

**NEW ZEALAND**

*Setting the standards*

## NOISE CONTROL SYSTEMS





Windsor louvres in powder coated aluminium on a dairy factory plantroom

## ACOUSTIC LOUVRES

The Windsor acoustic louvre is designed to provide a reasonable level of attenuation for plantroom and other architectural ventilation applications whilst maintaining the aesthetic integrity of the structure.

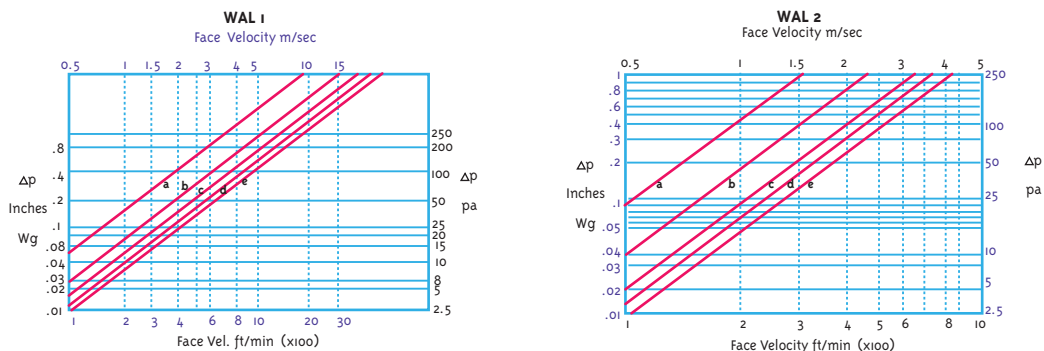
Typical applications are inlet and outlet panels for fan chambers, roof mounted fully louvred plenum chambers for air conditioning plant and fan powered roof units.

The 300mm thick louvres are normally constructed from galvanised mild steel sheet unpainted, but can be supplied with special paint finishes or manufactured from stainless steel or aluminium if required.

The acoustic absorption material is an incombustible resin bonded glass fibre slab specially cut to fit the aerodynamically shaped blades faced on the underside with perforated metal sheet.

Louvres may be mounted back to back to achieve a significant improvement in acoustic performance if the associated pressure drop can be tolerated. This is type WAL 2.

### Design data (based on laboratory testing conforming to BS2750)



### Louvre Free Area

This is calculated by  $F.Area = W \times \left(\frac{H - 0.45}{3}\right) + .05m^2$  where W= width (metres) and H= Height (metres).

The pressure drop varies as a characteristic of H and the sample plots shown above refer to the following:-

(a) H= 450mm (b) H= 600mm (c) H= 900mm (d) H= 1200mm (e) H= 2400mm

### Standard sizes

Minimum height. 450mm

Maximum unlimited

Minimum width. 300mm

Maximum unlimited

(Widths over 2400mm are supplied with vertical structural mullions 50mm wide)

### Acoustic Transmission Loss

Frequency	63	125	250	500	1K	2K	4K	8K	(Hz)
Single stage Type WAL 1	5	5	7	12	18	21	16	16	(dB)
Two stage Type WAL 2	8	9	12	21	32	34	32	32	(dB)

Windsor will purpose design the optimum system for your requirements



45dB, two hour fire doors at Auckland's AOTEA Centre

## SOUND RESISTANT DOORS

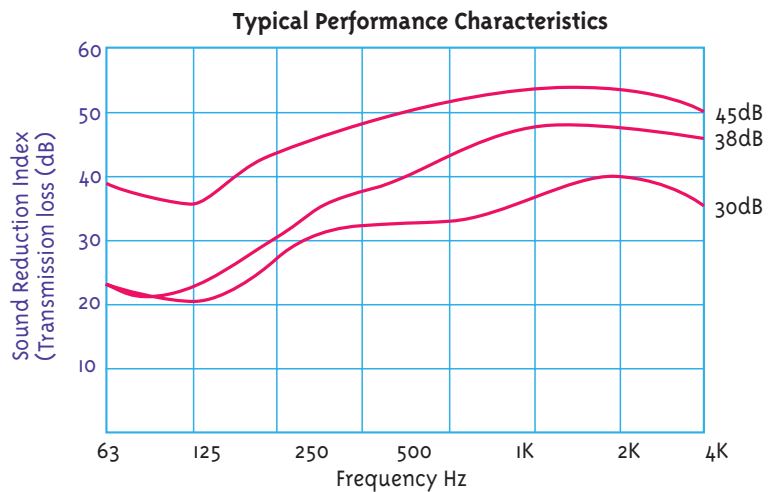
Windsor steel panel sound resistant doors incorporate incombustible rot proof acoustic absorbers and replaceable compression seals.

