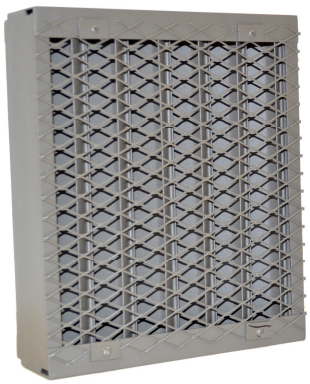
High Performance Drainable Louvre

Announcement

ATI is pleased to launch a new high performance drainable louvre system, the HDL models. It is a new generation of weatherproof louvres with top water penetration resistance performance, aesthetically pleasing outlook and flexibility in layout and application with full technical support including PNAP APP-37 and self-generated noise levels. HDL is patent pending, application no. 201220114708.6 (SIPO, PRC).



It has the following key features:

- ✓ Continuous blades supported by hidden mullions to achieve aesthetic requirements
- ✓ 100% water penetration resistance performance to 3 m/s intake velocity and Class A to 3.5 m/s intake velocity
- ✓ Drainable via hidden mullions rather than “screenable” to overload louvres below
- ✓ Same outer blade for different requirements to give widest range of application and flexibility
- ✓ Complete technical support including self-generated airflow noise levels

Key features

✧ *Continuous blades supported by hidden mullions to achieve aesthetic requirements*

Our innovative design features frontal 75H blades to be connected to hidden mullions. This allows continuous louvre blades to be arranged in an aesthetically pleasing and functional manner. The ends of blades could be finished in angles other than 90° to allow angular rotation of the louvre layout as required.

✧ *100% water penetration resistance performance to 3 m/s and Class A to 3.5 m/s*

The HDL 75H/37V reaches Class A at 2 m/s and 98.9%, marginally underneath A at 2.5 m/s. The HDL 75H/25V reaches 100% from 0 to 3 m/s and Class A to 3.5 m/s. (All velocities are intake face velocity)

✧ *Drainable via hidden mullions rather than "screenable" to overload louvres below*

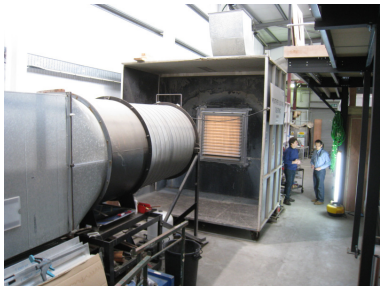
Almost 100% of the driven rain loading are collected by both the 75H horizontal guttered blades and 37V/25V vertical guttered blades and drained away via the hidden mullion. Only a very small percentage of un-collected water will be "picked up" by the louvre blades underneath. Compared with other louvre designs have mainly "screening functions" without any drainable gutters, our HDL 75H, 75H/37V, 75H/25V louvers will perform truly as per the testing condition irrespective of the size of the louvres, sometimes could be many times the width and height of the test size.

✧ *Same outer blade to give widest range of application and flexibility*

The HDL louvre system could be applied for minimum water penetration resistance requirements like carparks, to highly water sensitive and stringent conditions like electrical rooms where the equipment IP ratings are low and ventilation is used as a means of cooling. Our 75H/25V would be ideal for the most critical application like "free air cooling" of data centres or computer rooms.

✧ *Technical support: PNAP APP-37 and self-generated airflow noise levels*

Full technical information is made available for the preparation of PNAP APP-37 submission on louvres as part of the curtain wall or window wall. Self-generated airflow noise levels are available for assessment of whether there is additional sound energy in the ventilation system to meeting environmental requirements.



Performance

- Water Penetration Resistance Effectiveness

Face velocity (m/s)	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5
HDL 75H [%]	85.8	80.9	75.3	72.1	66.8	61.8	Not tested	Not tested
Class(1)	C	C	D	D	D	D		
HDL 75H/37V [%]	99.9	99.8	99.7	99.6	99.4	98.8	98.6	98.0
Class	A	A	A	A	A	B	B	B
HDL 75H/25V [%]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8
Class	A	A	A	A	A	A	A	A

Note (1): Class A =>99%, Class B=>95%, Class C =>80% and Class D <80%

- Entry and Exit Loss Coefficients

Loss Coefficients	Entry, C_e	Exit, C_d	Pressure loss at 2.5m/s face velocity
HDL 75H	0.420, Class 1	0.430, Class 1	20Pa intake / 20Pa discharge
HDL 75H/37V	0.322, Class 2	0.297, Class 3	37Pa intake / 44Pa discharge
HDL 75H/25V	0.266, Class 3	0.287, Class 3	56Pa intake / 48Pa discharge

