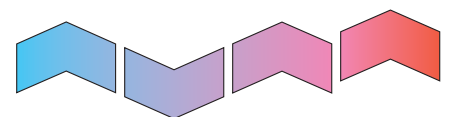
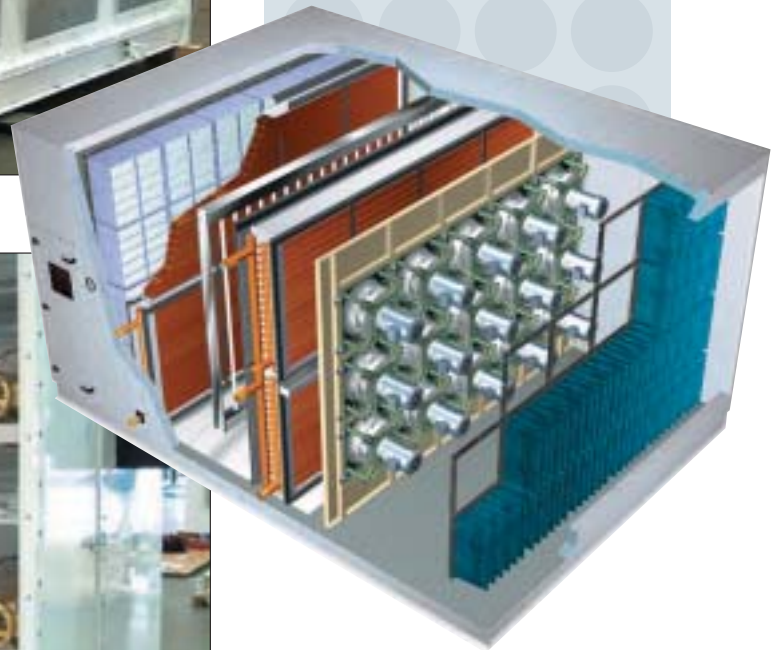


**LKP AIR HANDLING UNITS
WITH FANWALL TECHNOLOGY[®]**



LKP FANWALL® BENEFITS

Features and Benefits:

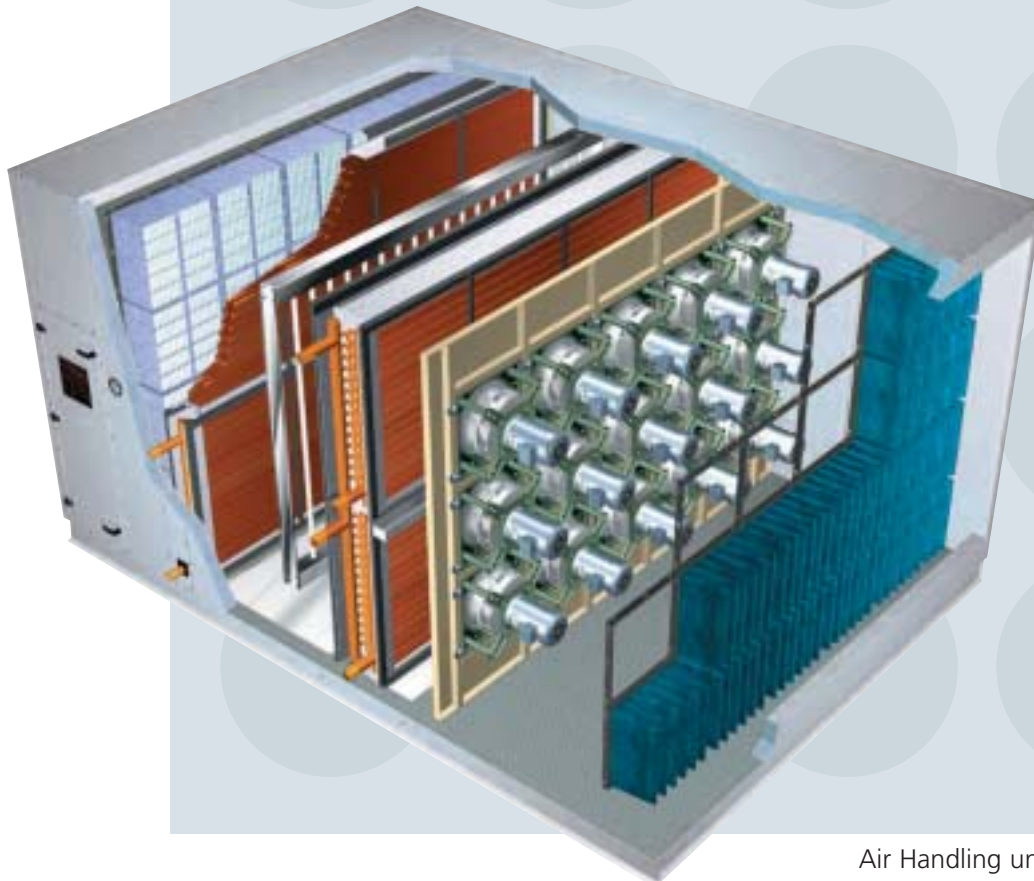
- Energy efficiency.
- Lower noise levels.
- Reduced floor space.
- Built-in redundancy and reliability.
- Reduced cost of operation and maintenance.

