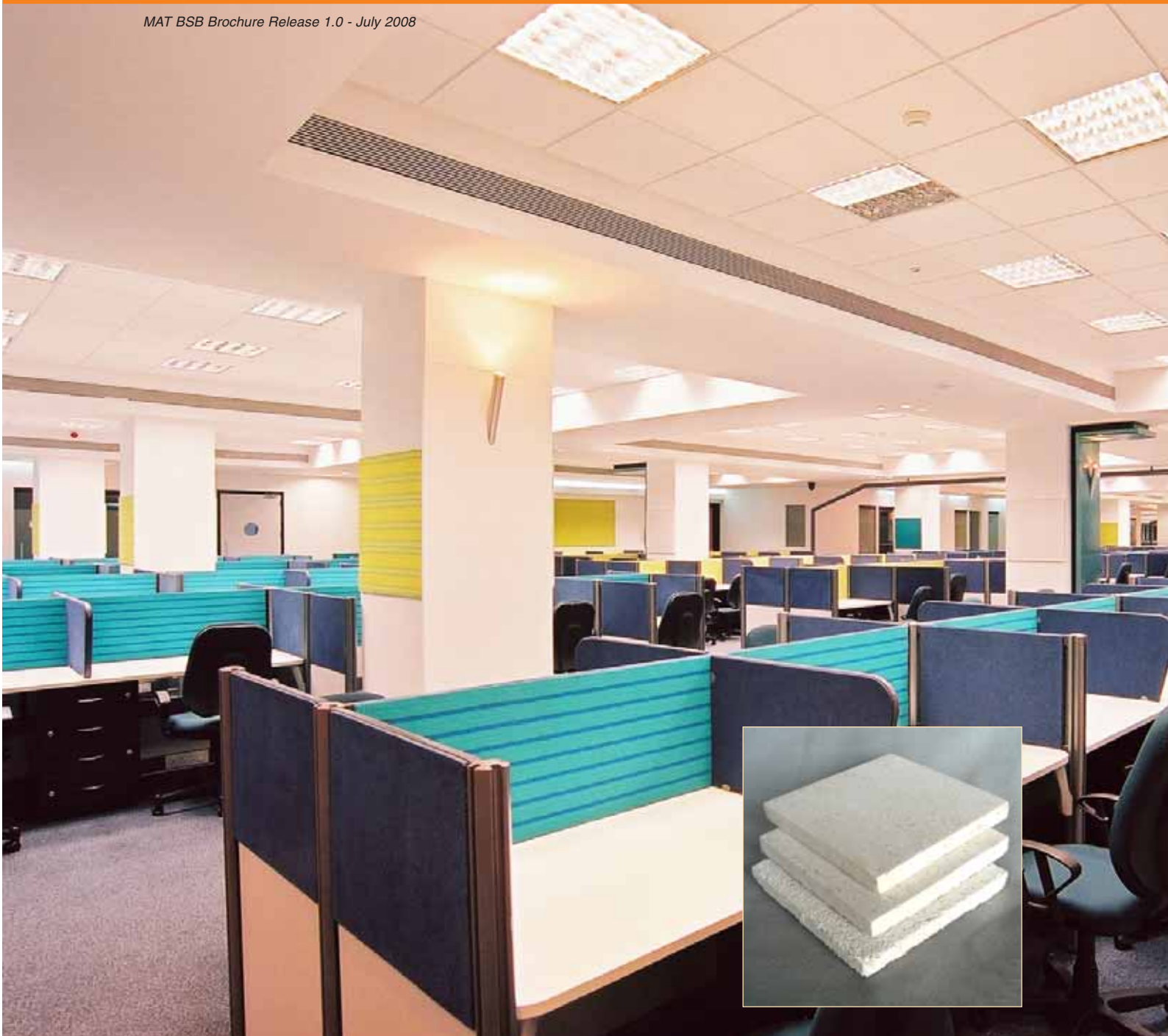


MAT™ BSB

MAT™ BSB Plus

MAT BSB Brochure Release 1.0 - July 2008



- Fire Propagation Index – 9.00 - BS 476 Part 6
- Surface Spread – Class I - BS 476 Part 7
- Specific Optical Density of Smoke - Flaming Exposure 25.00 Dm (Corr) - ASTM E662
- Thermal Conductivity – 0.10 Wm/k - IS 3346

Logistics

Panels are neither primer painted nor carton packed. Sold in loose for bulk orders. Carton packing for smalls is optional.

