

Evolution of Louvre Testing Standards

AS 4740:2025 vs. AMCA 500-L-23

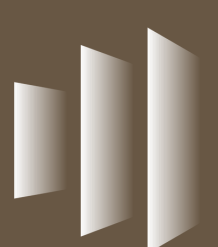
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Executive Summary

The performance verification of louvres and natural ventilators is critical for ensuring optimal building functionality, energy efficiency and safety. While AMCA 500-L-23 sets a consistent testing methodology for louvres globally, the updated **AS 4740:2025** standard offers a comprehensive, more stringent, and relevant testing regime for Australian conditions. This whitepaper explores the critical differences, improvements, and significance of AS 4740:2025 in becoming the new benchmark standard for louvre performance evaluation in Australia.



1. International Standards Landscape

Multiple international standards exist for louvre performance testing, including **BSRIA**, **AMCA 500-L-23**, and others. Each of these standards utilises different test rigs, and critically, **AMCA includes several different rig configurations** depending on the test scenario. Despite this, it is our experience that the exact rig setup details are **rarely published in test reports**, making true comparison between products difficult.

From extensive testing experience, we have observed that even **small changes to the dimensions or design of a test rig can significantly affect test results**. Thus, without rigorous consistency in testing setups, comparing performance between different louvre profiles becomes misleading.

It is therefore **critical that all louvres intended for installation in Australia are tested to the Australian Standard, AS 4740:2025, using identical test rigs**, to ensure fair and accurate performance comparisons.

AMCA 500-L-23

The **ANSI/AMCA 500-L-23** standard provides uniform laboratory methods to determine characteristics such as:

- Air leakage
- Air performance (pressure drop)
- Water penetration
- Wind-driven rain and sand resistance

Key Points:

- Focused on methodology, not performance thresholds.
- Allows flexibility in specimen size (~1.2m x 1.2m typical).
- Multiple test configurations are permitted.
- Forms the basis for AMCA certification.

AS 4740:2025

The upcoming **AS 4740:2025**, developed with input from Australian industry leaders (including Louvreclad), aims to:

- Provide stringent performance classification.
- Enhance accuracy and repeatability.
- Introduce an extended rain defence range.
- Improve definitions and clarity.
- Standardise the test rig and conditions to ensure direct comparison between products.

