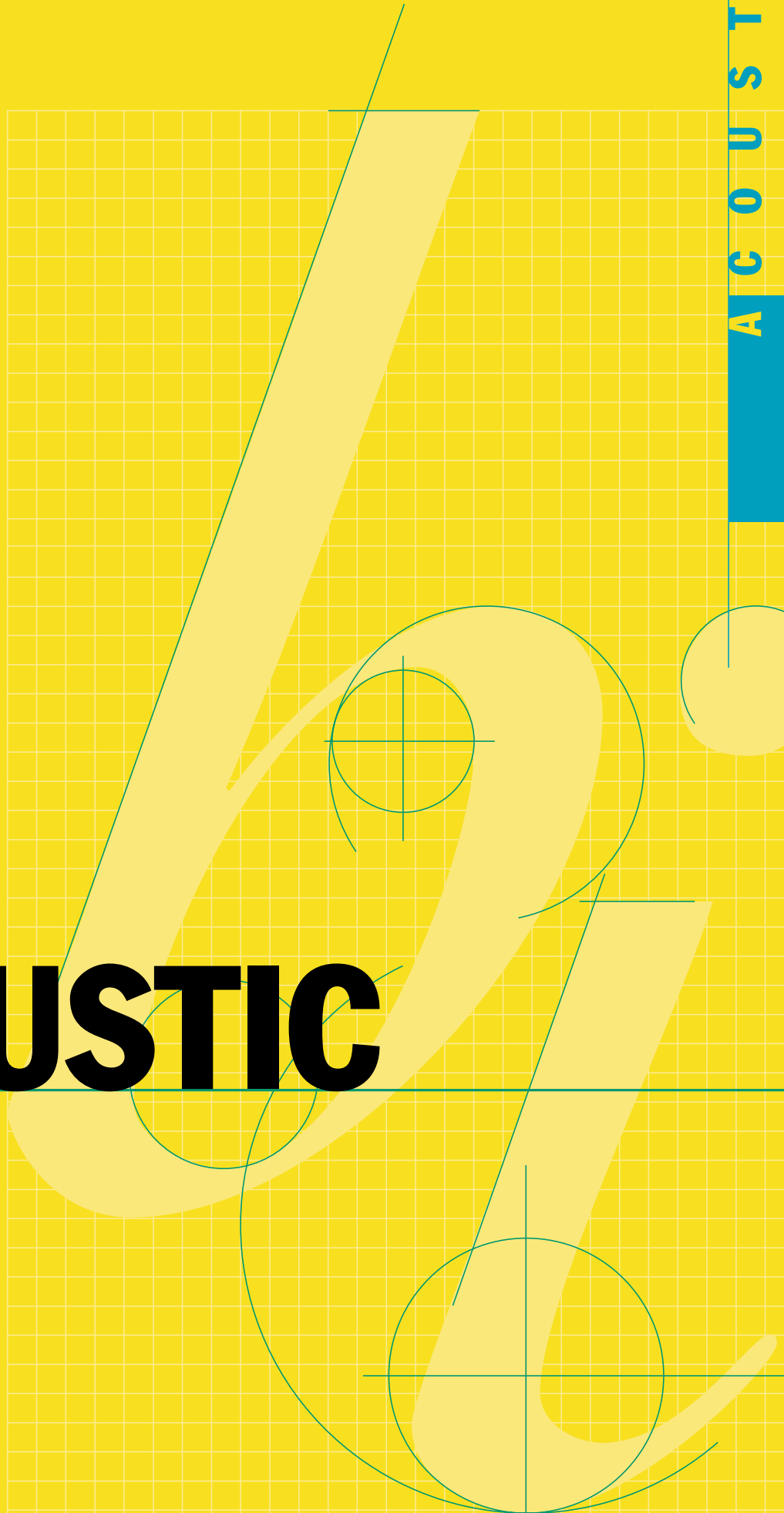


CSR[™]
**Bradford
Insulation**

ACOUSTIC



Applications	Product	Benefits
CSR Bradford Insulation Acoustic Product Guide		
External noise in houses	Bradford GOLD BATTS™ For ceilings Bradford GOLD BATTS™ for walls & floors Bradford Rockwool ceiling, wall & floor batts	Lightweight insulation products offering good acoustic benefits as well as excellent thermal resistance Bradford Rockwool offers superior acoustic performance
Internal noise in houses	Bradford Rockwool SoundScreen™	Acoustically optimised lightweight rockwool product for noise insulation of adjoining rooms and floors
Metal roofing	Bradford ACOUSTICON™	Available in both glasswool and rockwool. Uniquely tested to minimise rain noise as well as offering internal noise absorption. Rockwool offers slightly better acoustic performance
Internal partitions	Bradford Glasswool & Rockwool Partition Batt	Specially manufactured to fit neatly in both timber and steel stud walls
Wall absorption	Bradford Glasswool SUPERTEL™ Bradford Rockwool FIBERTEX™ 350 Bradford ACOUSTICLAD™ Bradford Glasswool Absorptive Blanket	Excellent acoustic absorption for a variety of applications. Bradford ACOUSTICLAD™ comes with prefabricated perforated metal system
Floors	Bradford GOLD BATTS™ Bradford SoundScreen™ Bradford Glasswool QUIETEL™ Bradford FIBERTEX™ Rockwool	Reduces impact and airborne sound transmission between floors
