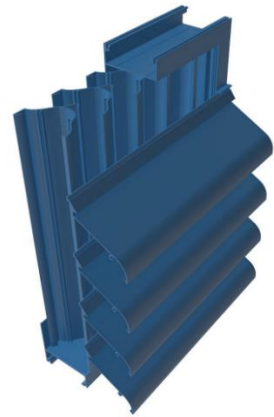


## PERFORMANCE LOUVER SPECIFICATIONS

### Model: IPL-375 (TBL150) Triple Bank Louver

Performance:	Rain Defense – Excellent; Airflow – Fair
Type:	Horizontal, Fixed, Triple Blade
Aesthetic:	Architectural Line (No Visible Mullion) System
Blade Spacing:	75mm; System Depth: 148mm.



## PART 1 GENERAL

### 1.01 Summary

- A. Provide shutters, bird screens and/or blank panels and attachment brackets, all as shown in the project drawings and provided as specified for proper installation.
- B. Louvers to be arranged include Fixed extrusion performance louvers.
- C. Relevant sections include Part 7 "Joint sealants" applies to sealants installed on the perimeter joints between the louver frame and adjacent structures.

### 1.02 References

- A. United States of America Standard: AMCA Standard 500-L "Ventilation for buildings. Terminals. Performance testing of Louvres subjected to simulated rain".
- B. ASTM E90-09 "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions".
- C. The Aluminum Association Incorporated
  1. Aluminum Standards and Data
  2. Specifications and Guidelines for Aluminum Structures
- D. American Society for Testing and Materials
  1. ASTM B209
  2. ASTM B211
  3. ASTM B221
- E. Architectural Aluminum Manufacturers Association
  1. AAMA 800 Voluntary Specifications and Test Methods for Sealants
  2. AAMA 2605-13 'Voluntary Specifications for High Performance Organic Coatings on Architectural Extrusions and Panels'

### 1.03 Submittals

#### Pre Order

- A. Product Data
  1. Rain Defense and Airflow performance test reports complying to United States of America Standard: AMCA Standard 500-L-99 "Ventilation for buildings. Terminals. Performance testing of Louvres subjected to simulated rain".
  2. Acoustic performance test reports complying to ASTM E90-09 "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions".

#### Post Order

- A. Shop Drawings



1. Include elevations, sections, and specific details for each louver.
  2. Show anchorage details and connections for all component parts.
  3. Include option to provide endorsed structural calculations (at extra over cost).
  4. Approval of the shop drawing shall not relieve the Contractor of any responsibility including accuracy of dimension and details.
- B. Submit samples and color chips for approval.

#### 1.04 Quality Assurance

- A. Performance Requirements: Provide United States of America Standard: AMCA Standard 500 test data as required, to confirm that the louvers have the specified air and water performance characteristics.
- B. Structural Requirements: Design all materials to withstand wind (and snow) loads as required by the applicable building code. Maximum allowable deflection for the louver structural members to be  $l/180$  or 19.0 mm, whichever is less. Maximum allowable deflection for the louver blades to be  $l/120$  or 12.5 mm across the weak axis, whichever is less.
- C. Warranty: Provide a written warranty to the owner that all products will be free of defective materials or workmanship for a period of ten (10) years from the date of supply.

#### 1.05 Delivery, Storage and Handling

- A. Delivery: At the time of delivery all materials shall be visually inspected for damage. Any damaged boxes, crates, louver sections, etc. shall be noted on the receiving documents and immediately reported to the delivery company and the material manufacturer.
- B. Storage:
  1. If stored outdoors the material must be raised sufficiently off the ground to prevent it being exposed to standing water.
  2. If stored outdoors, the material must be covered with weatherproof flame-resistant sheeting or tarpaulin.
- C. Handling:
  1. Material shall be handled in accordance with sound material handling practices and in such a way as to minimize racking.
  2. Louver sections may be hoisted by attaching straps to the jambs and lifting the section while in a vertical orientation.
  3. Louver sections should only be lifted and carried by the jambs. Heads, sills, and blades are not to be used for lifting or hoisting louver sections.

### PART 2 PRODUCT

#### 2.01 Manufacturer

- A. The louvers and related materials herein specified and indicated on the drawings shall be as manufactured by:

**WAN SERN SUPPLIES PTE LTD (WSS)**

Contact:           Tel: +65 8600 2763, Email: sam@wanserns.com  
Address:           31 Tuas Ave 8, Singapore 639245.

#### 2.02 Materials

All louver blades, heads, sills, jambs, mullions, fixing cleats, clips, and braces.

- A. Aluminum Extrusions: ASTM B211, Alloy 6063-T5.

**Note: the use of sheet materials for louver panel components shall not be acceptable.**

#### 2.03 Fabrication, General



- A. Provide WAN SERN SUPPLIES louver models, bird screens, blank-off panels and accessories as specified and/or shown on the drawings and detailed in this specification. Materials, sizes, depths, arrangements, and material thickness to be as indicated or as required for optimal performance with respect to strength, durability, and uniform appearance.
- B. Louvers to be mechanically assembled using stainless steel grade 300 fasteners only. The use of pop rivets or any type other than specified in the abovementioned shall not be permitted.

