

# Thermotec NuWave<sup>®</sup>



ACOUSTIC NOISE BARRIER

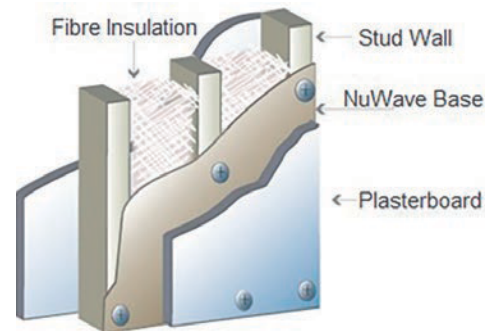


- ✓ High noise reduction
- ✓ Reduces inter-office noise
- ✓ Meets ODP-EMI 4
- ✓ Reduces impact noise
- ✓ Essential fit-out material
- ✓ Green Star Compliant
- ✓ Effective for silent walls
- ✓ Low V.O.C.





Thermotec NuWave® Acoustic products are designed to meet the requirements of modern buildings, building standards and codes of the Countries, States or Industry categories where these products are specified and installed.



### Typical Applications

- › Partitions and common walls - housing units
- › Noise Barrier screens, temporary & permanent
- › Carpet underlay - studios, theatres, offices
- › Ceiling - offices, meeting rooms, home theatres
- › Studios, theatres, media rooms & hospitals
- › Heavy industrial machinery - noise isolation
- › Waste/Soil pipes - noise reduction
- › Plant rooms, engine rooms, heavy transport
- › Acoustic Doors
- › Mining barrier screens—Milling, screening, etc.
- › Fan & Blower Housings

### Thermotec NuWave® Acoustic Barrier

- › NuWave® mass loaded vinyl barriers - 4kg, 6kg & 8kg
- › Other densities available on request
- › Low profile - High Performance - long life
- › Industry acceptance and proven performer
- › Available as 4-Zero fire rated & outdoors variants
- › No ozone depleting substances (ODP-EMI 4)
- › Available in composite products - NuWrap5® & Cabmat
- › Easy to cut and install as curtains, inside walls and ceilings
- › Low VOC - meets Green Building Council requirements
- › Maximum transmission loss across the range of frequencies

### Properties

<b>Standard Roll Size</b>	1350mm x 5 metre / 1350mm x 3 metre
<b>Weight - nominal</b>	NuWave® 4kg/m <sup>2</sup> , NuWave® 6kg/m <sup>2</sup> , NuWave® 8kg/m <sup>2</sup>
<b>Thickness - nominal</b>	NuWave® 4kg = 2mm, NuWave® 6kg = 3mm, NuWave® 8kg = 4mm
<b>Operating Temperature</b>	Up to 100°C
<b>Green Building Council Compliant</b>	Yes (Low VOC & ODP-EMI4)
<b>Available as Fire Tested Product</b>	NuWave® 4-Zero Foil Faced—AS/NZS1530.3
<b>Barrier Material</b>	Mass Loaded Vinyl (MLV)
<b>Country of Manufacture</b>	Australia



## Thermotec NuWave® Mass Loaded Barrier

The NuWave® range of high-performance barriers is based on high density, limp mass polymers to take the energy out of sound waves right across the hearing frequency spectrum. NuWave® barriers are flexible, inexpensive and will control unwanted noise from home theatre systems, aircraft noise, machinery noise, unwanted noise through walls and floors, office ceilings and other types of airborne noise.

When noise and sound transmission needs to be effectively controlled, NuWave® Noise Barriers provide the solution to ensure that building standards are complied with, and that noise levels are effectively reduced.

NuWave® noise barriers are also manufactured in various composite products such as high-performance carpet underlays, heavy transport cabin insulation, plant room noise control, and waste pipe.



## NuWave® Barriers Performance Summary

Test No.	Description of Sample	STC rating	Rw (C, Ctr)
1	Thermotec NuWave® 4kg/m <sup>2</sup>	26	26 (-1,-3)
2	Thermotec NuWave® 6kg/m <sup>2</sup>	29	29 (-1,-4)
3	Thermotec NuWave® 8kg/m <sup>2</sup>	30	30 (-1,-4)



## NuWave® Barrier Test Data

Third Octave Band Centre Frequency (Hz)	4kg/m <sup>2</sup> Sound Transmission Loss (dB)	Precision Achieved	6kg/m <sup>2</sup> Sound Transmission Loss (dB)	Precision Achieved	8kg/m <sup>2</sup> Sound Transmission Loss (dB)	Precision Achieved
100	15	1.0	16.7	0.6	16.9	2.0
125	16	0.8	16.4	1.0	17.3	1.6
160	13	0.6	16.0	0.7	16.9	1.0
200	15	0.9	18.0	1.2	19	0.7
250	18	0.4	20.3	1.7	22.2	0.8
315	17	0.5	21.0	0.3	21.8	0.3
400	20	0.4	22.2	0.3	24.8	0.6
500	21	0.5	25.0	0.4	25.5	0.5
630	23	0.1	26.9	0.5	26.9	0.4
800	25	0.2	28.2	0.4	29	0.5
1000	26	0.3	29.0	0.4	30.4	0.4
1250	28	0.2	30.7	0.2	32	0.5
1600	29	0.3	32.6	0.2	33.2	0.4
2000	31	0.2	34.3	0.5	35.2	0.5
2500	33	0.2	35.8	0.2	36.9	0.5
3150	35	0.2	37.4	0.3	38.6	0.5
4000	37	0.2	39.8	0.2	40.7	0.4
5000	42	N/A	43.2	N/A	44.5	N/A
Rw/STC	26		29		30	
Rw(C,Ctr)	26(-1,-3)		29(-1,-4)		30(-1,-4)	

