Ceiling Attenuation Class Systems

Ceiling Attenuation Class (CAC) ceiling systems display resistance to sound passing up and over a wall. The sound insulation rating given for the ceiling system indicates the sound reduction from one room to the next via the two ceilings and the above-ceiling plenum.

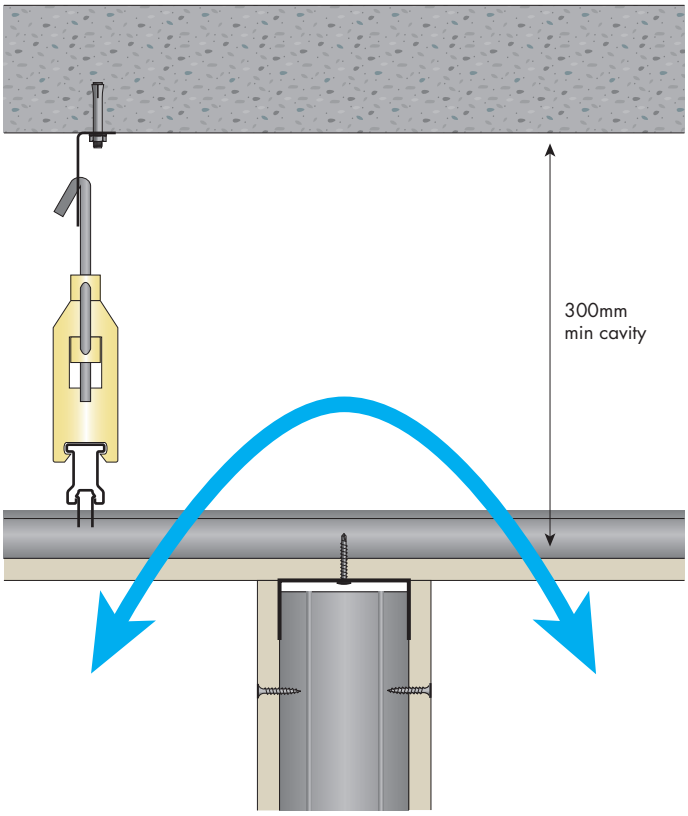
Rather than introduce another term to building designers such as CAC, the more familiar terms Rw and Rw + Ctr are used. CAC systems without a central barrier must have a maximum of 1 downlight every 5 m^2 and other penetrations acoustically treated in the rooms adjacent to the wall are required to maintain sound insulation performance.

[Refer to Section 3.1.1 Construction Details for wall to ceiling finishing details]

KCAC1-KCAC28

CEILING: [Option 1] Suspended ceiling frame with set plasterboard ceiling
[Option 2] T-bar exposed grid frame with ceiling tiles for system KCAC1

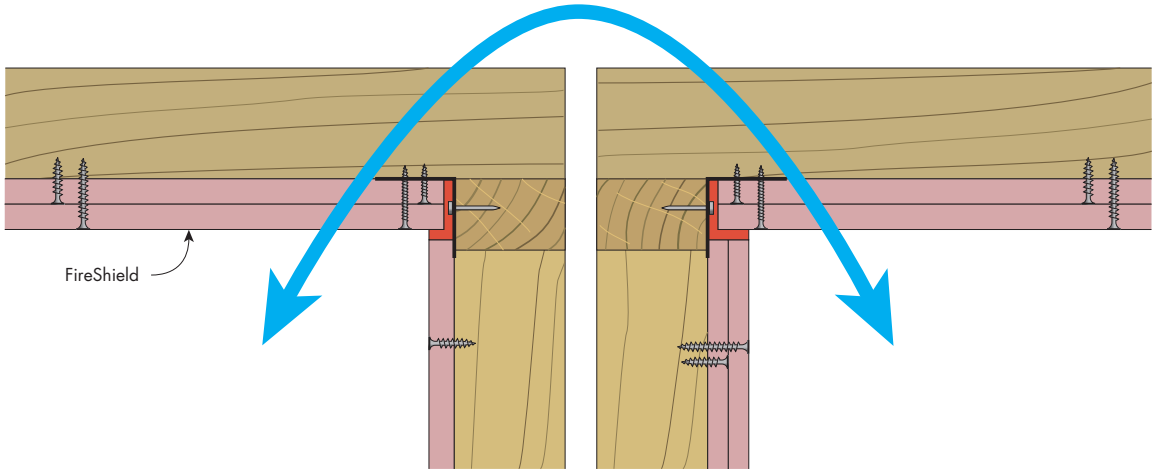
[All systems are suitable under a concrete slab, timber roof framing or steel roof framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]



