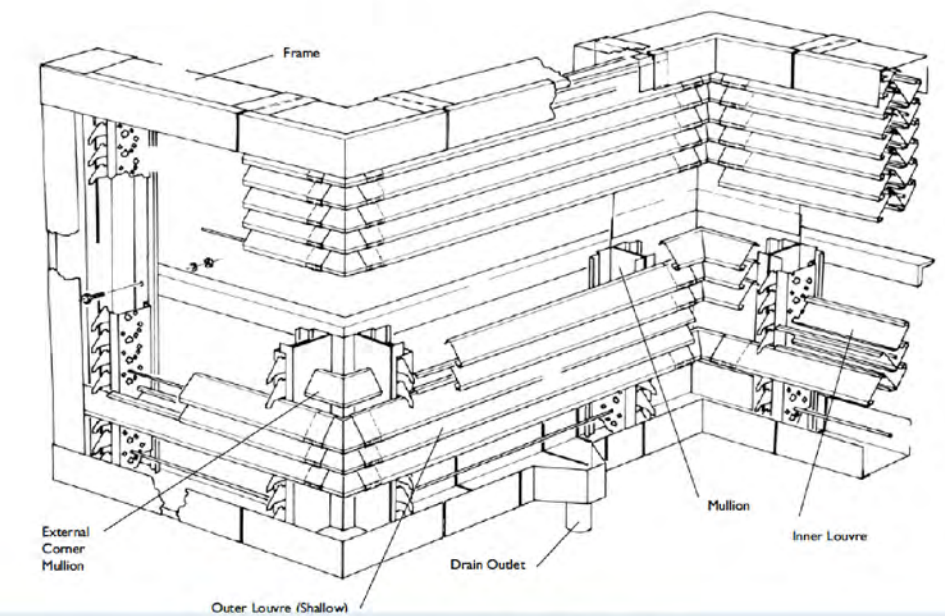
3UL - Triple Bank Universal Louvre

Dimensions

Note : All dimensions are given as internal, external dimensions will vary depending upon material thickness



Assembly





**3UL -
Triple Bank Universal Louvre**

TRIPLE BANK UNIVERSAL LOUVRE

Its consistent appearance and installation flexibility makes the Triple Bank Universal Louvre ideal for screening and cladding applications requiring ventilation with maximum rain defence. Triple Bank Universal Louvre, 3UL (three louvres deep) has two front louvre profiles:

- Shallow (50mm pitch) and
- Deep (100mm pitch) Front louvre only

3UL also has two arrangements:

- Horizontal and Vertical

FINISHING OPTIONS

There are three standard material options for the principal components:

- Aluminium
- Mild Steel and
- Stainless Steel (50mm pitch only)

There are many decorative finish options, including:

- Mill Finish
- Stoved Polyester Powder Paint and
- Anodised

Perforated, Stucco and Pre-Coated louvres (normally applied to front louvres blades and frames only) are also available on request.

The applied finishes can be supplied in two coverage levels:

- Total (all principal components)
- Partial (louvres and frames only)

OPTIONAL EXTRAS

There are a large selection of optional accessories such as:

- Mitred Corners
- Blanking Panels (Single Skin or Insulated)
- Special Shapes
- Acoustic Modules
- Guards (Bird / Insect* / Security)
- Doors
- Turrets

* Insect mesh will result in reduced airflow and additional resistance.

PERFORMANCE SPECIFICATION

A multi purpose louvre system shall be provided to achieve minimum resistance to airflow, with louvre blades to be aerodynamically shaped with no sharp edges or protrusions, to ensure the highest efficiency airflow performance.

Airflow

The following minimum aerodynamic coefficients shall be achieved when the louvre panel is tested to EN 13030:2001:

Air Inlet - 0.277

Air Extract - 0.22

Rain defence

The louvre system will achieve the following weathering classification when the louvre panel is tested to EN 13030:2001:

Class A3 - up to 3.5m/s suction velocity The louvre system shall be drained internally through hollow section vertical mullions which shall discharge water onto the cill.

The louvre system shall be capable of combining both double bank functional louvre and single bank aesthetic louvre with rear blanking panels on the same elevation without variation in external profile.

PRODUCT SPECIFICATION

Colt Triple Bank Universal Louvre type 3UL having louvre blades at 50mm pitch (shallow section) or 100mm pitch (deep section, front louvres only).

Construction throughout shall be from high quality corrosion resistant aluminium alloy type 3005 (Colterra) or 3105 to BS 1470.