“quality is not expensive, it’s priceless”

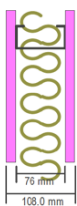


## Wall & Ceiling Predictions

NCC F5.5 (a) Sound insulation rating of walls—A wall in a Class 2 or 3 building must -

- (I) have an  $R_w + C_{tr}$  (airborne) not less than 50, if it separates sole-occupancy units and;
  - (II) have an  $R_w$  (airborne) not less than 50, if it separates a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification
- (c) A wall in a Class 9c aged care building must have an  $R_w$  not less than 45 if it separates-
- (I) a sole-occupancy unit
  - (II) a sole-occupancy unit from a plant room or lift shaft

### Typical Double Stud Party Wall Construction—NCC Compliant



<b><math>R_w</math></b>	<b>44 dB</b>
<b>C</b>	<b>-3 dB</b>
<b><math>C_{tr}</math></b>	<b>-10dB</b>
<b><math>D_nT_w</math></b>	<b>46dB</b>

#### SYSTEM DESCRIPTION

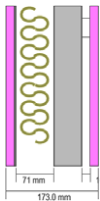
**Panel 1:** 1 x 16mm CSR Gyprock Fyrecheck Plasterboard

**Cavity:** Steel stud (20g-16g): Stud spacing 600mm **Infill:** Fibreglass 60mm (10kg/m<sup>3</sup>)

**Panel 2:** 1 x 16mm CSR Gyprock Fyrecheck Plasterboard

Mass air-mass resonant frequency = 77Hz

### Typical Speedwall Party Wall Construction—NCC Compliant



<b><math>R_w</math></b>	<b>62 dB</b>
<b>C</b>	<b>-3 dB</b>
<b><math>C_{tr}</math></b>	<b>-10dB</b>
<b><math>D_nT_w</math></b>	<b>64dB</b>

#### SYSTEM DESCRIPTION

**Panel 1:** 1 x 16mm CSR Gyprock Fyrecheck Plasterboard + 1 x NuWave® 6kg/m<sup>2</sup> (5mm) **Cavity:** None - Stud spacing 600mm, infill Fibreglass 50mm (22kg/m<sup>3</sup>)

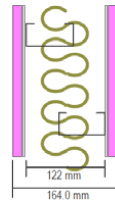
**Panel 2:** 1 x 51mm Speedwall 750kg/m<sup>3</sup>

**Cavity:** Steel stud (0.55mm) Stud spacing 600mm

**Panel 3:** 1 x 16mm CSR Gyprock Fyrecheck Plasterboard

Mass air-mass resonant frequency = 60Hz, 180Hz

### Typical Stud Wall Construction for internal walls—NCC Compliant



<b><math>R_w</math></b>	<b>60 dB</b>
<b>C</b>	<b>-3 dB</b>
<b><math>C_{tr}</math></b>	<b>-10dB</b>
<b><math>D_nT_w</math></b>	<b>62dB</b>

#### SYSTEM DESCRIPTION

**Panel 1:** 1 x 16mm CSR Gyprock Fyrecheck Plasterboard + 1 x NuWave® 6kg/m<sup>2</sup> (5mm)

**Cavity:** Staggered Steel stud, spacing 600mm

**Infill:** Fibreglass 75mm (22kg/m<sup>3</sup>)

**Panel 2:** 1 x NuWave® 6kg/m<sup>2</sup> (5mm) + 1 x 16mm CSR Gyprock Fyrecheck Plasterboard

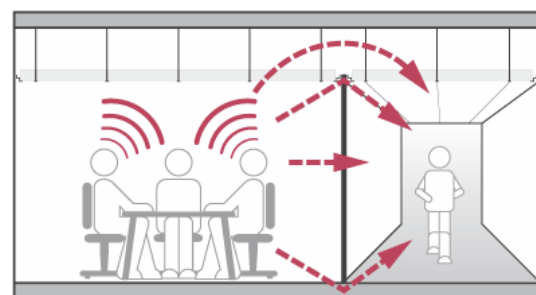
Mass air-mass resonant frequency = 48Hz

### Typical Ceiling Attenuation Class (CAC) Predictions

**Table 1** is a summary of the acoustic opinion considering the assumptions in this report. It is to be noted that this acoustic opinion is likely to be within  $\pm 2$ dB of a laboratory test and that the performance in the field is likely to be lower.

**Table 1 – Opinion of the CAC for various ceiling plenum systems**

NuWave Product (kg/m <sup>2</sup> )		
4	6	8
<b>Base ceiling minimum CAC 30</b>		
43	44	45
<b>Base ceiling minimum CAC 35</b>		
48	49	50



NuWave® will need to be installed so that all penetrations, material overlaps, interface with the soffit and the back of the ceiling are sufficiently detailed with respect to acoustics. Furthermore the extent of the plenum, including the likely amount of return will/may need consideration to facilitate the final acoustic outcomes.