Waste pipes	Bradford ACOUSTILAG™	A loaded vinyl mass adhered to Bradford Glasswool offering superb noise reduction
Industrial machinery	Bradford Glasswool SUPERTEL™ or ULTRATEL™ Bradford Rockwool FIBERTEX™ 350, 450, 650 Bradford Glasswool and FIBERTEX™ Rockwool SPI	Higher density robust insulation products. Numerous facing options available including Bradford's unique ULTRAPHON™ - the ultimate in acoustic linings
Air conditioning systems THERMOFOIL™ and	Bradford Glasswool R-rated Ductliner Bradford FIBERTEX™ Rockwool R-rated Ductliner	Available with standard HD Perforated foil, Black tissue (BMF) or Bradford's new ACOUSTITUFF™ ULTRAPHON™ facings
Marine	Bradford Glasswool Marine Thermal Grade Bradford Glasswool Thermatel Bradford FIBERTEX™ 820	Meets IMO non-combustibility requirement for acoustic applications in ships

NOTES: LD = Light Duty. MD = Medium Duty. HD = Heavy Duty. Perf = Perforated. BMF = Black Matt Glass Tissue. Special density, custom sizes and facings available on request (subject to minimum order quantities). For further details on product sizes, packaging or stock availability, or for technical information about other CSR Bradford Insulation products, please refer to the CSR Bradford Insulation office in your region. CSR Bradford Insulation has a policy of continuous product development, therefore new product information will be distributed for inclusion in the CSR Bradford Insulation Technical Manual as and when available.