Front louvre blades shall not be drilled but clipped and not rivetted or screwed to structural supporting mullions allowing for expansion and contraction along their length without distortion and to provide a continuous external appearance if required.

Mullions shall be concealed at 1250mm maximum centres and their points of support along their length shall be in accordance with prevailing site wind pressures (as calculated and specified by a structural engineer) in accordance with BS 6399 part 2. Manufactured from 2mm sheet such that associated support steelwork is reduced to a minimum.

Cill and frames shall contain all peripheral fixings and be manufactured from 1.6mm sheet.

PERFORMANCE SUMMARY

- Good airflow properties
- Excellent rain defence properties

Suited to applications requiring architectural screening or cladding with excellent rain defence protection even with high air intake velocities.

PERFORMANCE DATA

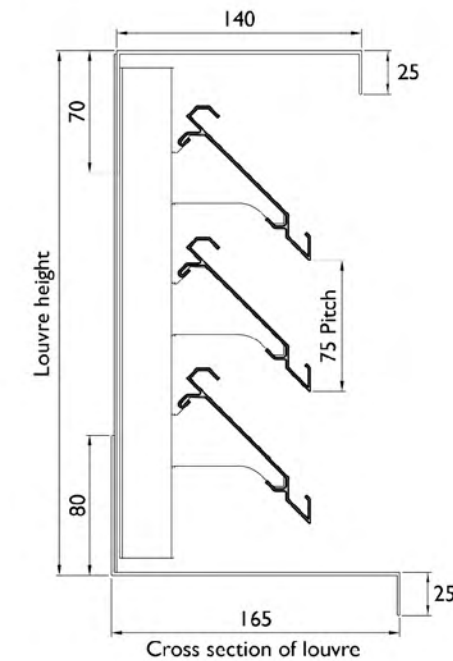
PRODUCT SPECIFICATIONS

PR75 Single Bank Performance Louvres

PR100 single bank performance louvres is COLT standard product and 2UL PR75 double bank performance louvres is available upon request.

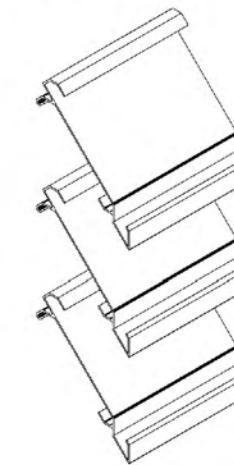
Dimensions

Note : All dimensions are given as internal, external dimensions will vary depending upon material thickness

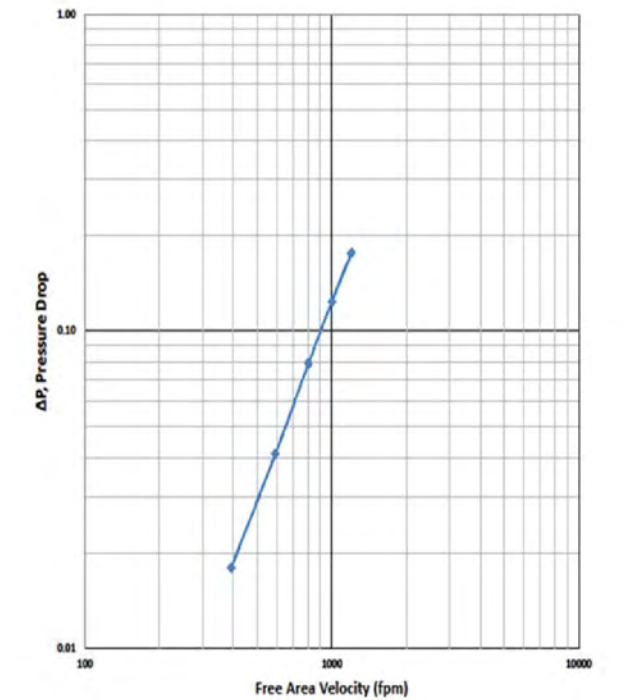


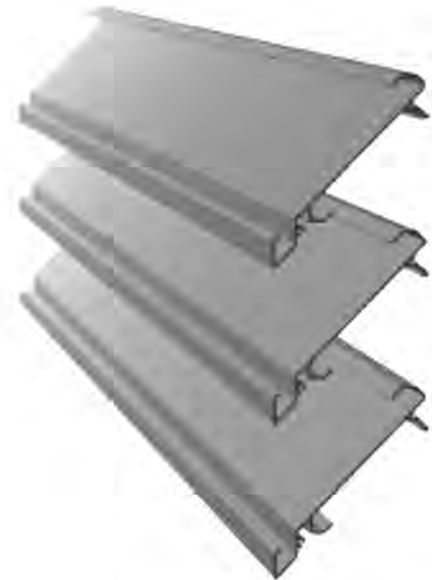
Minimum size = 300mm(W) x 200mm(H)
Maximum size = 1200mm(W) x 1500mm(H)