System	Plasterboard Ceiling Lining	Airborne Sound Insulation Rw (Rw + Ctr)			
		No Insulation	50mm EarthWool 11 kg/m³ or 60mm Polyester ASB3 insulation above ceiling to 1200mm both sides of wall	50mm EarthWool 11 kg/m³ or 60mm Polyester ASB3 insulation over entire ceiling	
KCAC1	1 layer of 10mm SpanGrid ceiling tiles in exposed grid	36 (30)	41 (35)	43 (37)	Acoustic Report Day Design 4738-5
KCAC10	1 layer of 10mm MastaShield or SpanShield	38 (32)	43 (36)	45 (38)	
KCAC11	2 layers of 10mm MastaShield or SpanShield	43 (37)	47 (41)	48 (42)	
KCAC14	1 layer of 13mm MastaShield	41 (34)	45 (38)	47 (40)	
KCAC16	1 layer of 10mm Opal	41 (34)	45 (38)	47 (40)	
KCAC17	2 layers of 10mm Opal	44 (38)	48 (42)	49 (43)	
KCAC18	1 layer of 13mm SoundShield	43 (36)	47 (40)	48 (41)	
KCAC19	2 layers of 13mm SoundShield	49 (42)	52 (45)	52 (45)	
KCAC20	1 layer of 13mm FireShield	43 (36)	47 (40)	48 (41)	
KCAC22	1 layer of 16mm FireShield	43 (36)	47 (40)	48 (41)	
KCAC23	1 layer of 13mm FireShield plus 1 layer of 16mm FireShield	49 (42)	52 (45)	52 (45)	
KCAC24	2 layers of 16mm FireShield	49 (42)	52 (45)	52 (45)	
KCAC26	3 layers of 13mm FireShield	51 (44)	53 (46)	53 (46)	
KCAC27	1 layer of 13mm FireShield plus 2 layers of 16mm FireShield	51 (44)	53 (46)	53 (46)	
KCAC28	3 layers of 16mm FireShield	51 (44)	53 (46)	53 (46)	

KCAC120-KCAC128

CEILING: Set plasterboard ceiling divided by discontinuous wall frames and discontinuous joists or trusses
[Double stud wall timber or steel frame with minimum 20mm air-gap]
[All systems are suitable under roof or floor with timber or steel framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]



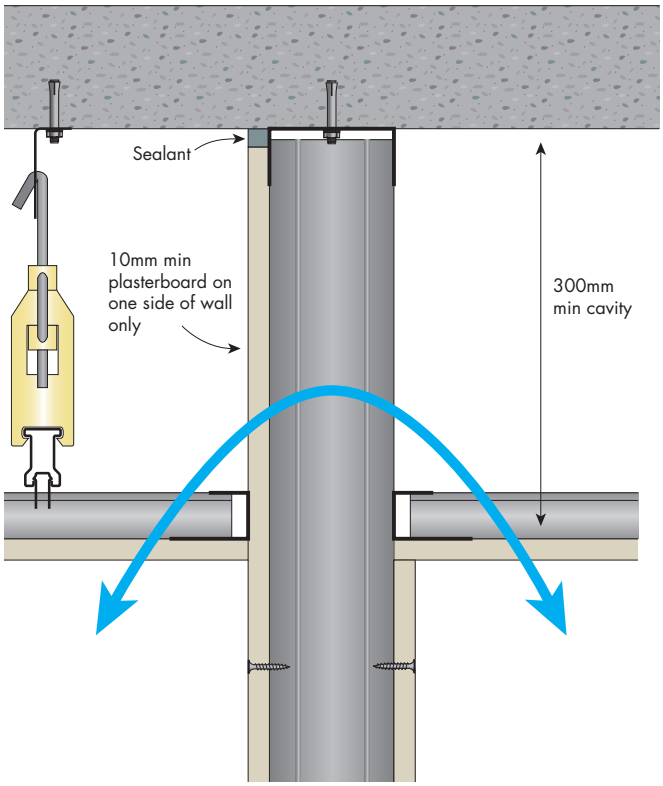
System	Plasterboard Ceiling Lining	Airborne Sound Insulation Rw (Rw + Ctr)			
		No Insulation	50mm EarthWool 11 kg/m³ or 60mm Polyester ASB3 insulation above ceiling to 1200mm both sides of wall	50mm EarthWool 11 kg/m³ or 60mm Polyester ASB3 insulation over entire ceiling	
KCAC120	1 layer of 13mm FireShield	49 (43)	54 (46)	56 (48)	Acoustic Report Day Design 4738-5
KCAC121	2 layers of 13mm FireShield	52 (45)	58 (48)	59 (**50**)	
KCAC122	1 layer of 16mm FireShield	42 (43)	55 (46)	56 (48)	
KCAC123	1 layer of 13mm FireShield plus 1 layer of 16mm FireShield	52 (45)	58 (48)	59 (**50**)	
KCAC124	2 layers of 16mm FireShield	52 (45)	58 (48)	59 (**50**)	
KCAC126	3 layers of 13mm FireShield	51 (46)	59 (49)	60 (**50**)	
KCAC127	1 layer of 13mm FireShield plus 2 layers of 16mm FireShield	56 (47)	59 (**50**)	60 (**50**)	
KCAC128	3 layers of 16mm FireShield	56 (48)	59 (**51**)	60 (**50**)	