A C O U S T I C

Product	Density kg/m ³	Facing	Thickness mm	Sound Absorption Frequency Hz				
				125 (AS1045-1988 Reverberation Room Method)	250	500	1000	2000
CSR Bradford Insulation Building Products								
Bradford GOLD BATTS™ for Ceilings			105 (R2.0)	0.60	0.98	1.03	1.05	1.14
Bradford GOLD BATTS™ for Walls & Floors			95 (R2.0)	0.57	0.78	0.97	0.91	0.96
Bradford Rockwool Ceiling batts			80 (R2.0)	0.57	1.00	1.20	1.06	1.11
			100 (R2.5)	0.75	1.20	1.19	1.07	1.10
Bradford Rockwool Wall & Floor Batts			60 (R1.5)	0.22	0.49	0.96	0.96	1.02
Bradford Glasswool Building Blanket			50 (R1.2)	0.25	0.65	0.80	0.90	0.90
			75 (R1.8)	0.35	0.80	0.85	0.90	0.90
		HD Perf	50	0.30	0.65	0.90	1.00	0.90
		HD Perf	75	0.35	0.75	1.00	1.10	0.95
		BMF	50	0.25	0.70	0.80	0.95	0.90
		BMF	75	0.35	0.75	0.85	0.85	0.90
Bradford Rockwool Building Blanket			50	0.24	0.73	0.93	1.10	1.12
		HD Perf	50	0.20	0.80	1.00	1.00	1.00
		BMF	50	0.30	0.75	0.90	0.95	0.95
Bradford Glasswool ANTICON™		LD Plain	55 (R1.5)	0.34	0.86	1.04	0.41	0.20
		LD Plain	75 (R2.0)	0.60	1.21	0.90	0.41	0.28
			95 (R2.5)	0.72	1.43	0.82	0.42	0.38
Bradford Glasswool ACOUSTICON™		LD Plain	75 (R1.8)	0.14	1.02	0.82	0.42	0.38
Bradford Rockwool ACOUSTICON™		LD Plain	50	–	0.56	0.90	0.88	0.85
CSR Bradford FIBERTEX™ Rockwool Insulation								
Bradford Rockwool FIBERTEX™ 350 R-rated Ductliner	60	nil	25	0.18	0.29	0.69	0.86	1.05
		nil	50	0.21	0.69	1.13	1.15	1.16
		HD Perf	25	0.14	0.38	0.87	1.07	1.06
		HD Perf	50	0.31	0.83	1.16	0.99	0.90
		BMF	25	0.15	0.33	0.74	0.94	1.03
		BMF	50	0.36	0.76	1.19	1.09	1.03
Bradford Rockwool FIBERTEX™ 450	80	nil	25	0.11	0.20	0.80	1.10	1.02
		nil	50	0.29	0.76	1.07	1.10	1.09
		HD Perf	25	0.12	0.27	0.80	1.17	1.16
		HD Perf	50	0.27	0.78	1.23	1.17	1.13
		BMF	25	0.10	0.30	0.70	0.93	1.04
		BMF	50	0.28	0.71	1.17	1.18	1.13
		ACOUSTITUFF™	50	0.54	0.99	1.07	0.81	0.57
		ULTRAPHON™	50	0.43	0.99	1.09	1.11	1.04
Bradford Rockwool FIBERTEX™ 650	100	nil	25	0.21	0.29	0.52	1.14	1.02
		nil	50	0.59	0.97	1.18	1.00	1.04
Bradford Rockwool Acoustic Baffle		Mylar	50	0.17	0.41	0.87	1.22	1.12

A C O U S T I C

Product	Sound Absorption Frequency Hz		NRC	Static Insertion Loss (dB loss 600x600x4m test duct) Octave Band Centre Frequency (Hz)							
	4000 (AS1045-1988 Reverberation Room Method)	5000		63	125	250	500	1000	2000	4000	8000 (AS1277:1983 Acoustic Procedure for Ducted silencers)
CSR Bradford Insulation Building Products											
Bradford GOLD BATTS™ for Ceilings	1.10	1.09	1.05								
Bradford GOLD BATTS™ for Walls & Floors	1.00	0.95	0.91								
Bradford Rockwool Ceiling batts	1.11 1.09	1.10 1.10	1.10 1.15								
Bradford Rockwool Wall & Floor Batts	1.08	1.09	0.85								
Bradford Glasswool Building Blanket	1.00 1.10 0.85 0.85 0.95 1.00	1.05 1.05 0.85 0.85 1.05 1.05	0.80 0.85 0.86 0.95 0.84 0.86								
Bradford Rockwool Building Blanket	1.12 0.95 1.00	1.14 0.85 1.00	0.96 0.95 0.90								
Bradford Glasswool ANTICON™	0.07 0.10 0.29	0.04 0.12 0.38	0.64 0.70 0.75	Noise Reduction							
Bradford Glasswool ACOUSTICON™	0.29	0.38	0.66	–	5	12	15	17	19	18 16	
Bradford Rockwool ACOUSTICON™	0.88	–	0.80								
CSR Bradford FIBERTEX™ Rockwool Insulation											
Bradford Rockwool FIBERTEX™ 350 R-rated Ductliner	1.20 1.18 0.90 0.78 1.04 1.04	1.16 1.14 0.79 0.73 0.98 0.90	0.72 1.03 0.85 0.97 0.76 1.01	2.8	5.8	19.9	56.6	49.1	32.4	24.6 –	
Bradford Rockwool FIBERTEX™ 450	1.12 1.07 0.80 1.00 1.02 1.16 0.33 1.03	1.20 1.09 0.86 0.94 1.02 1.08 0.25 1.03	0.77 1.01 0.85 1.08 0.75 1.05 0.85 1.06	NB: Ultraphon silencer test results also available Refer to your nearest Bradford Insulation Office							
Bradford Rockwool FIBERTEX™ 650	0.97 1.02	1.06 1.03	0.74 1.05								
Bradford Rockwool Acoustic Baffle	0.95	0.9	0.91								