Profile



Air Performance





PR75
Single Bank Performance Louvres

Wind Driven Rain Performance

Rainfall Rate : 3in/hr (75mm/hr)

Wind Velocity : 29mph (13m/s)

Core Velocity (fpm)	0	97	199	291	398	486	593	688	788	887	985
Core Velocity (m/s)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Effectiveness (%)	97.7	97.0	96.6	96.6	92.7	88.2	78.7	65.2	51.6	43.4	36.1
Penetration Class	B	B	B	B	C	C	D	D	D	D	D

Free Area Table

			Width (mm)													
			L -->													
A	B	N	HEIGHT (mm)	400	550	700	850	1000	1150	1300	1450	1600	1750	1900	2050	2200
12	3	3	400	0.03	0.04	0.06	0.08	0.09	0.11	0.13	0.14	0.16	0.17	0.19	0.21	0.22
12	3	5	550	0.04	0.07	0.10	0.12	0.15	0.17	0.20	0.22	0.25	0.27	0.30	0.33	0.35
12	3	7	700	0.06	0.10	0.13	0.17	0.20	0.24	0.27	0.30	0.34	0.37	0.41	0.44	0.48
12	3	9	850	0.08	0.12	0.17	0.21	0.25	0.30	0.34	0.39	0.43	0.47	0.52	0.56	0.61
12	3	11	1000	0.09	0.15	0.20	0.25	0.31	0.36	0.41	0.47	0.52	0.57	0.63	0.68	0.74
12	3	13	1150	0.11	0.17	0.23	0.30	0.36	0.42	0.49	0.55	0.61	0.68	0.74	0.80	0.86
12	3	15	1300	0.13	0.20	0.27	0.34	0.41	0.49	0.56	0.63	0.70	0.78	0.85	0.92	0.99
12	3	17	1450	0.14	0.22	0.30	0.39	0.47	0.55	0.63	0.71	0.79	0.88	0.96	1.04	1.12
12	3	19	1600	0.16	0.25	0.34	0.43	0.52	0.61	0.70	0.79	0.88	0.98	1.07	1.16	1.25
12	3	21	1750	0.17	0.27	0.37	0.47	0.57	0.67	0.77	0.88	0.98	1.08	1.18	1.28	1.38
12	3	23	1900	0.19	0.30	0.41	0.52	0.63	0.74	0.85	0.96	1.07	1.18	1.29	1.39	1.50
12	3	25	2050	0.21	0.32	0.44	0.56	0.68	0.80	0.92	1.04	1.16	1.28	1.39	1.51	1.63
12	3	27	2200	0.22	0.35	0.48	0.61	0.74	0.86	0.99	1.12	1.25	1.38	1.50	1.63	1.76

PR75

The PR75 system is an extruded aluminium louvre system available in a discrete 75mm pitch configuration for screening and performance applications. Each blade incorporates its own drain channel eliminating cascading.

The PR75 louvre blade profiles offer the crisp lines typical of extruded aluminium sections, whilst it also offers industry leading effectiveness under normal weather conditions. The PR75 System can be tailored and coated to suit all commercial and industrial applications.

- Performance tested and classified in accordance with AMCA 500L

- Extruded aluminium louvre blades mounted at 75mm pitch
- Unique modular design allows for construction of large panels, pent house units and irregular shapes
- The PR75 louvre offers a competitive solution for screening and cladding and also offers excellent performance for normal weathered applications
- Available in many decoartive finishes, including polyester powder coat and fluorocarbon paint finish.
- Full range of accessories available to suit particular project requirements
- Durable and reliable
- Virtually maintenance free

OPTIONAL EXTRAS

There are a large selection of optional accessories such as:

- Mitred Corners
- Blanking Panels (Single Skin or Insulated)
- Special Shapes
- Guards (Bird / Insect*)
- Doors
- Doghouse