**2.04 Louver Model**

**A. WSS IPL-375 (TBL150) Horizontal Triple Bank Performance Louver**

- 1. **Material:** Horizontal Line (no visible mullions) one-piece single front blade and one-piece dual rear blade profile designed to collect and drain water at bottom sill to exterior by several gutters in louver blades and channel integrated with mullions. Head, sills, and mullions to be one-piece structural aluminum members. Louvers to be pitched at 75 mm. Total system depth does not exceed 148 mm. Front louver blades, cut to length at works, to be installed on site in accordance with the manufacturer's recommended procedures. Minimum blade extrusion thickness 1.6mm, minimum louver clip(brace) extrusion thickness 2.0mm, minimum framing extrusion thickness 2.0mm.
- 2. **Performance:** A test panel of core dimension 1.0 m x 1.0 m shall conform to the following:  
 Free Area: 51%  
 Airflow Co-efficient Max: 0.15 (ANSI/AMCA STANDAED 500-L-12 Class 4)  
 Airflow Co-efficient of Entry: 0.174 (ANSI/AMCA STANDAED 500-L-12 Class 4)  
 Airflow Co-efficient of Discharge: 0.174 (ANSI/AMCA STANDAED 500-L-12 Class 4)

Wind Driven Rain Performance: ANSI/AMCA STANDAED 500-L-12 certified. The louver test is to be performed on a 1.0 m x 1.0 m) core area panel. Unit test conditions shall be at a rainfall rate of 75 mm/hr. and with a wind directed to the face of the louver at a velocity of 13 m/s. The corresponding test data shall show the water penetration effectiveness rating at each corresponding ventilation rate and shall be equal or better than:

Ventilation Rate (m/s)	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5
ANSI/AMCA STANDAED 500-L-12 Rating Achieved	A	A	A	A	A	A	A	B

Where:

ANSI/AMCA STANDAED 500-L-12 Rating	Rain Defense Effectiveness %
A	99 to 100%
B	95 to 98.9%
C	80 to 94.9%
D	< 80%

- 3. **Acoustic Performance:** Test data shall be from an accredited acoustical laboratory tested in the US (Riverbank Acoustical Laboratories) in accordance with ASTM E-90-09. The minimum acceptable performance through all octave bands is as follows: **STC = 2.**

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Transmission Loss (dB)	-1	3	2	2	2	3	4	7
Noise Reduction (dB)	9	9	9	9	10	12	16	21



## 2.05 Accessories (Optional)

### A. Bird Screens

1. If required, Bird Screens to be Stainless Steel Grade 316 12.7mm x 12.7mm x 0.7mm thick wire mesh assembled complete with mill finish aluminum flat bar framing.

### B. Blank Off Panels

1. If required, Blank-off panels to be a minimum of 2.0 mm thick aluminum sheet. Panels to be finished in the same finish as the louver system. Color to be selected by the architect.

## 2.06 Finishes

- A. General: Comply with AAMA 2605-13 'Voluntary Specifications for High Performance Organic Coatings on Architectural Extrusions and Panels'. Apply finishes in factory. Protect finishes on exposed surfaces prior to shipment. Remove scratches and blemishes from exposed surfaces that will be visible after completing the finishing process. Provide color as indicated or, if not otherwise indicated, as selected by architect.

### B. Fluorocarbon (PVDF) Coating (2-Coat 1-Bake)

1. Louvers to be finished with a primer coat with an average thickness of 5 to 8 microns, followed by a thermo-cured fluorocarbon top color coat with average thickness of 25 to 30 microns. Total dry film thickness to be minimum 30 microns.
2. All aluminum shall be thoroughly cleaned, etched, and given a chromate conversion pretreatment before application of the Fluorocarbon (PVDF) coating. The coating shall receive a bake cycle in accordance with the paint manufacturer's specification. All finishing procedures shall be one continuous operation in the approved plant of the manufacturer's applicator.
3. Manufacturer to furnish limited warranty for a period of ten (10) years for the Fluorocarbon (PVDF 2-Coat 1-Bake) coating. This limited warranty shall begin on the date of material shipment.

## PART 3 EXECUTION

**3.01 Examination:** Examine openings to receive the work. Do not proceed until any unsatisfactory conditions have been corrected.

### 3.02 Installation

- A. Comply with manufacturer's instructions and recommendations for installation of the work.
- B. Verify dimensions of supporting structure at the site by accurate field measurements so that the louver panels will be accurately designed, fabricated, and fitted to the structure.
- C. Anchor louvers to the building substructure as indicated on architectural drawings.
- D. Correction: Do not cut or trim louver system on site.
- E. Set units level, plumb and true to line, with uniform joints.

### 3.03 Protection

- A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

### 3.04 Adjusting and cleaning.

- A. Immediately clean exposed surfaces of the louvers to remove fingerprints and dirt accumulation during the installation process. Do not let soiling remain until the final cleaning.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to the material finishes. Thoroughly rinse surfaces and dry.
- C. Touch up minor abrasions in finishes with a compatible air-dried coating that matches the color and gloss of the factory applied coating.

**End of Specifications**