- Sound power levels [at face velocity of 2.5m/s, area=900mm x 650mm]

Sound power levels at Octave band frequencies	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	dBA(2)
HDL 75H	49	42	40	34	29	21	14	16	29
HDL 75H/37V	50	48	46	41	40	34	21	16	39
HDL 75H/25V	51	49	47	44	42	37	22	16	44

Note (2): Free field condition, Directivity =2; NSR 5m from louvre edge; Louvre size = 20m^2.

- Blade support span meeting PNAP APP-37: deflection less than 1/180 span

Span at wind pressure	2.77kPa	3.88kPa
Pin-pin single span	850mm	750mm
Fixed-pin single span	1100mm	1000mm
Fixed-fixed single span	1300mm	1200mm
2 span assembly	2200mm	2000mm
3 span assembly	3500mm	3200mm

Test standard	EN 13030:2001, Ventilation for buildings-Terminals-Performance testing of louvres subjected to simulated rain
Rain fall	75mm/hr
Driven rain speed	13m/s
Intake face velocities	0m/s to 3.5m/s at 0.5m/s steps
Loss coefficients	Entry and Exit loss coefficient obtained based on pressure drop from ~0.5m/s to ~4.5m/s

Construction

⇨ *Blades*

Frontal horizontal blades 75H are at 75mm pitch and slope at ~45deg giving a depth of 75mm. It has an integrated gutter along the blade to drain away rain water. The 75H blades are supported by a purposely designed bracket fixed to the hidden mullion with drainage connection.

Rear vertical blades 37V and 25V are at 37mm and 25mm pitch respectively. The blades are supported by a cassette frame of 73mm deep with drainage gutters at the bottom. The vertical louvres 37V or 25V are housed in between the hidden mullions and fixed by brackets at the back.

⇨ *Mullion*

The vertical mullion is of 75mm x 25mm with integral vertical gutter. It is located behind the 75H blades and capable of draining the rain water collected by the 75H blades at front and the 37V / 25V blades at the rear. Each mullion gutter could handle 75mm/hr rain fall of up to 6m^2 of louvre areas.

⇨ *Assembly*

Model 75H shall be fully assembled with frontal blades fixed to hidden mullions. Models 75H/37V or 75H/25V shall have an additional vertical louvre 37V or 25V already secured to the front louvre or could be shipped loose and of a different size to suit the ventilation opening.

The maximum assembly size is subject to site access and finishes requirements.

⇨ *Side closure pieces*

Closure pieces to seal off the structural opening on top and at the sides plus the bottom drainage flushing shall be included or otherwise.

⇨ *Finishes*

The blades and mullions are extruded Aluminium 6063-T5.
The whole assembly could have PVF2 or powder coating as required.

⇨ *Accessories*

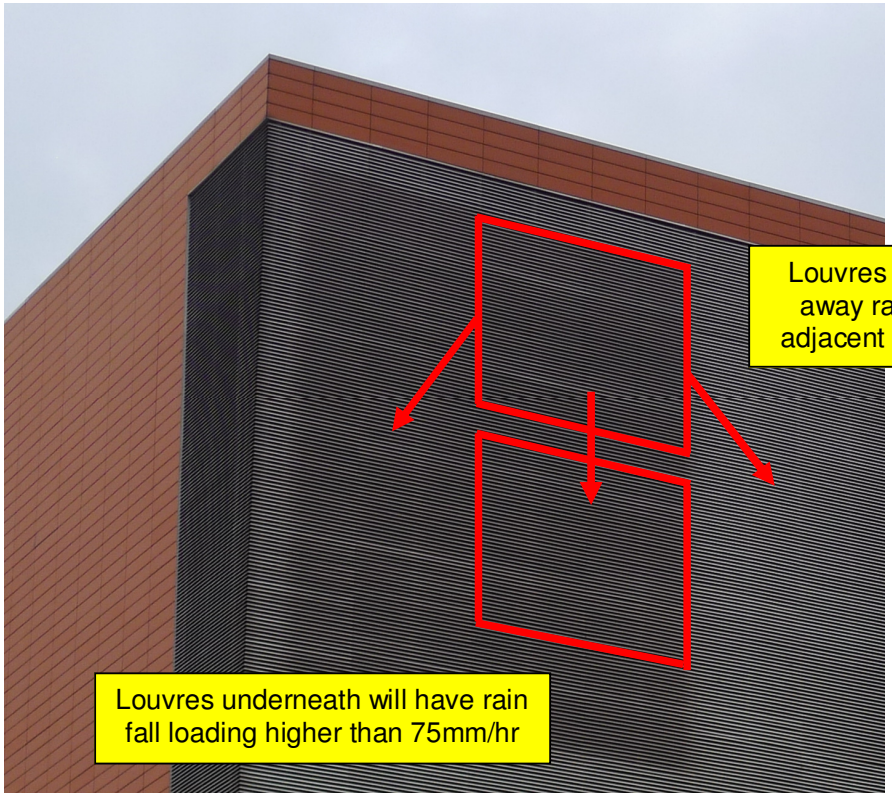
Blank-off plates and bird screens are standard accessories. Insect screens are also available.