FANWALL TECHNOLOGY® (FWT) is the latest air handling system available from Moducel. The concept is based on replacing the single large fan fitted to conventional AHUs with a bank of smaller purpose-built fans which deliver the same performance air flow. Because of their precision build, these fans are not only more economical to run and easy to service but deliver a better air flow pattern than a conventional AHU unit. The system is more compact making the footprint reduced by up to fifty percent in certain applications.

There are acoustic benefits too, low frequency noise is greatly reduced due to the design of the integral coplanar silencer.

FANWALL TECHNOLOGY® offers greater flexibility in unit sizing. Designers are able to incorporate lower profile units where height restrictions are involved.

Quiet running makes it ideal for acoustically sensitive applications including Concert Halls, Lecture Halls, Performing Arts Centres and Libraries.



Air Handling unit with the FANWALL TECHNOLOGY® system.

LKP FANWALL® BENEFITS

■ Optimised Energy Usage

Individual fan/motor combinations selected for peak motor efficiency.

Lower connected power for most applications.

■ Redundancy and Ease of Maintenance

Identical fan cartridges can be used for multiple units.

Replacement fan assemblies can be installed in the minimum time.

Reduces the amount of time and cost associated with service and replacement.

Spare/Redundant fans can be supplied.

■ Lower Capital Cost

Reduced airway section length.

Fan section modules can be field installed in weight sensitive rigging situations.

■ Less Floor Space Required

Fan sections shortened in length by up to 50% in certain applications.

Inlet and discharge plenum length is reduced for supply and return fans.



Inlet air straighteners shown.



Easy access for routine maintenance.



Conventional Air Handler.



FANWALL® Air Handler.

LKP FANWALL® NOISE

Seismic and Vibration Concerns Eliminated

- No spring isolation bases or concrete inertia bases required.
- All fan cartridges dynamically balanced.
- Casing collateral vibration is greatly reduced or eliminated due to significant reduction in airway tunnel turbulence.

Silencer Package

- No added airway length for splitters.
- Relatively low cost.
- FANWALL TECHNOLOGY® fans are selected based upon efficiency of motor and fan design. There are acoustic benefits too, low frequency noise is greatly reduced due to integral coplanar silencer.
- Quiet running makes FWT ideal for acoustically sensitive applications including Concert Halls, Lecture Halls, Performing Arts Centres and Libraries.



Fan cartridge dynamically balanced.



Vibration reduced due to reduction in airway tunnel turbulence.