A C O U S T I C

Product	Density kg/m ³	Facing	Thickness mm	Sound Absorption Frequency Hz				
				125 (AS1045-1988)	250	500	1000	2000 Reverberation Room Method)
CSR Bradford Insulation Glasswool								
Bradford Glasswool FLEXITEL™	24	nil	25	0.33	0.28	0.61	0.89	1.01
		nil	50	0.42	0.64	0.92	1.07	0.98
		HD perf	25	0.10	0.33	0.66	0.90	1.03
		HD perf	50	0.39	0.84	1.08	1.20	1.06
		BMF	25	0.09	0.33	0.57	0.73	0.90
		BMF	50	0.27	0.69	1.08	1.06	1.11
Bradford Glasswool SUPERTEL™ R-rated Ductliner	32	nil	25	0.12	0.41	0.63	0.90	1.01
		nil	50	0.27	0.75	1.12	1.12	1.07
		nil	75	0.52	0.94	1.24	1.13	1.06
		HD Perf	25	0.08	0.39	0.73	1.02	1.12
		HD perf	30	0.12	0.48	0.84	0.96	0.97
		HD perf	50	0.23	0.71	0.99	1.09	0.97
		HD Perf	75	0.52	1.02	1.15	1.07	1.02
		BMF	25	0.07	0.26	0.65	0.93	1.04
		BMF	50	0.24	0.62	1.00	1.07	1.12
		ACOUSTITUFF™	25	0.14	0.45	0.99	0.97	0.55
		ACOUSTITUFF™	30	0.16	0.46	0.96	0.95	0.45
		ACOUSTITUFF™	50	0.33	1.01	1.17	0.99	0.64
		ULTRAPHON™	25	0.10	0.39	0.79	1.00	1.05
		ULTRAPHON™	30	0.13	0.52	0.97	1.08	0.96
		ULTRAPHON™	50	0.30	1.01	1.31	1.20	1.05
		HD Perf + Microfilm	50	0.32	1.14	0.94	0.48	0.22
Perf Metal	25	0.13	0.32	0.59	0.83	0.99		
Perf Metal	50	0.31	0.74	1.00	1.09	1.06		
Bradford Glasswool HT THERMATEL™	44	nil	50	0.42	0.74	1.10	1.12	1.08
		nil	75	0.51	1.10	1.18	1.08	1.02
Bradford Glasswool ULTRATEL™ Premium Ductliner	48	nil	25	0.03	0.24	0.65	0.98	1.07
		nil	50	0.34	0.65	1.23	1.11	1.08
		HD Perf	25	0.12	0.31	0.81	1.09	1.09
		HD Perf	50	0.95	1.17	1.15	1.09	1.04
		HD Perf	75	0.69	1.19	1.15	1.09	1.03
		BMF	25	0.08	0.30	0.71	0.99	1.07
		BMF	50	0.25	0.70	1.13	1.13	1.12
		ACOUSTITUFF™	25	0.05	0.55	0.65	0.90	0.70
ACOUSTITUFF™	50	0.30	0.75	0.90	0.85	0.65		
Bradford Glasswool QUIETEL™	130	nil	13	0.06	0.08	0.28	0.62	0.86
		nil	25	0.07	0.28	0.74	1.04	1.13
		nil	50	0.36	0.81	1.12	1.18	1.11