Site Considerations

MAT™ BSB and MAT BSB Plus must be stored on a flat, dry surface. At no point must panels be allowed to come in contact with water. Individual panels must be carefully handled and installed.

Installation surfaces must be dry and level. Proper sealing of joints with SoundFire™ and SoundSeam™ is important for the noise isolation performance of MAT™ BSB and MAT BSB Plus.

Economics

MAT™ BSB on either side of SoundStudd™ SC48 is techno-commercially economical for the lifecycle cost of the noise isolant partition system.

Warranty

10 years SoundSurety™ - limited warranty - on the assembled system when installed and maintained to Anutone's specifications.

Architectural Specifications

Scope – Design, Supply, Build of MAT™ BSB per approved drawings and specifications, by Anutone Acoustics Limited, an ISO 9001 2000 company.

Caulking - Apply SoundFire™, two bead lines on the floor, walls and roof that are to receive the SoundStudd™ framework.

Framework – SoundStudd™ consisting of FC/HC floor/head channels and SC Stud Channels fixed at 600mm centres.

Infill - SoundSynth™ is positioned between the SoundStudd™ SC channels and retained with SoundStick S7 adhesive.

Acoustical Panels – MAT™ BSB, Size 600x1200x18mm, installed on SC. The short edges of the panels are staggered.

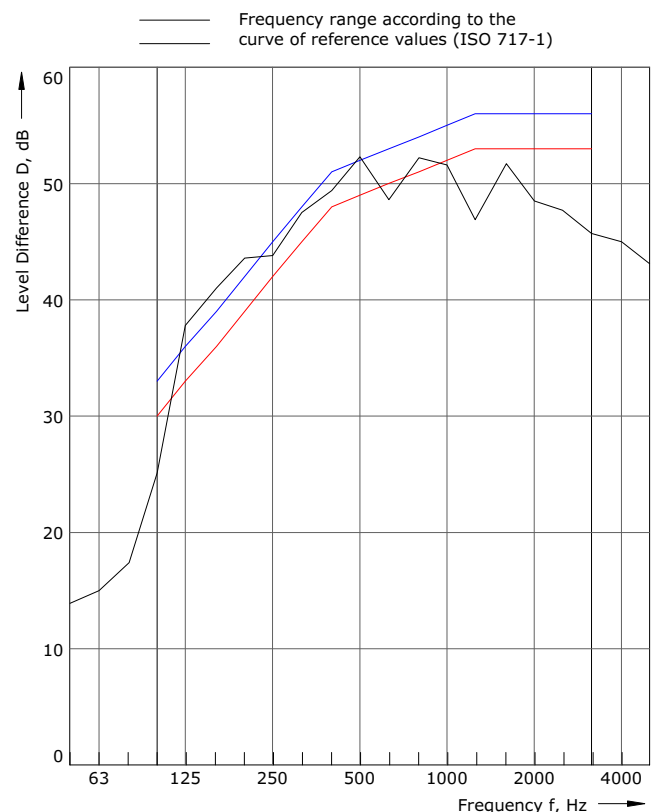
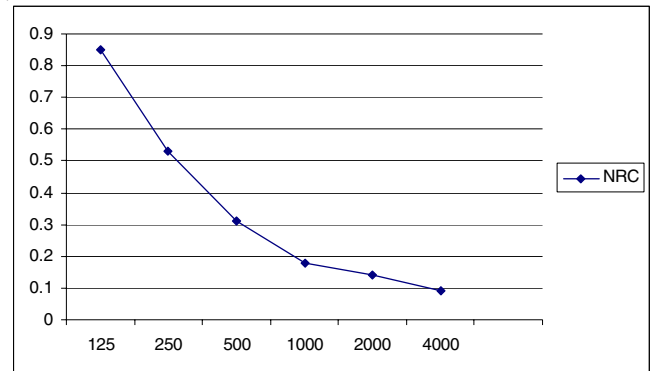
Joints and Finish – SoundFire™ is 'beaded in' and SoundSeam™ is flush-applied to the butt joints sealing them. The finishing panel - gypsum/calcium/magnesium/cement/plywood is then installed on the MAT™ BSB layer.

Acoustical Parameters

Sound Absorption as per ISO 354 for 1 layer of MAT™ BSB on C50 mounting with SoundSynth™ 10x50. Noise Isolation as per ISO 140-3 for 2 layers of MAT™ BSB on either side of SoundStudd™ SC50 with an acoustic infill of SoundSynth™ 10x50.