2. Key Differences: AS 4740:2025 vs. AMCA 500-L-23

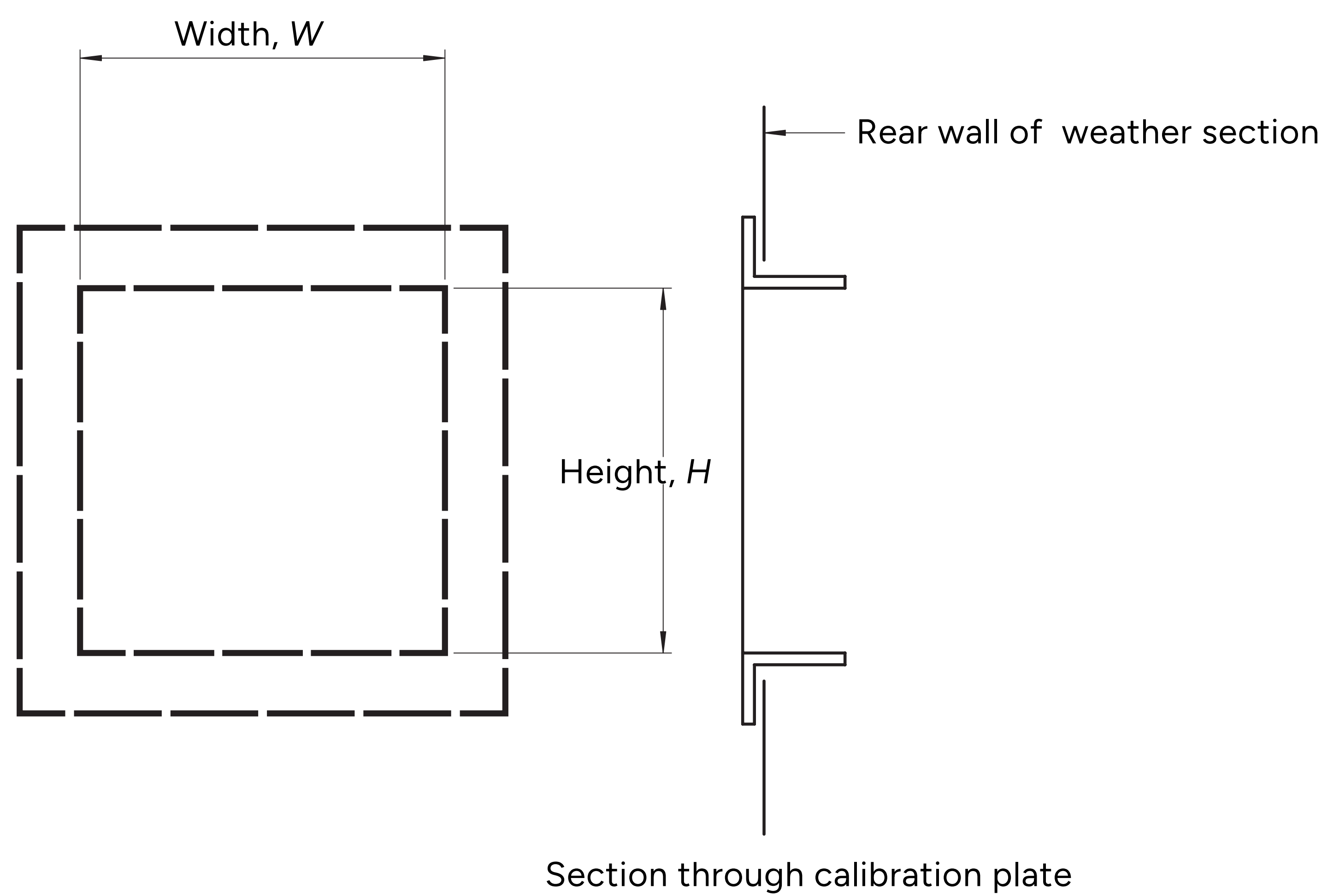
Aspect	AS 4740:2025	AMCA 500-L-23	Comparison
Specimen Size	1m x 1m fixed ventilator	Variable (~1.2m x 1.2m typical)	Incomparable
Test Apparatus	Single standardised configuration	Multiple configurations	Incomparable
Test Procedure	Unique to AS 4740:2025	Unique to AMCA	Incomparable
Classification	Specific to Australian needs	Non-prescriptive	Incomparable
Instrumentation & Calculations	Tailored, stricter error margins	Different	Incomparable

The differences underscore the lack of direct comparability between standards, reinforcing the need for **localised, consistent testing protocols** like those set forth in AS 4740:2025.