A C O U S T I C

Product	Sound Absorption			Static Insertion Loss (dB loss 600x600x4m test duct)							
	Frequency Hz		NRC	Octave Band Centre Frequency (Hz)							
	4000	5000		63	125	250	500	1000	2000	4000	8000
	(AS1045-1988 Reverberation Room Method)			(AS1277:1983 Acoustic Procedure for Ducted silencers)							
CSR Bradford Insulation Glasswool											
Bradford Glasswool	1.05	1.05	0.71								
FLEXITEL™	1.02	1.03	0.90								
	0.79	0.76	0.75								
	1.01	0.95	1.05								
	0.99	1.01	0.65								
	1.10	1.09	1.00								
Bradford Glasswool	30.99	0.94	0.74								
SUPERTEL™	1.04	1.03	1.01								
R-rated Ductliner	1.09	1.02	1.09								
	0.84	0.75	0.81								
	0.94	0.87	0.81								
	48.3	31.8	24.6								
	0.90	0.83	1.06								
	1.03	1.00	0.72								
	1.15	1.17	0.95	1.4	4.6	16.8	53.2	51.6	32.4	24.4	
	0.29	0.25	0.75								
	0.25	0.18	0.71								
	0.34	0.28	0.95	2.5	4.7	21.3	46.8	39.3	23.3	17.4	
	1.00	0.95	0.81	NB: ULTRAPHON™ silencer test results also available							
	0.90	0.90	0.88	Refer to your nearest Bradford Insulation Office							
	0.97	0.95	1.14	2.0	5.0	20.9	51.5	46.6	30.3	27.5	
	0.70	1.9	5.7	21.1	26.6	16.7	12.9	12.8			
	0.97	0.04	0.68								
	1.03	0.98	0.97								
Bradford Glasswool	1.00	0.87	1.00								
HT THERMATEL™	1.03	1.07	1.09								
Bradford Glasswool	41.03	1.01	0.74								
ULTRATEL™	1.02	0.98	1.02								
Premium Ductliner	0.91	0.89	0.83								
	1.03	0.99	1.11								
	0.92	0.90	1.12								
	1.08	1.16	0.77								
	1.12	1.12	1.01								
	0.50	0.50	0.70	1.6	4.1	17.2	40.1	21.9	15.6		
	0.50	0.60	0.79	4.9	14.2	39	37	22.4	18.6		
Bradford Glasswool	1.06	1.04	0.46								
QUIETEL™	1.09	1.11	0.80								
	1.12	1.22	1.05								

ACOUSTIC

Air Flow Resistance

Product	Air Flow Resistivity (mks Rayls/m)	Product	Air Flow Resistivity (mks Rayls/m)
Bradford Glasswool		Bradford Rockwool	
Building Blanket	5600	Building Blanket	13000
MULTITEL™	15300	FIBERTEX™ 350	22000
FLEXITEL™	16200	FIBERTEX™ 450	33000
SUPERTEL™ (plain)	18200	FIBERTEX™ 650	53000
(foil)	23400	FIBERTEX™ HD	70000
ULTRATEL™ (plain)	31500		
(foil)	30300		
QUIETEL™	55600		

Air Erosion

Product	Facing	Max Design Velocity (m/sec) (UL181-17)	Product	Facing	Max Design Velocity (m/sec) (UL181-17)
Bradford Glasswool	HD Perf	18	Bradford Rockwool	HD Perf	18
	BMF	22		BMF	22
	Perf Metal	23		Perf Metal	23
	ULTRAPHON™	26			
	ACOUSTITUFF™	30			

Sound Transmission Loss

Product	System	Sound Transmission Loss (Frequency Hz)								
		125	250	500	1000	2000	4000	5000	FSTC	
Bradford Rockwool	A	19	31	42	49	57	50	54	43	
SoundScreen™	B	23	32	43	51	59	50	56	45	
A = 70mm timber studs at 600mm cts, 10mm CSR Gyprock CD Plasterboard each side										
B = 70mm timber studs at 600mm cts, 10mm CSR Gyprock Soundchek Plasterboard each side										
Bradford Glasswool Partition Batts	50mm C	17	31	40	49	50	46	48	41	
Bradford Rockwool Partition Batts	45mm D	18	39	48	55	51	52	53	42	
C = 64mm steel studs, 1 x 13mm CSR Gyprock CD plasterboard each side										
D = 64mm steel studs, 1 x 13mm CSR Gyprock Fyrchek Plasterboard each side										