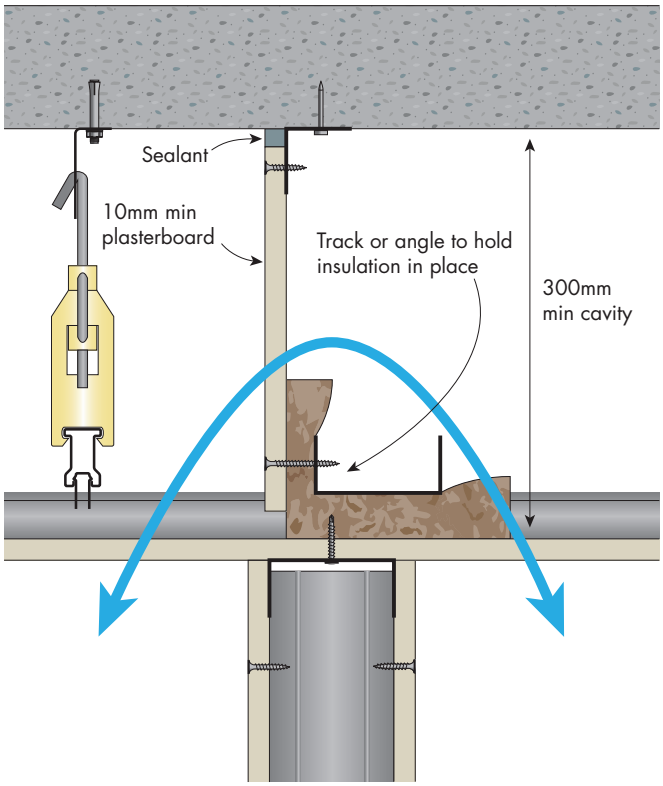
KCAC30-KCAC48

CEILING: [Option 1] Suspended ceiling frame with set plasterboard ceiling
[Option 2] T-bar exposed grid frame with ceiling tiles for system KCAC3

ABOVE CEILING: [Option 1] 10mm minimum plasterboard on one side of stud only, continued up to concrete slab or roof lining
[Option 2] 10mm minimum plasterboard fixed to concrete slab or roof lining with track or angle. Insulation placed above ceiling lining and held in place using track or angle.

[All systems are suitable under a concrete slab, timber roof framing or steel roof framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Wall to have equal or higher sound insulation rating than CAC ceiling]





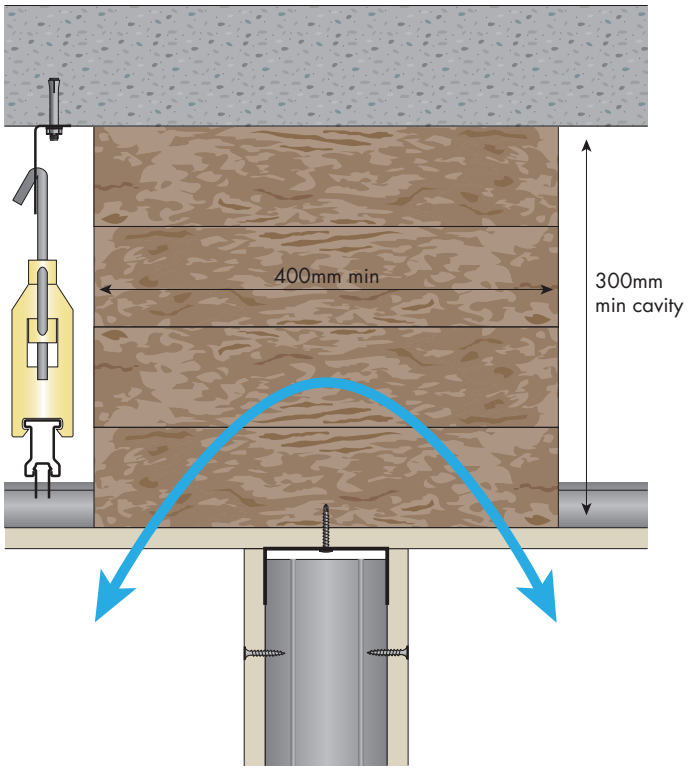
System	Plasterboard Ceiling Lining	Airborne Sound Insulation Rw (Rw + Ctr)			
		No Insulation	50mm EarthWool 11 kg/m³ or 60mm Polyester ASB3 insulation above ceiling to 1200mm both sides of wall	50mm EarthWool 11 kg/m³ or 60mm Polyester ASB3 insulation over entire ceiling	
KCAC3	1 layer of 10mm SpanGrid ceiling tiles in exposed grid	41 (35)	46 (40)	48 (42)	Acoustic Report Day Design 4738-5
KCAC30	1 layer of 10mm MastaShield or SpanShield	45 (37)	50 (42)	52 (44)	
KCAC31	2 layers of 10mm MastaShield or SpanShield	51 (41)	54 (44)	56 (46)	
KCAC34	1 layer of 13mm MastaShield	47 (37)	52 (42)	54 (44)	
KCAC36	1 layer of 10mm Opal	48 (38)	52 (42)	54 (44)	
KCAC37	2 layers of 10mm Opal	52 (42)	55 (45)	57 (47)	
KCAC38	1 layer of 13mm SoundShield	49 (39)	53 (43)	55 (45)	
KCAC39	2 layers of 13mm SoundShield	53 (43)	56 (46)	57 (47)	
KCAC40	1 layer of 13mm FireShield	49 (39)	53 (43)	55 (45)	
KCAC42	1 layer of 16mm FireShield	50 (40)	54 (44)	56 (46)	
KCAC43	1 layer of 13mm FireShield plus 1 layer of 16mm FireShield	53 (43)	56 (46)	57 (47)	
KCAC44	2 layers of 16mm FireShield	53 (43)	56 (46)	57 (47)	
KCAC46	3 layers of 13mm FireShield	55 (45)	57 (47)	58 (48)	
KCAC47	1 layer of 13mm FireShield plus 2 layers of 16mm FireShield	55 (45)	57 (47)	58 (48)	
KCAC48	3 layers of 16mm FireShield	55 (45)	57 (47)	58 (48)	