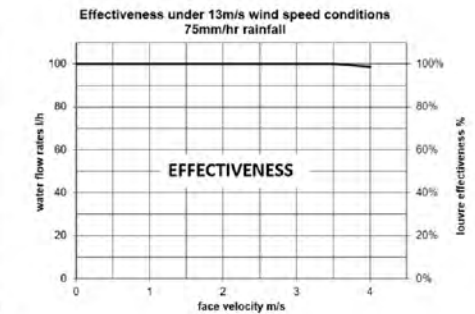
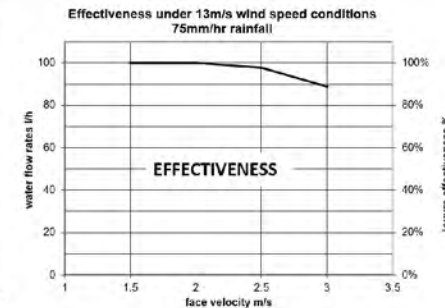
* Insect mesh will result in reduced airflow and additional resistance.



The single bank EWL performance is equivalent to a normal double bank louvres performance

Features	
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Can be mounted both horizontally and vertically



Rain Defence & Aerodynamic Performance (Independently Tested To EN 13030)

[illegible]



EWL EXTRUDED WEATHER LOUVRE

Our new EWL Extruded Weather Louvre truly does rain supreme.

From a light drizzle to a sudden downpour, the EWL's class A rain defence leads the way in the market.

Suitable for applications requiring screening and ventilation, its design outperforms expectations for this type of product, and offers greater freedom, improved efficiency and more ways to creatively express yourself.

VERSATILE

The EWL's versatility makes our product very appealing for all types of applications for industrial and commercial buildings, such as:

Control of light entry
Ensure ventilation whilst maintaining a proven rain defence
Provide effective screening
A combination of the above

AESTHETIC

We understand how important it is for a building's façade to look good. And stay looking good.

Our distinctive sharp louvre profile is unmistakeable and extremely tactile.

It looks, and feels good
Suitable for any project where a high performance rain defence is vital
Can be upgraded or modified to suit final design requirements

EXPRESSIVE

We've manufactured and installed louvres for many of the UK's most prestigious buildings. And what a statement the EWL will make to all kinds of projects. It's time to express yourself, and we're here to help your vision come to life, with a range of free services to support the design stage of your project, including:

- Building ventilation surveys
- Design of systems
- Building Information Modeling (BIM)

RELIABLE

We have designed and installed 'off the peg' and bespoke louvre solutions in cities across the globe. And our team of designers, project managers, site managers and engineers are here to support you from design stage through to installation and commissioning.

EFFICIENT

EWL has been tested to EN 13030:2001 and achieves Class A rain defence up to 3 m/s.

- The EWL is highly aerodynamically efficient
- The reduced air resistance lowers running costs
- Tested to EN 13030:2001
- Easy to install by our team
- Available in continuous runs for larger applications

Project : MRT Line 1 - Semantan North Portal Station

Owner	MRT Corporation Sdn Bhd (MRTC)	Client	CSRG Engineering Sdn Bhd
Architect	Mott Macdonald, AECOM	Products	Colt Single Bank & Double Bank Performance Louvres



Project : MRT Line 1 - Semantan North Portal Station

Owner	MRT Corporation Sdn Bhd (MRTC)	Client	CSRG Engineering Sdn Bhd
Architect	Mott Macdonald, AECOM	Products	Colt Single Bank & Double Bank Performance Louvres



Project : MRT Line 1 - Pasar Seni Station

Owner	MRT Corporation Sdn Bhd (MRTC)	Client	CAN-I Interior Fit-Out Sdn Bhd
Architect	Mott Macdonald, AECOM	Products	Colt Single Bank Performance Louvres



Project : MRT Line 2 - Sentul West Station

Owner	Mass Rapid Transit Corporation Sdn Bhd	Client	MMC-Gamuda KVMRT(T) Sdn Bhd
Architect	SA Architects Sdn Bhd & VERITAS Architects	Products	Colt Double Bank Performance Louvres