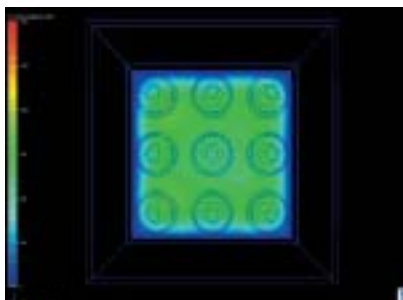


No spring isolation bases or concrete inertia bases required for FANWALL® fan assembly.



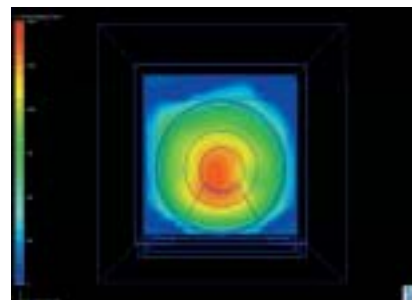
Traditional AHU plenum fan with spring isolation bases.

LKP FANWALL® — AIRFLOW VISUALISATION



0.9 m Upstream of FANWALL®

- FWT optimises airflow characteristics and eliminates uneven airflow associated with traditional AHU fans



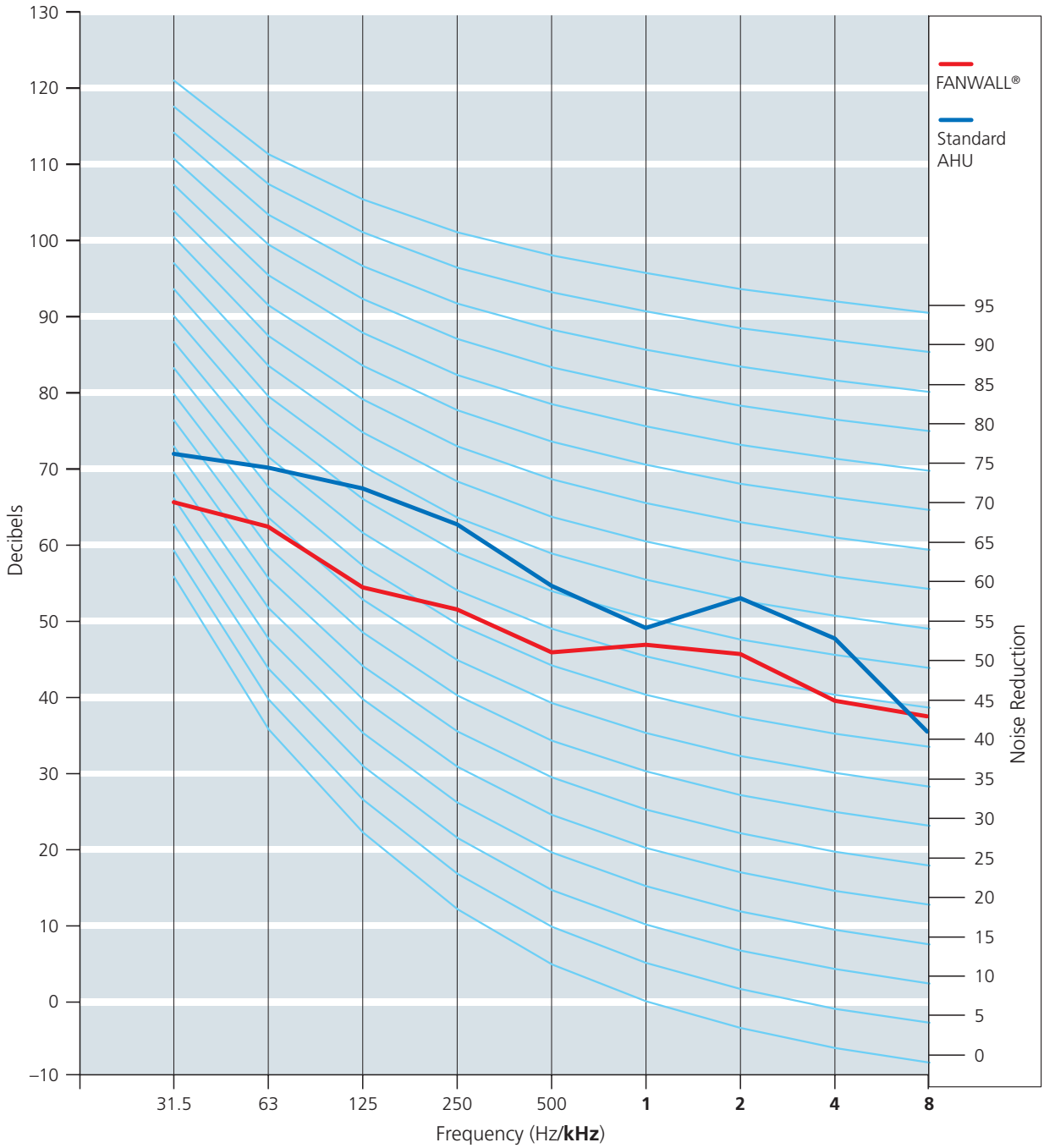
0.9 m Upstream of Plenum Fan

FWT — Noise Reduction

FANWALL® provides lower noise levels particularly at low frequency.

NR Curves

Measured at 3 metres from Fan Discharge Dampers



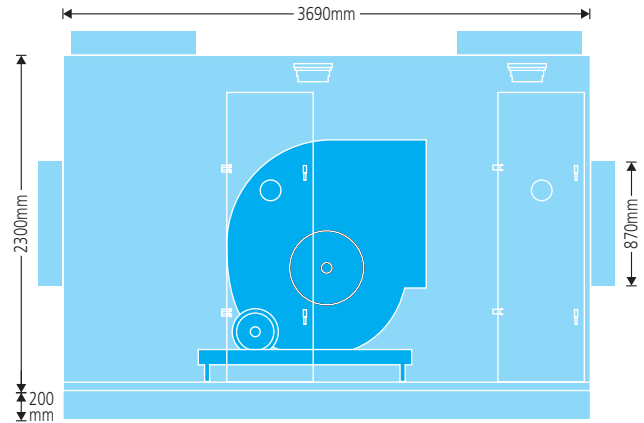
LKP FANWALL® vs CONVENTIONAL AHU

FANWALL TECHNOLOGY® offers greater flexibility in unit sizing. Designers are able to incorporate lower profile units where height restrictions are involved.