3. Major Improvements Introduced in AS 4740:2025

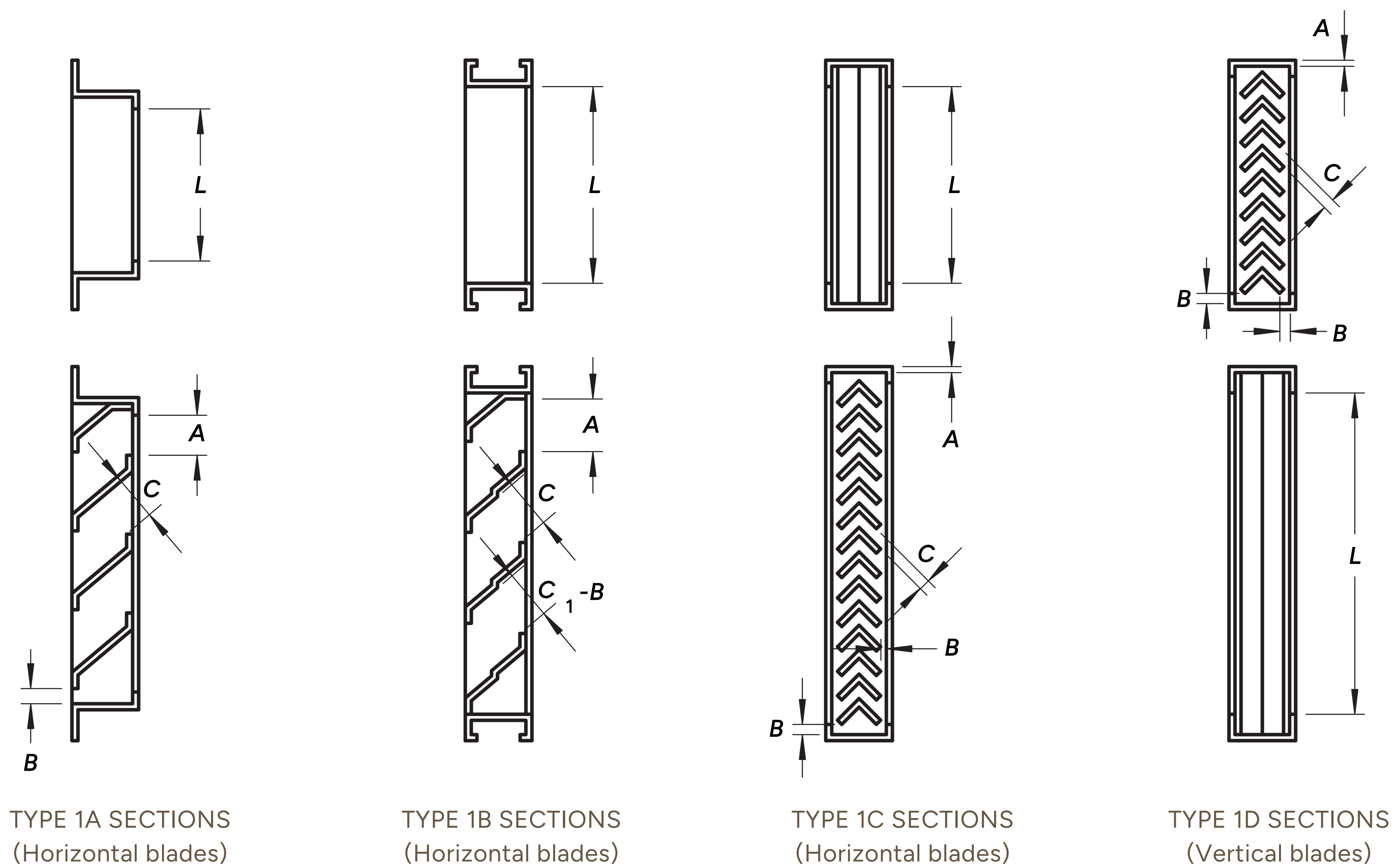
Additional Definitions

- Core area, core velocity, throat area with diagrams (aligned in part with AMCA but tailored for Australian needs).



NOTE: This figure, reproduced from *HEVAC Technical Specification: Laboratory Testing and Rating of Weather Louvres When Subjected to Simulated Rainfall*, is courtesy of Heating Ventilating and Air Conditioning Manufacturers Association.

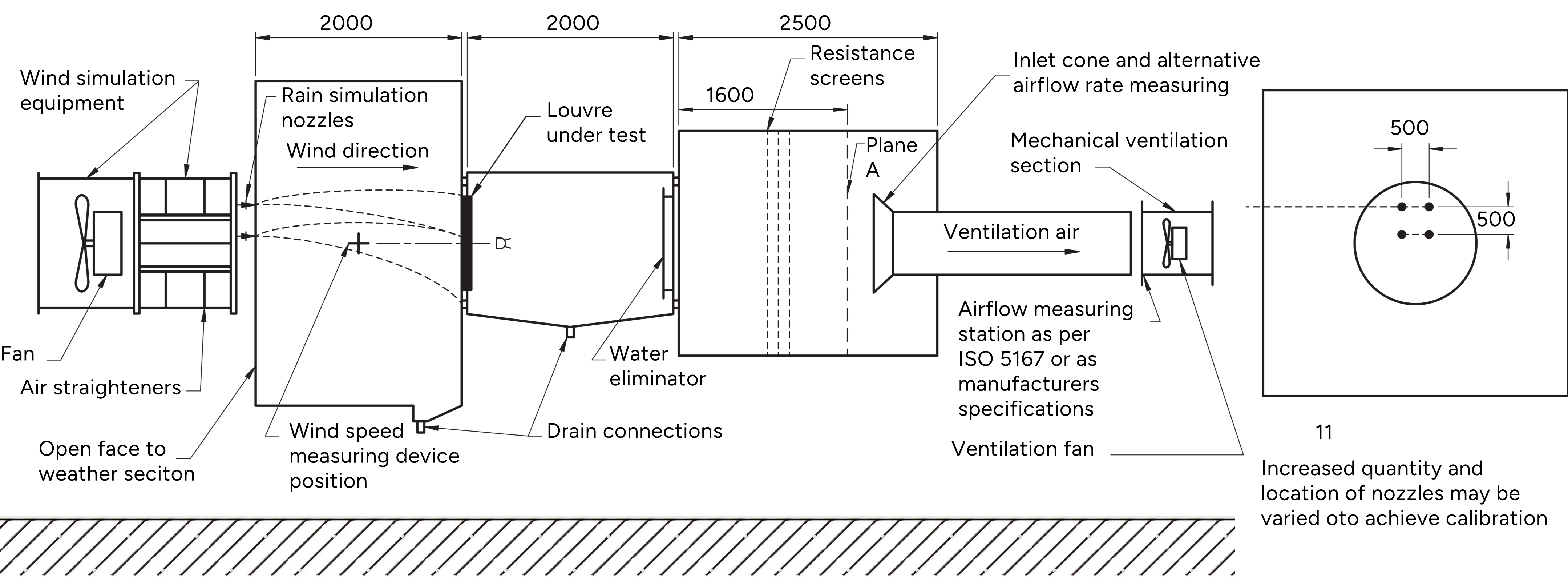
Figure B.3 - Core area of louvre (W x H)