KCAC50-KCAC68

CEILING: [Option 1] Suspended ceiling frame with set plasterboard ceiling
[Option 2] T-bar exposed grid frame with ceiling tiles for system KCAC5

ABOVE CEILING: EarthWool or Polyester (minimum density 14 kg/m³) insulation baffle in 400mm wide strips to extend from ceiling to concrete slab or roof lining with no gaps or holes.

[All systems are suitable under a concrete slab, timber roof framing or steel roof framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]



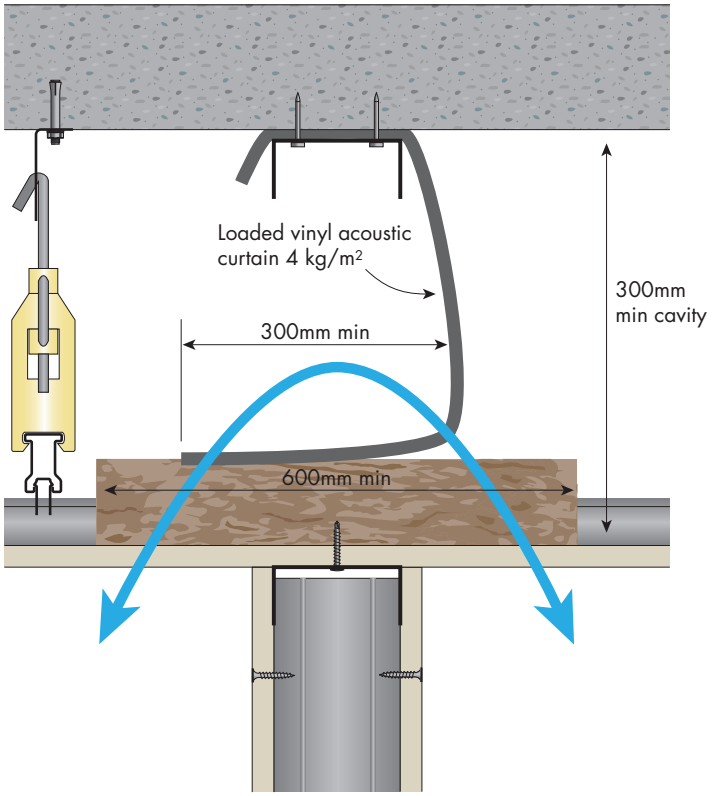
System	Plasterboard Ceiling Lining	Airborne Sound Insulation Rw (Rw + Ctr)	
		EarthWool or Polyester insulation (minimum density 14 kg/m³) above ceiling lining in 400mm minimum wide strips continued up to concrete slab or roof lining	
KCAC5	1 layer of 10mm SpanGrid ceiling tiles in exposed grid	43 (36)	Acoustic Report Day Design 4738-5
KCAC50	1 layer of 10mm MastaShield or SpanShield	45 (38)	
KCAC51	2 layers of 10mm MastaShield or SpanShield	52 (42)	
KCAC54	1 layer of 13mm MastaShield	50 (40)	
KCAC56	1 layer of 10mm Opal	50 (40)	
KCAC57	2 layers of 10mm Opal	53 (43)	
KCAC58	1 layer of 13mm SoundShield	51 (41)	
KCAC59	2 layers of 13mm SoundShield	53 (43)	
KCAC60	1 layer of 13mm FireShield	51 (41)	
KCAC62	1 layer of 16mm FireShield	51 (41)	
KCAC63	1 layer of 13mm FireShield plus 1 layer of 16mm FireShield	53 (43)	
KCAC64	2 layers of 16mm FireShield	53 (43)	
KCAC66	3 layers of 13mm FireShield	54 (44)	
KCAC67	1 layer of 13mm FireShield plus 2 layers of 16mm FireShield	54 (44)	
KCAC68	3 layers of 16mm FireShield	54 (44)	

KCAC70-KCAC88

CEILING: [Option 1] Suspended ceiling frame with set plasterboard ceiling
[Option 2] T-bar exposed grid frame with ceiling tiles for system KCAC7

ABOVE CEILING: Loaded vinyl sound insulation curtain (4 kg/m²) above wall to extend from ceiling to concrete slab or roof with no gaps or holes. 50mm EarthWool (minimum density 11 kg/m³) or 60mm Polyester ASB3 insulation placed above ceiling lining

[All systems are suitable under a concrete slab, timber roof framing or steel roof framing]
[Sound insulation numbers based on minimum 300mm cavity]
[Wall to have equal or higher sound insulation rating than CAC ceiling]