Hz	NRC	dB
125	0.85	37.8
250	0.53	43.8
500	0.31	52.3
1000	0.18	51.6
2000	0.14	48.5
4000	0.09	45.0

NRC 0.29; Dw 49



INSTALLATION GUIDELINES

Part One - Pre-installation

Designing

Anutone through its own special design team undertakes the acoustical, visual and spatial designing of rooms.

Anutone takes a holistic view of the multi-sensory perception factor - the harmonious play of the five senses - so important for achieving occupancy comfort.

Necessary software, modelling techniques and project experience guarantee the ultimate in performance.

Low-frequency induced vibration, HVAC noise control, flanking paths, openings treatment, building junctions, sound absorption areas, loudspeaker placement etc, often the reason for poor acoustic performance, are all micro considered.

Also considered in detail are optimum colours and lighting for video imaging, display formats, visual angles, seating layout, ergonomics, comfort, life safety etc.

Large-format computer drawings are generated for easy site interpretation. Limitations of project sites is known and idiotproof systems developed.

Hand-holding the project management team and post-installation testing ensures completion of the project cycle - a one-stop design solution.

Supplying

All specified products are supplied by Anutone as per Ordering Checklist. There is no mix and match, no uncertainty.

Compatible products that link the design chain and conform to international standards means Anutone is the one-stop single-source turnkey solution for products.

Contracting

Installation of the room's various components is undertaken by authorised applicators.

Such rooms represent a speciality installation and it is strongly recommended to engage the trained skillsets of experienced personnel that use state-of-the-art technologies that include modern tools - electric, pneumatic, gas - as required for project sites.

Personnel must be trained and skilled to undertake complex installations and render a complete finish.

Preparation

Ensure the building elements like floor, walls and roofs to which the SoundSuite™ Room's elements will be junctioned are complete, finished, level, cured and dry, prior to commencing the work.

Ensure all materials as per Ordering Checklist and Finishing Tools Checklist required to make this technical installation are fully available at site.

Do not commence work with an incomplete checklist.

Human reach is optimal for 2 m height and hence ensure appropriate scaffolding equipment like 2 m platforms or stilt tools etc adequately available at site.

Ensure safety equipment that includes goggles, nose mask, gloves are available to all installation personnel. If site requirements include hard hat then the same should also be worn.

For walls upto 4 m height, safety nets and belts are not necessary. Ensure First Aid box, fully stocked, always at site.

Other building trades that need to simultaneously work with the SoundSuite™ Room construction like HVAC, electric, piping, AV/IT cabling etc should be ready with their materials and equipment.

Do not commence work if others are not fully ready.

Ensure final approved project drawings are available at site and understood by the hands on personnel executing the SoundSuite™ Room system.

Marking of the boundary lines of the SoundSuite™ Room must be made on the building elements as per approved drawings with either chalkstring or laser leveller tool.

Part Two - Framework

Caulking - SoundFire™

Apply SoundFire™ - a noise and fire rated, non-hardening resilient caulking compound - with an appropriate caulking dispenser tool - two bead lines of 6 mm at a pitch that divides the SoundStudd™ FC & HC metal framework footprint depth equally on the floor and roof that are to receive the partition walls. (See Fig 1)

SoundFire™ bead lines are also applied where SoundStudd™ SC50 would abut the building walls.

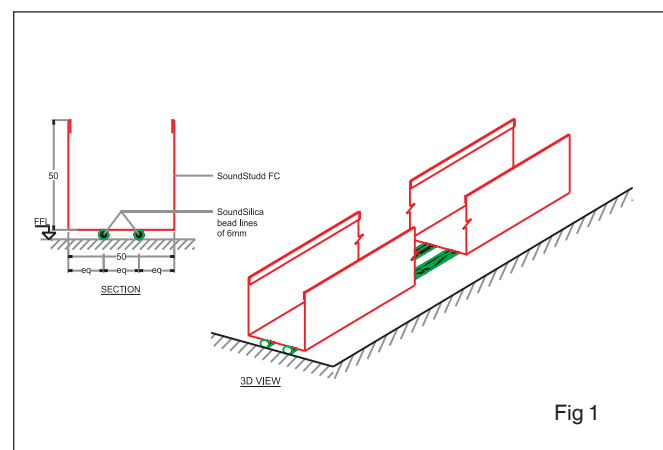


Fig 1

All surfaces must be level, clean and dry prior to the application of SoundFire™ caulking compound