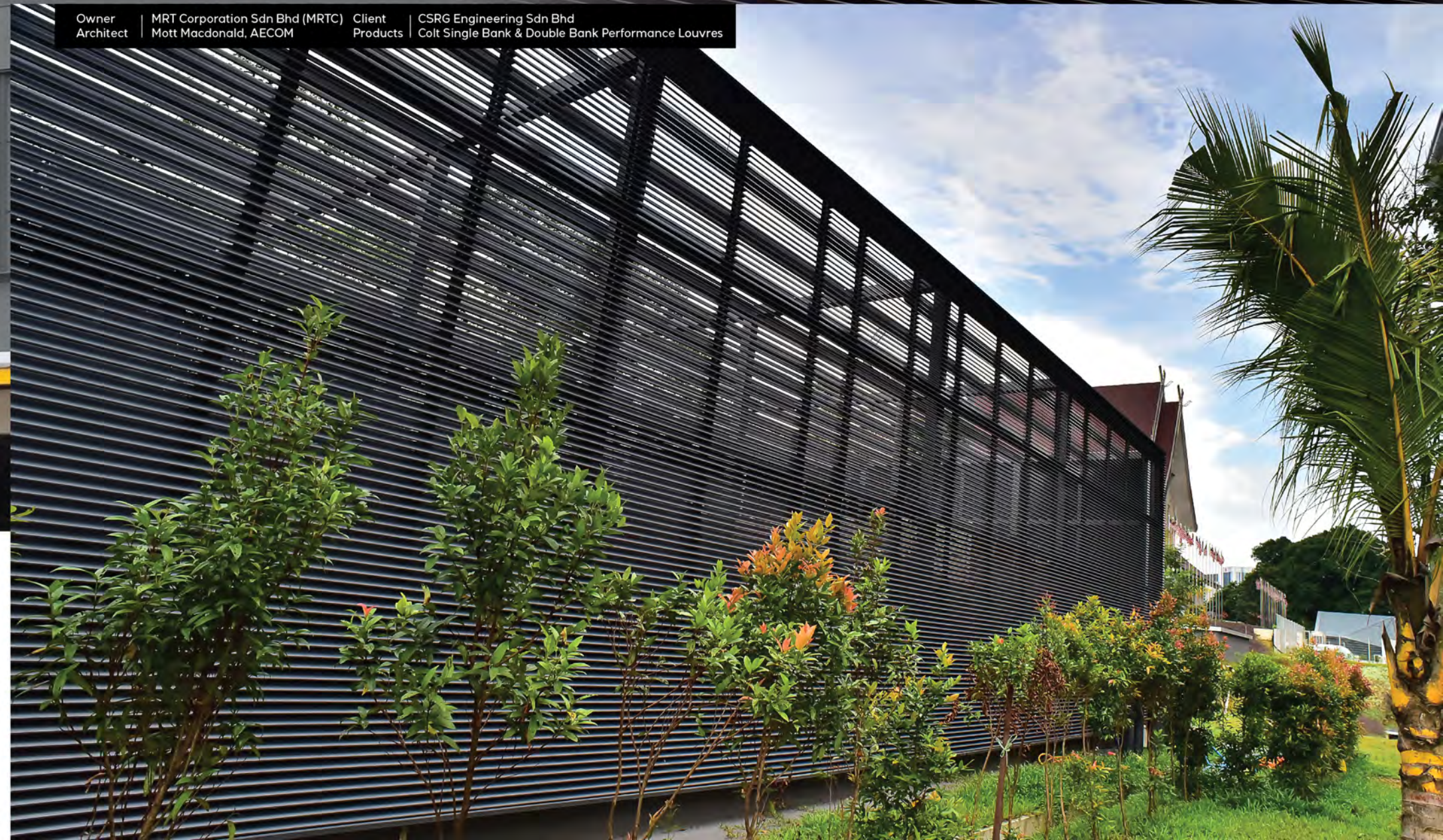
Project : MRT Line 2 - Sentul West Station

Owner	Mass Rapid Transit Corporation Sdn Bhd	Client	MMC-Gamuda KVMRT(T) Sdn Bhd
Architect	SA Architects Sdn Bhd & VERITAS Architects	Products	Colt Double Bank Performance Louvres



Project : MRT Line 1 - Muzium Negara Station

Owner	MRT Corporation Sdn Bhd (MRTC)	Client	CSRG Engineering Sdn Bhd
Architect	Mott Macdonald, AECOM	Products	Colt Single Bank & Double Bank Performance Louvres



Project : MRT Line 2 - Sentul West Station

Owner | Mass Rapid Transit Corporation Sdn Bhd
Architect | SA Architects Sdn Bhd & VERITAS Architects
Client | MMC-Gamuda KVMRT(T) Sdn Bhd
Products | Colt Double Bank Performance Louvres



Project : MRT Line 2 - Sentul West Station

Owner | Mass Rapid Transit Corporation Sdn Bhd
Architect | SA Architects Sdn Bhd & VERITAS Architects
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