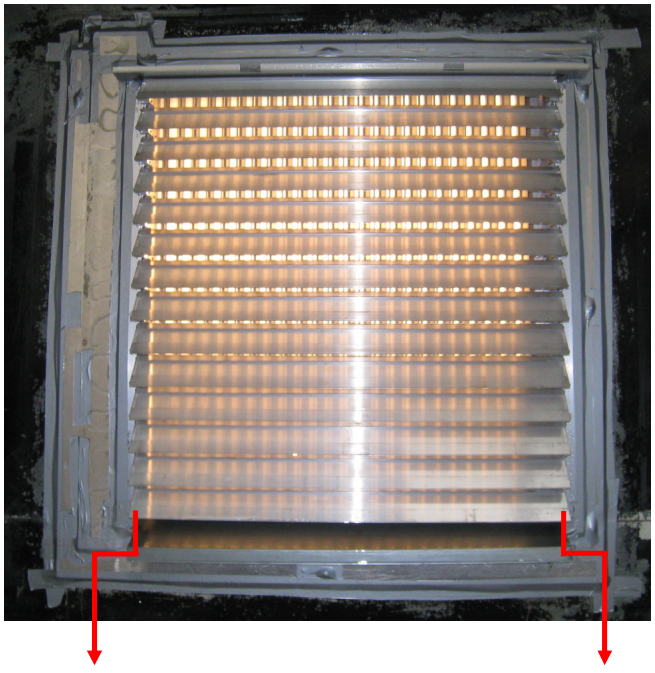
⇨ *Installation hardwares*

Structural steel and associated brackets could be included in our scope. Mounting brackets of the louvres to the structural steel could also be included. Anchors, bolts and nuts are not included.