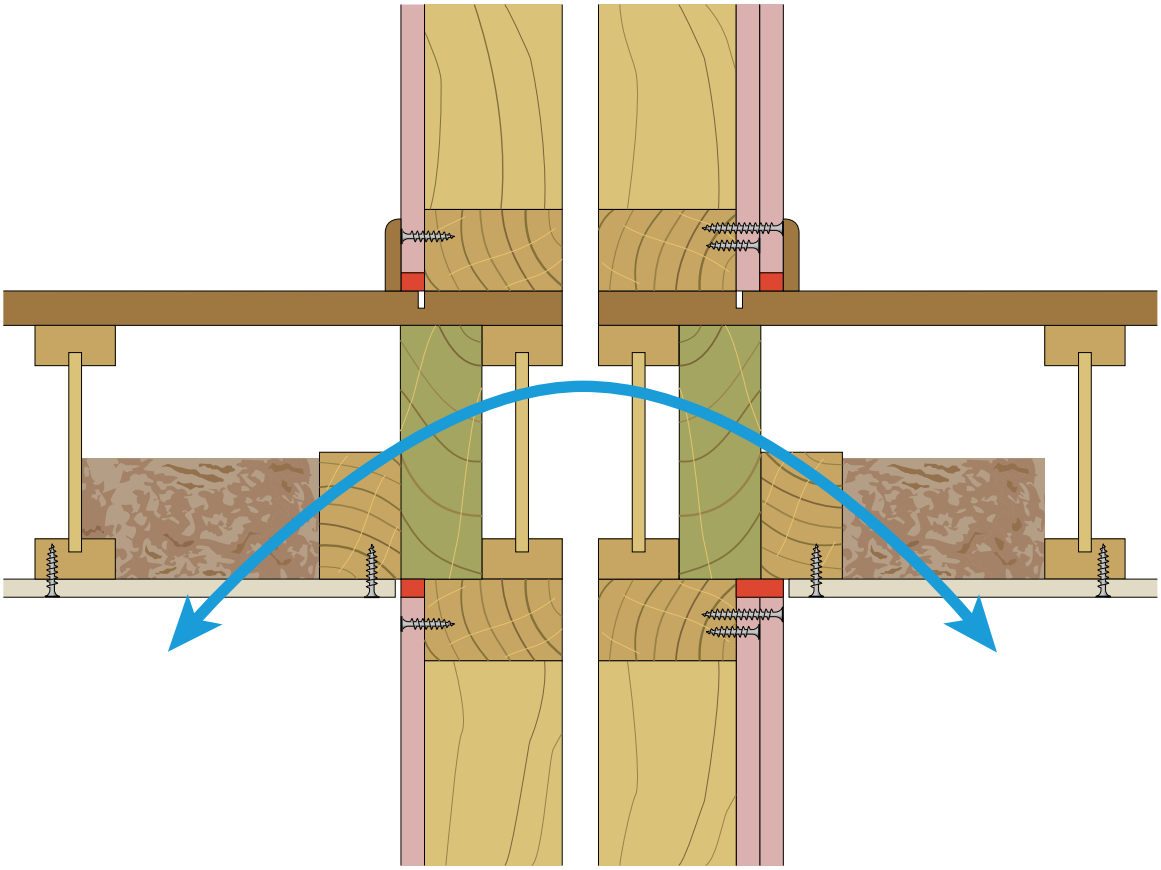


System	Plasterboard Ceiling Lining	Airborne Sound Insulation Rw (Rw + Ctr)	
		Loaded vinyl sound insulation curtain 4 kg/m² with 50mm EarthWool 11 kg/m³ or 60mm Polyester ASB3 insulation above ceiling lining in a 600mm min wide strip	
KCAC7	1 layer of 10mm SpanGrid ceiling tiles in exposed grid	44 (38)	Acoustic Report Day Design 3094-40
KCAC70	1 layer of 10mm MastaShield or SpanShield	47 (40)	
KCAC71	2 layers of 10mm MastaShield or SpanShield	52 (42)	
KCAC74	1 layer of 13mm MastaShield	50 (40)	
KCAC76	1 layer of 10mm Opal	50 (40)	
KCAC77	2 layers of 10mm Opal	53 (43)	
KCAC78	1 layer of 13mm SoundShield	51 (41)	
KCAC79	2 layers of 13mm SoundShield	54 (44)	
KCAC80	1 layer of 13mm FireShield	51 (41)	
KCAC82	1 layer of 16mm FireShield	52 (42)	
KCAC83	1 layer of 13mm FireShield plus 1 layer of 16mm FireShield	54 (44)	
KCAC84	2 layers of 16mm FireShield	54 (44)	
KCAC86	3 layers of 13mm FireShield	55 (45)	
KCAC87	1 layer of 13mm FireShield plus 2 layers of 16mm FireShield	55 (45)	
KCAC88	3 layers of 16mm FireShield	55 (45)	

KCAC130

CEILING: 10mm minimum plasterboard

[Sound Insulation numbers based on minimum 200mm cavity]