Maximum Service Temperatures

Product	Maximum Service Temperatures
THERMOFOIL™ and BMF facings	70°C Faced surface
ACOUSTITUFF™	70°C Faced surface
ULTRAPHON™	550°C No adhesive/Tapes
Bradford Glasswool	300°C
Bradford Glasswool HT	450°C
Bradford FIBERTEX™ Rockwool	350 – 820°C

Moisture Resistance

Exposure of Bradford Glasswool and FIBERTEX™ Rockwool to an atmosphere of 50°C and 95% relative humidity for four days results in moisture absorption of less than 0.2% by volume. Should Bradford Glasswool or FIBERTEX™ Rockwool insulation become wet, full thermal efficiency will be restored on drying out. Will not sustain mould.

Corrosion Resistance

Bradford Glasswool and FIBERTEX™ Rockwool products have a pH which is slightly alkaline and will not corrode mild steel. To maintain this condition protection must be provided against contamination from external sources. Bradford products are pH tested in accordance with ASTM C871:1989 and BS3958 Part 5:1986.



Bradford Insulation

CSR Building Solutions Web Site.
www.csr.com.au/bradford

Manufacturing Facilities.

CSR Bradford Insulation is a leading insulation manufacturer in Australia and Asia with manufacturing facilities located throughout the region.

AUSTRALIA.

- Glasswool factory, Ingleburn NSW.
- Rockwool factory, Clayton VIC.
- Thermofoil factory, Dandenong VIC.

ASIA.

- Glasswool factory, Zhuhai, China.
- Rockwool factory, Dongguan, China.
- Rockwool factory, Rayong, Thailand.
- Rockwool factory, Kuala Lumpur, Malaysia.
- Flexible Duct factory, Singapore.

Sales Offices.

AUSTRALIA.

State	Phone	Fax
Head Office	61 2 9765 7100	61 2 9765 7029
NSW	(02) 9765 7100	(02) 9765 7052
ACT	(02) 6239 2611	(02) 6239 3305
VIC	(03) 9265 4000	(03) 9265 4011
TAS	(03) 6272 5677	(03) 6272 2387
QLD	(07) 3875 9600	(07) 3875 9699
SA	(08) 8344 0640	(08) 8344 0644
NT	(08) 8984 4070	(08) 8947 0034
WA	(08) 9365 1666	(08) 9365 1656

INTERNATIONAL.

Country	Phone	Fax
New Zealand	64 9579 9059	64 9571 1017
Hong Kong	852 2754 0877	852 2758 2005
China (Glasswool)	86 756 551 1448	86 756 551 1447
China (Rockwool)	86 769 611 1401	86 769 611 2900
Thailand	66 2736 0924	66 2736 0934
Malaysia	60 3 3341 3444	60 3 3341 5779
Singapore	65 861 4722	65 862 3533

Health and Safety Information.

Information on any known health risks of our products and how to handle them safely is displayed on the packaging and/or the documentation accompanying them. Additional information is listed in product Material Safety Data Sheets available from your regional Bradford Insulation office or visit our website.

Warranty.

CSR Limited warrants its Bradford Insulation products to be free of defects in materials and manufacture. If a CSR Bradford Insulation product does not meet our standard, we will, at our option, replace or repair it, supply an equivalent product, or pay for doing one of these. This warranty excludes all other warranties and liability for damage in connection with defects in our products, other than those compulsorily imposed by legislation.

CSR Bradford Insulation is a business of CSR Limited A.B.N. 90 000 001 276.

CSR Limited is the owner of the following trade marks. AcoustiClad™, Acousticon™, Acoustilag™, Anticon™, Bradfix™, Bradford™, Comfort Plus™, Ductel™, Fibermesh™, Fibertex™, Fireseal™, Flexitel™, Flex-skin™, Gold Batts™, Multitel™, Quietel™, SoundScreen™, Spanseal™, Specitel™, Supertel™, ThermoClad™, ThermoMatel™, ThermoDeck™, Thermofoil™, Thermokraft™, Thermoplast™, Thermostat™, Ultratel™.

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