Testing vs Application

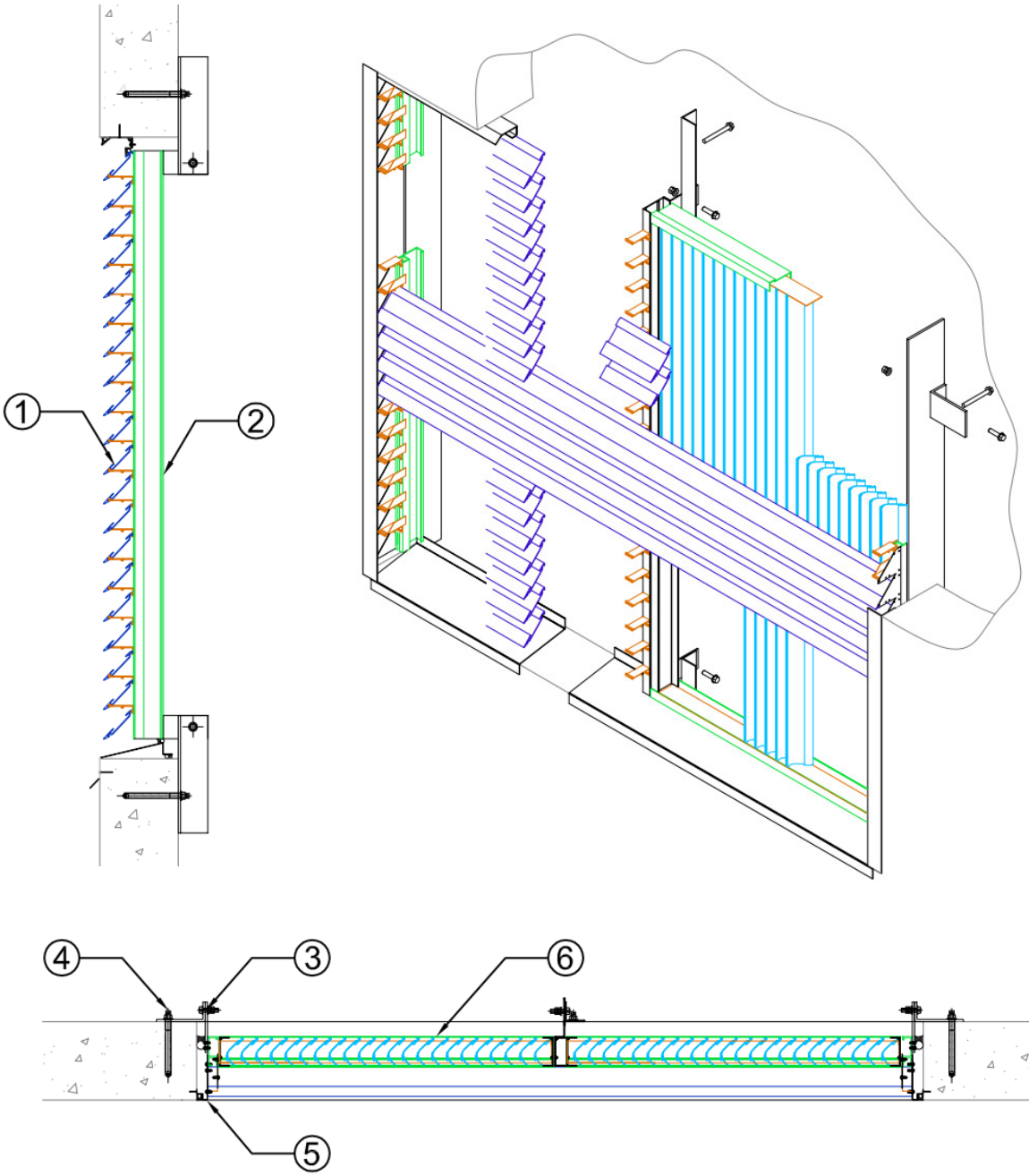
Louvre water penetration rating is based on 1m x 1m test size. Most louvre applications have areas much larger than this size. “Screenable” louvres (w/o gutters) would not give the same water penetration ratings as per the test due to additional rain fall loading. Louvres with gutters would be able to give the same performance as test results.





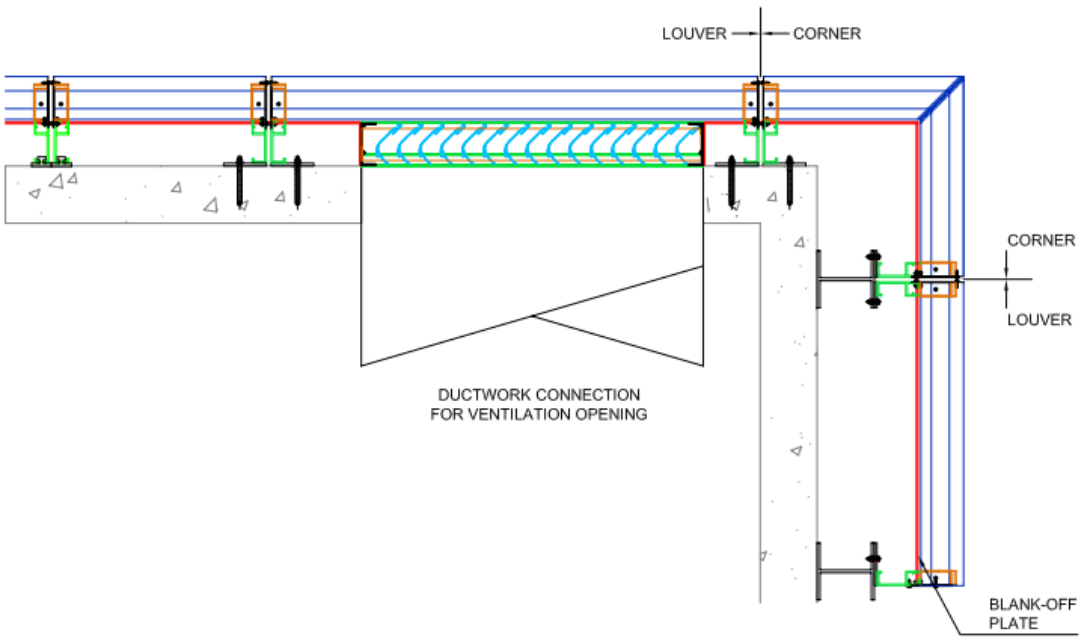
HDL louvres “Drained” away rain fall from louvres adjacent and underneath via gutters