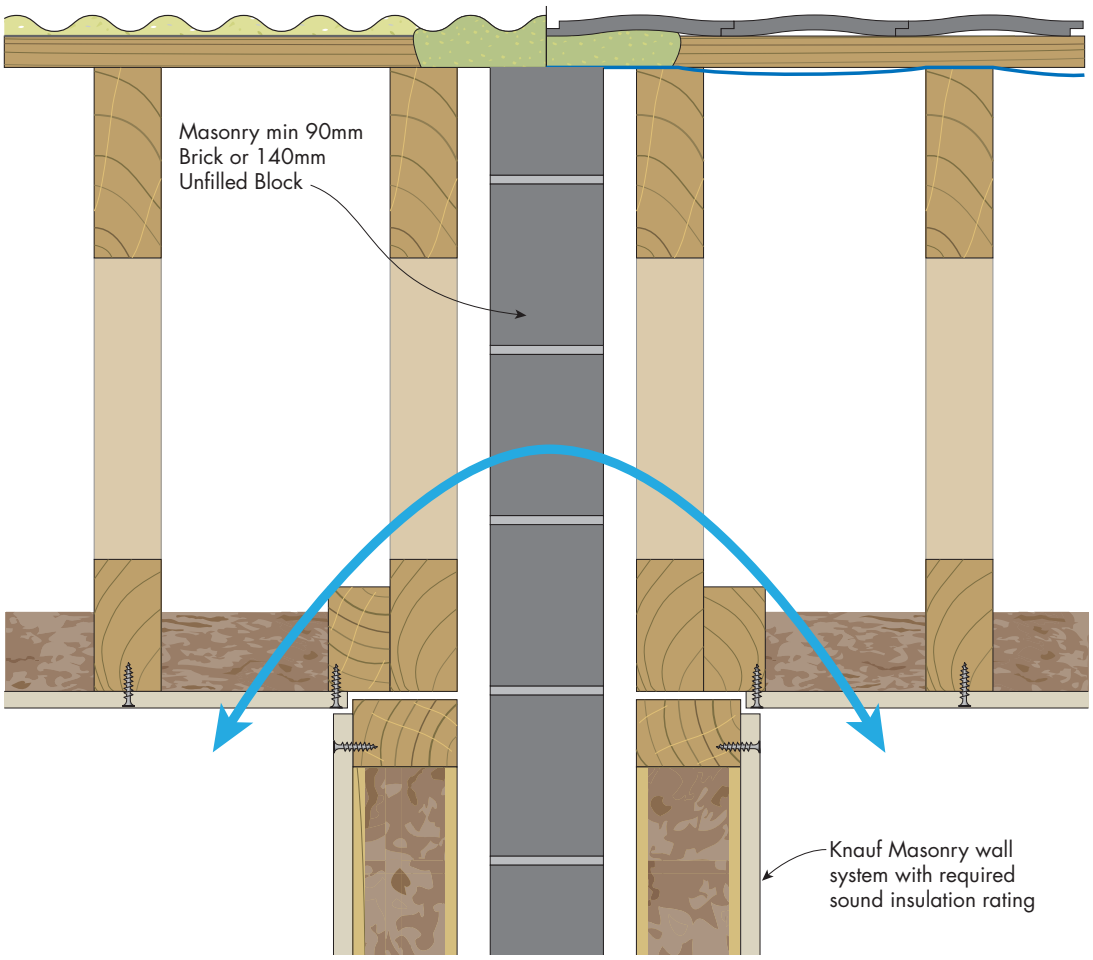


System	Plasterboard Ceiling Lining	Airborne Sound Insulation Rw (Rw + Ctr)		
		No Insulation	Minimum R1.5 EarthWool over the ceiling in adjacent cavities or 1200mm from wall	Acoustic Report Day Design 4738-16
KCAC130	1 layer of 10mm MastaShield or SpanShield	60 (50)	64 (54)	

KCAC140

CEILING: 10mm minimum plasterboard

[Masonry minimum 90mm brick or 140mm unfilled concrete block]
[Sound insulation numbers based on minimum 200mm cavity]