$Throat\ Area = L[A + B + (N \times C)]$

New Test Setups

- Improved clarity around facility design and instrumentation.
- Aerodynamic and weather testing requirements aligned closer to BS EN 13030 than AMCA.
- **One standardised rig for all tests**, eliminating performance variability due to rig differences.



NOTE: All dimensions are in mm.

Figure B.1 - Aerodynamic weather louvre test facility

Extended Rain Resistance Testing

- Covers ventilation rates up to 5 m/s and rainfall intensities up to 203L/h.
- Performance requirements are twice as stringent compared to AMCA 500-L, permitting half the water penetration.

Table B.1 - Ventilator penetration classification

Class	Effectiveness %	Maximum allowed penetration of simulated rain at 75 L/h.m² and 13 m/s simulated wind velocity	Extended range: Maximum allowed penetration of simulated rain at 203 L/h.m² and 22.4 m/s simulated wind velocity
		L/h.m²	L/h.m²
A	100.0 to 99.0	0.75	2.03
B	98.9 to 95.0	3.75	10.15
C	94.9 to 80.0	15.0	40.6
D	Below 80.0	Greater than 15.0	Greater than 40.6

NOTE: The classes apply at core velocities from 0 to 3.5 or the extended range 5 m/s.

Wind Loading

- Explicit wind pressure definitions now included. However, these are often superseded by project specific engineering.

Miscellaneous Refinements

- Numerous technical corrections for enhanced testing repeatability.
- Extended classification schemes for higher operational thresholds.

4. Why AS 4740:2025 is the New Benchmark for Australia

Industry Alignment

- Developed collaboratively with manufacturers, specifiers, and consultants.
- Includes input from leading Australian organisations through Standards Australia.

Local Relevance

- Addresses Australian climatic extremes (higher wind speeds, heavier rain rates).
- Incorporates best practices from both AMCA and European standards.
- **Mandates consistent rig setups for accurate comparison across different louvre products.**

Stringent Performance Classes

- Defines superior performance expectations in rain resistance, wind loading, aerodynamic efficiency, and structural integrity.

Facilitates Better Product Selection

- Helps architects, engineers, and designers accurately compare the performance between louvred ventilators for optimal project outcomes.
- Provides clear, validated data to inform design decisions.

5. Conclusion

While AMCA 500-L-23 and other international standards offer a flexible framework for laboratory testing, the **AS 4740:2025 standard is essential for the Australian market**. It eliminates ambiguity caused by different test rig designs, enforces consistent test conditions, and mandates performance-based classification aligned to Australian environmental demands.

By ensuring all louvres installed within Australia are tested to AS 4740:2025 under identical conditions, the industry can offer accurate product comparisons, foster innovation, and deliver safer, more resilient building designs.

References

- ANSI/AMCA Standard 500-L-23
- Draft AS 4740:2024 and AS 4740:2025 documents
- Standards Australia publications
- Louvreclad industry contributions and technical updates
- BS EN 13030:2001 Standard for Weather Louvres

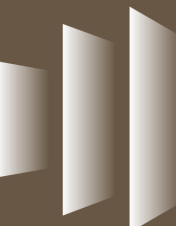
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Speak to an expert

Reach out today to discuss your facade solution requirements; we would love to hear from you.



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