Standard Unit 3690mm long



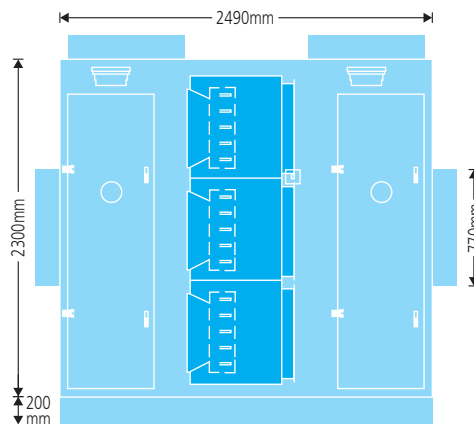
Conventional Air Handler.



LKP FANWALL® Unit 2490mm Long



FANWALL® Air Handler.



■ Less Floor Space Required

Fan sections shortened in length by 50% or greater.

Inlet and discharge plenum length is reduced for supply and return fans.

- Redundancy can be catered for by incorporating N+1 fans at design stage.

■ Lower Capital Cost

Reduced airway section length.

Fan section modules can be field installed in weight sensitive rigging situations.

- Additional fan can be wired into controller via start/stop switch to simplify start-up under fault.

■ Optimised Energy Usage

Individual fan/motor combinations selected for peak motor efficiency.

Lower connected power for most applications.

- Redundancy via fan speed control.