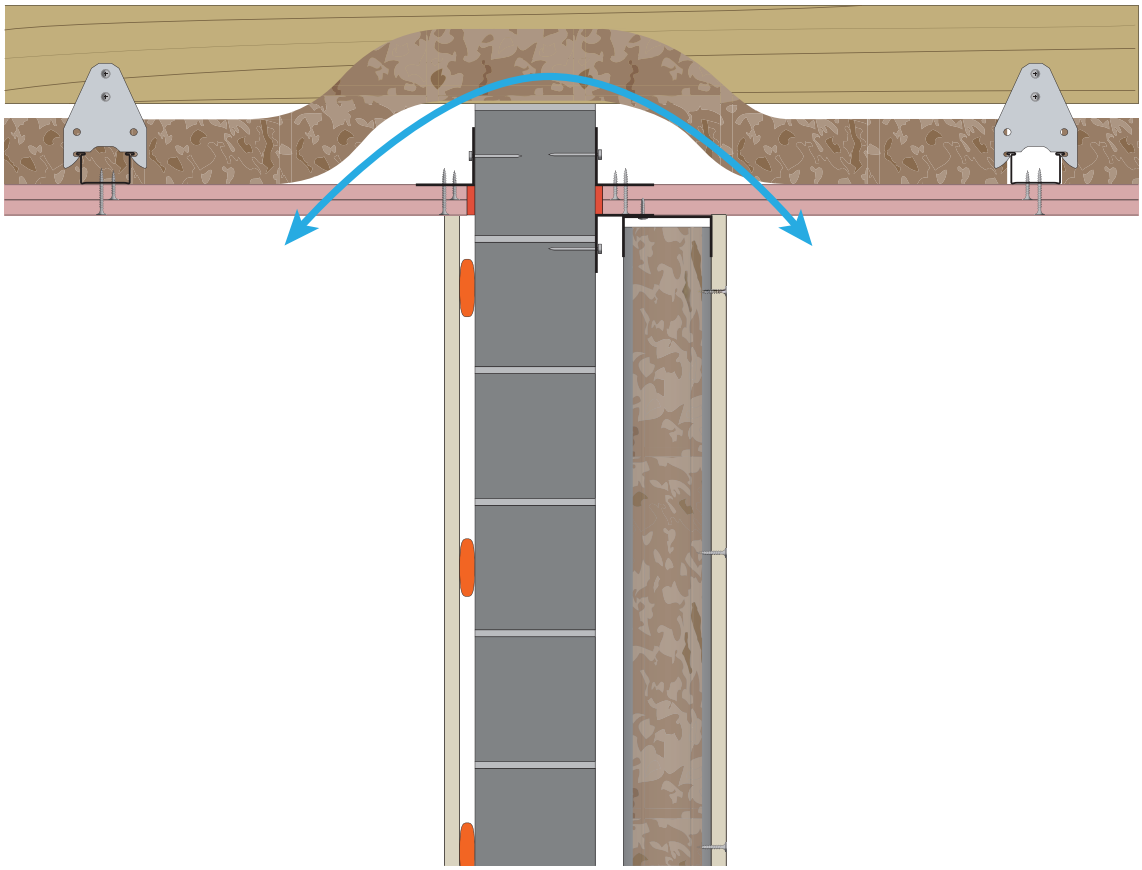


System	Plasterboard Ceiling Lining	Airborne Sound Insulation Rw (Rw + Ctr)		
		No Insulation	Minimum R1.5 EarthWool over the ceiling 1200mm from wall	Acoustic Report Day Design 4738-16
KCAC140	1 layer of 10mm MastaShield or SpanShield	58 (48)	60 (50)	

KCAC141

CEILING: 13mm **FireShield** and 16mm **FireShield** on clips and furring channel with a minimum 40mm cavity to the underside of the joists, rafters or trussers.

[Sound insulation numbers based on minimum 200mm cavity]
[Non-acoustic penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]