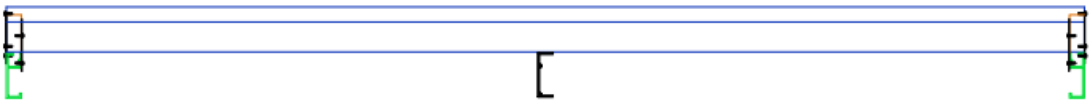
Installation – Building Structure Opening



Notes:
1. 75H
2. Mullion
3. Bolt/Nuts
4. Anchors
5. Side Closure Pieces
6. 37V/25V

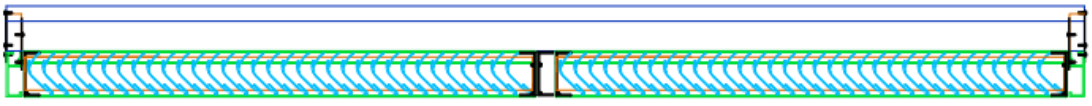
Installation – Decorative Louvre Ventilation Opening



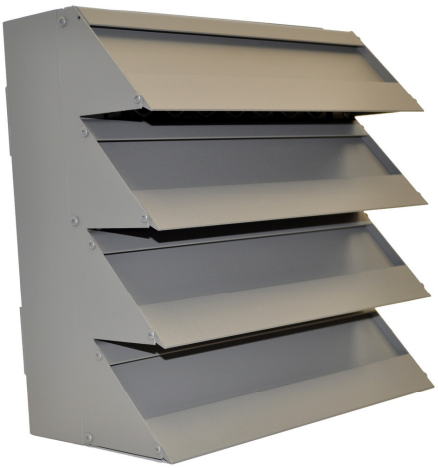


HDL 75H Top View

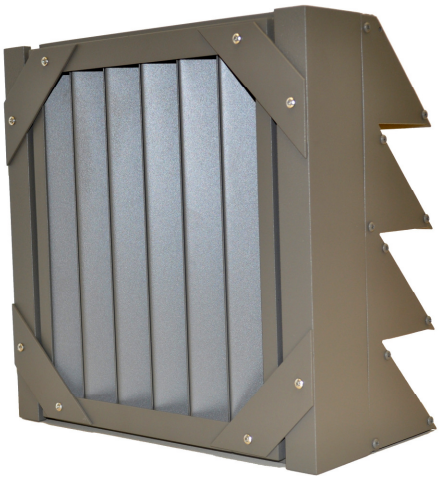
HDL 75H/37V Top View



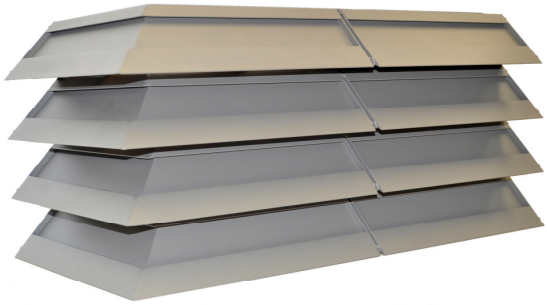
HDL75H/25V Top View



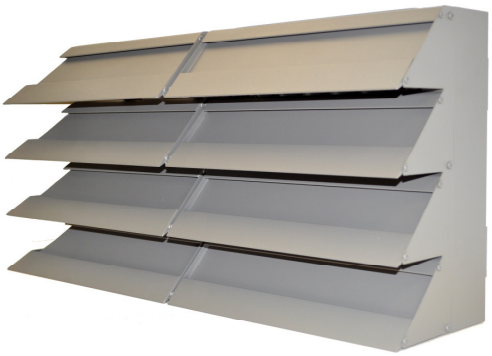
HDL 75H – Front and Side View



HDL 75H/37V – Rear and Side View



HDL 75H 90deg corner



HDL 75H with hairline joint

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