LKP FANWALL® MAINTENANCE & RETROFIT APPLICATIONS

■ Redundancy and Ease of Maintenance

Identical fan cartridges can be used for multiple units.

Replacement fan assemblies can be installed in the minimum of time.

Reduces the amount of time and cost associated with service and replacement.

Spare/Redundant fans with back draught dampers can be supplied.



Easy access for routine maintenance.

■ Arrangement for fans eliminate belts, sheaves and fan bearings.

■ Multiple fans provide unparalleled redundancy without the need for standby units.

■ Greatly reduces/eliminates the exposure of downtime due to mechanical failure.

Every installation has fans installed to a precise specification.

■ Ease of Maintenance

The photograph illustrated (right) shows a bank of twin 95 kW motors in units that are stacked in a well in the centre of a roof opening. To remove a motor from the roof, a crane with a boom that could extend into the building 60 m would be required.

With FANWALL TECHNOLOGY® the fan/motors could be removed by two technicians from the unit and off the roof.



FWT — RETROFIT APPLICATIONS

On a site with a critical access issue FANWALL® can be retrofitted.



Old fan scroll.



FANWALL® retrofit.

LKP FAN DATA — EXAMPLE

LKP Conventional Fan Data

Supply Fan Section			
Fan Type:	TLZ800T	Air Volume (m³/s):	9.91
External Resistance (Pa):	545	Total Pressure –Pa Mean Filter:	612
Fan Speed (rpm):	470	Fan Absorbed Power (kW):	8.35
Motor Type:	Single speed EFF2	Motor Speed (rpm):	1450
Motor Rating (kW):	11	Method of Start:	SD
Motor FLC (amps):	21.5	Motor Start Current (amps):	40
Number of Motors:	1	Electrical Supply:	415V 50Hz 3PH
Fan Pulley:	450 × 2 SPB	Fan Taperlock:	3020 × 50
Motor Pulley:	150 × 2 SPB	Motor Taperlock:	2012 × 42
Belt Centres:	623	Belt Reference:	SPB 2240
AVM Front Left — A:	OS25/200	AVM Front Right — D:	OS25/200
AVM Rear Right — C:	OS25/300	AVM Rear Left — B:	OS25/200
Free Field Inlet Sound Power (Lw7):	95	Ducted Outlet Sound Power (Lw4):	96
Inlet SWL (Lwoct7) Spectrum 63-8k:	89-88-85-83-82-80-76-72	Outlet SWL (Lwoct4) Spectrum 63-8k:	91-88-91-86-85-81-77-69
Motor Position:	Internal		

LKP FANWALL® Data

Supply FANWALL®			
Fan Type:	FANWALL TECHNOLOGY®	Air Volume (m³/s):	9.91
Number of Active Fans:	9	Array (rows × columns):	3 × 3
Wheel Diameter (inches):	16	Wheel Width (%):	104.2
External Resistance (Pa):	545	Total Pressure –Pa Mean Filter:	546
Fan Speed (rpm):	1571	Fan Absorbed Power (kW):	5.83
Motor Type:	EFF1	Motor Speed (rpm):	1400
Motor Rating (kW):	0.75	Method of Start:	Inverter
Motor FLC (amps):	N/A	Motor Start Current (amps):	N/A
Number of Motors:	9	Electrical Supply:	415V 50Hz 3PH
Free Field Inlet Sound Power (Lw7):	84	Free Field Outlet Sound Power (Lw4):	81
Inlet SWL (Lwoct7) Spectrum 63-8k:	79-79-72-76-76-74-70-62	Outlet SWL (Lwoct4) Spectrum 63-8k:	77-77-72-66-70-67-62-57
Inverter Rating (kW):	7.5		

Standard Features

- Coplanar silencer 50mm rockwool.
- Inlet airflow straightener.
- Motors wired back to central point within fan section.

Optional Extras

- Inverter drives.
- Fully packaged control panels.

MODUCEL®

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