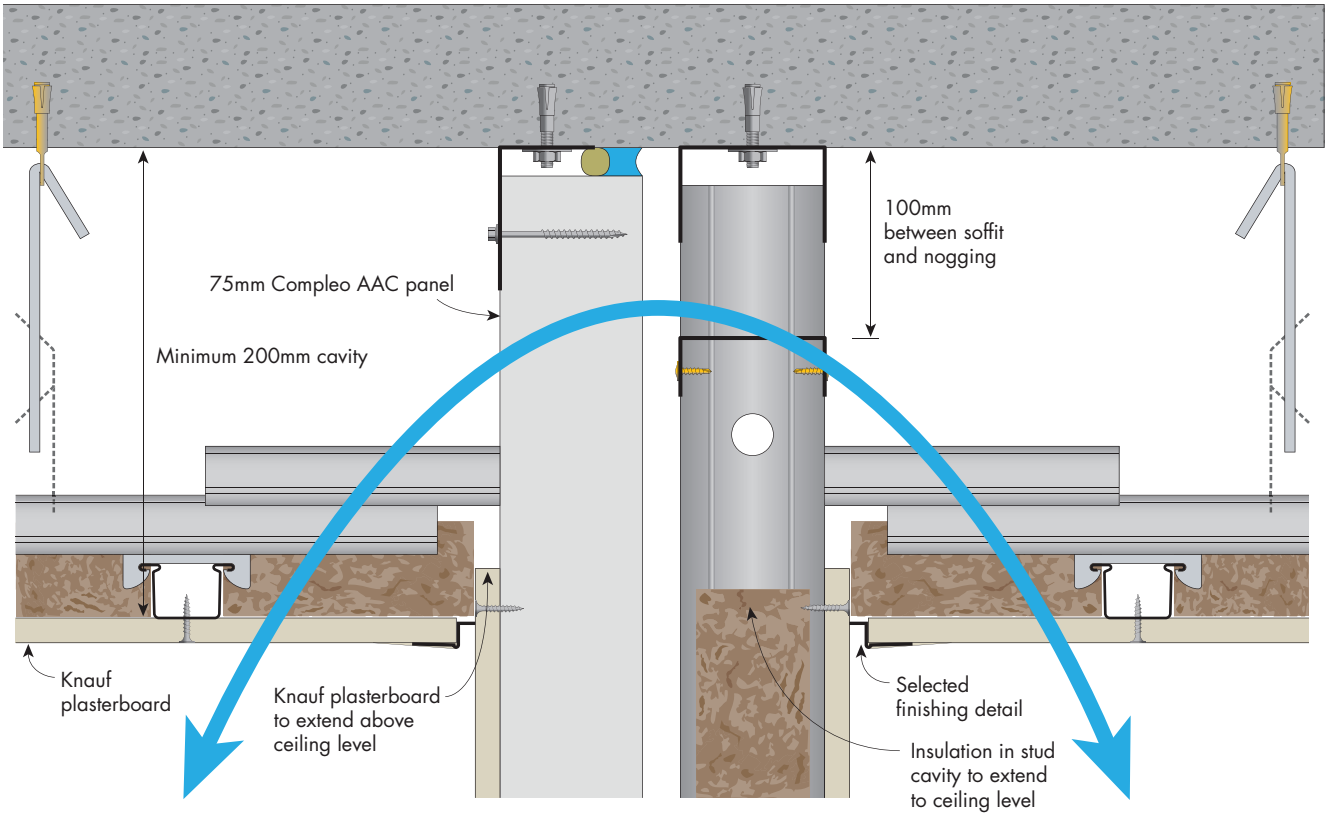


System	Plasterboard Ceiling Lining	Airborne Sound Insulation (Rw + Ctr)	
		Minimum R1.5 EarthWool over the ceiling 1200mm from wall	Acoustic Report PKA 215 085
KCAC141	13mm FireShield and 16mm FireShield	(50)	

KCAC150-KCAC151

CEILING: 10mm minimum plasterboard

[Sound insulation numbers based on minimum 200mm cavity]
[Wall to have equal or higher sound insulation rating than CAC ceiling]

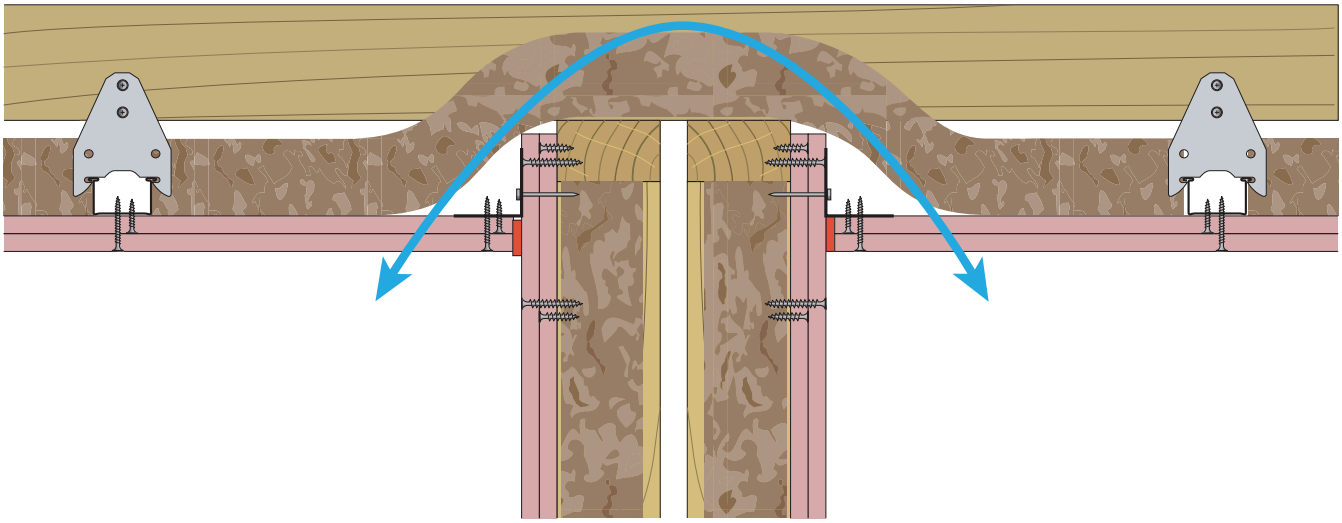


System	Plasterboard Ceiling Lining	Airborne Sound Insulation Rw (Rw + Ctr)		
		No Insulation	Min 50mm EarthWool 11 kg/m³ (min. 600mm on both sides of wall)	Acoustic Report Day Design 5008.10-1
KCAC150	10mm MastaShield or 10mm SpanShield	45 (40)	50 (45)	
KCAC151	13mm MastaShield	50 (45)	55 (50)	

KCAC160

CEILING: 13mm **FireShield** and 16mm **FireShield** on clips and furring channel with a minimum 40mm cavity to the underside of the joists, rafters or trussers.

[Sound insulation numbers based on minimum 200mm cavity]
[Non-acoustic penetrations in ceiling lining may degrade sound insulation performance]
[Wall to have equal or higher sound insulation rating than CAC ceiling]



System	Plasterboard Ceiling Lining	Airborne Sound Insulation (Rw + Ctr)	
		Minimum R1.5 EarthWool over the ceiling 1200mm from wall	Acoustic Report PKA 215 085
KCAC160	13mm FireShield and 16mm FireShield	(50)	