Standard finish is industrial primer paint, but final finishing coats to clients specification are also available. Accessories such as view ports, special security provisions, etc can be included as required.

All doors are supplied as a pre-hung set, outer frames being purpose designed to suit clients specific requirements.

The average sound reduction indices of some of the more popular types are shown in the chart.

Air leakage is normally less than 5m<sup>3</sup>/hr at a pressure differential of 2.5Kpa.



## ACOUSTIC ENCLOSURES AND HAVENS

Windsor have a number of standard, well proven methods of construction which may be adapted for building noise enclosures for machinery, or quiet offices for supervisory personnel in noisy factory environments.

These designs can also be adapted for the construction of audiometric facilities in hospitals and hearing clinics. The frame/panel system enables Windsor to produce fully finished units for delivery to site in one piece or alternatively in kitset form for erection by Windsor engineers (or others).

Ventilation equipment is available for incorporation into designs including axial or centrifugal fans, sound attenuated vent ducts, heater units, air filters and air conditioning equipment.

Access doors are fully sealed to maintain acoustical integrity. Double/single glazed windows can also be fitted.

General construction is of zinc coated steel sheet with non-combustible, rot proof acoustic infill scrim faced to avoid fibre loss during service.

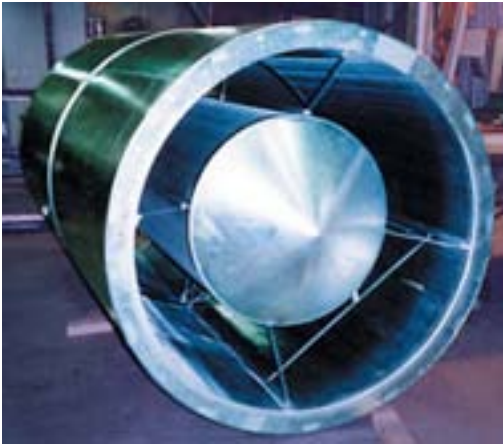
(Special facings such as polyester film or special decorative finishes can also be applied.)



Acoustic enclosure in a timber processing factory

### Panel performance

Octave band Frequency (Hz)	63	125	250	500	1K	2K	4K	8K
Typical panel Insertion loss (dB)	-10	-13	-30	-44	-48	-53	-54	-53



Cylindrical attenuator type WCPA-2D



Removeable splitters allow for easy maintenance on this special design



Special stainless steel splitter attenuator with removeable splitters installed at a Southland dairy factory

## DUCT ATTENUATORS

Windsor produces a comprehensive range of noise attenuators to established and proven performance specifications to suit rectangular and cylindrical duct installations.

Two basic standards of construction are available:

### 1. *Light weight attenuators to SMACMA min standards*

These are for use in H&V applications or in any situation where cost is of prime consideration.

Linings are scrim faced and casings are of minimum thickness to comply with the above standard.

### 2. *Industrial grade attenuators*

This range of attenuators is of heavy duty construction incorporating features such as rolled steel angle flanges and perforated galvanised steel facings to all linings. They can also be built in stainless steel or finished with special paint coatings.

All attenuators supplied by Windsor use a permanent inert and flameproof acoustic absorption material and have a guaranteed performance.

Cylindrical attenuators are designed primarily for use with axial flow fans and end flanges are provided with tapped holes to match standard fan drillings.

To compliment the range of steel attenuators, Windsor can also supply equipment in glass fibre reinforced plastic and PVC for fume cupboard and other corrosive applications.

### Special designs

Windsor can also manufacture special attenuation equipment to comply with unusual or difficult specifications.

Talk to our engineering staff who will welcome the opportunity to help solve your noise problems.

### Acoustic and aerodynamic performance

Acoustic and aerodynamic performance is determined using the B.S. 4718 1971 – Method of Test for Silencers in Air Distribution Systems. The attenuation is calculated by comparing the sound levels from a sound source, with and without the silencer installed in the ductwork between the source and the point of measurement. Measurements are carried out without airflow and the attenuation is termed the Static Insertion Loss.

**Windsor will purpose design the optimum system for your requirements**

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