Padding - SoundStand™ Neo

Optional - Where base floor is highly uneven or structural vibration, that is induced by low frequency (LF) soundwaves or mechanical equipment, is envisaged, SoundStand™ Neo pads (an ideal blend of neoprene and rubber with vibro-acoustic control characteristics) of specified thickness and hardness, usually 5 mm thick and 55 duro hardness, are installed on the floor with SoundFire™ bead lines and again SoundFire™ bead lines applied on the pad to received the SoundStudd™ framework. (See Fig 2)

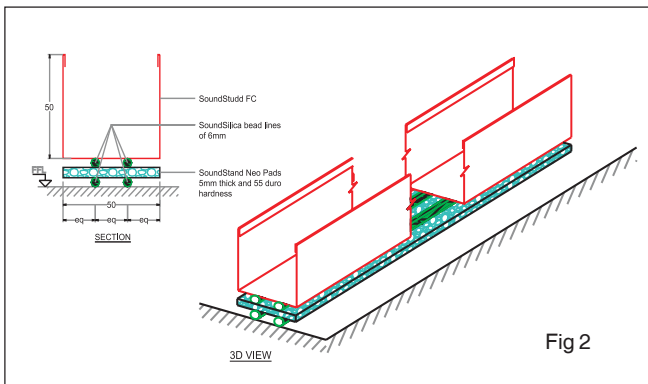


Fig 2

Framework - SoundStudd™

Anutone's superior metal framing that boasts KEN features of Knurling, Edge seaming and Notching is used for the wall skeleton.

SoundStudd™ Floor Channel (FC) and Head Channel (HC) of specified depth, usually 50 mm, are mechanically fastened to the building elements with SoundStitch™ PB - mechanical fasteners - at 300 mm pitch with a electric self-drilling tool. (See Fig 3) For SoundStitch™ PB, holes are first drilled in the concrete, plugs inserted and the screws fastened. Where base masonry is weak, SoundStitch™ AB expansion bolts are inserted for better grip.

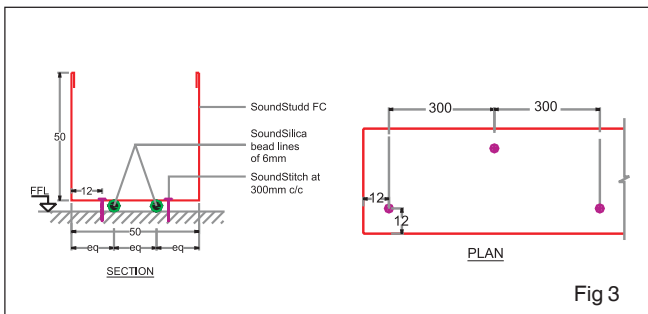


Fig 3

Optional - If slab deflection is envisaged then the SoundStudd™ Deflection Head Channel (DHC) is used for positive attachment and movement.

SoundStudd™ Stud Channels (SC) of specified depth, usually 48 mm, are then inserted in the FC/HC and twisted into position at 600 mm centres. (See Fig 4)

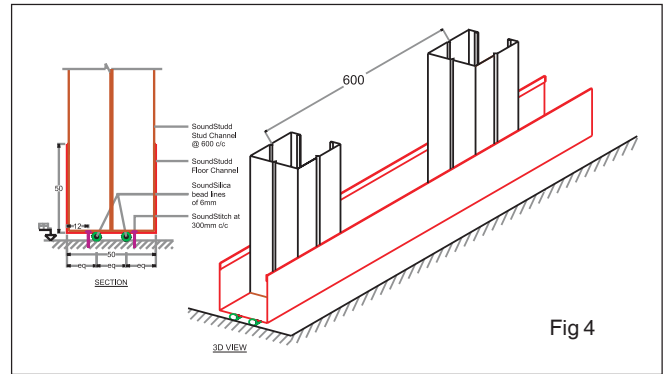


Fig 4

Optional - If LF-induced vibration is envisaged then SoundStudd™ Resilient Channels (RC) are installed perpendicular to the SoundStudd™ SC.

Alternatively, SoundSway™ resilient wall braces are installed on the SoundStudd™ SC50 at 1200mm vertical centres and 600mm horizontal centres. The SoundSway™ are fitted with SoundStrut™ CC22 channels at 600mm centres, as shown. (See Fig 5)

Raceways are then installed in the 50mm void created in the SoundStudd™ system for cable management (by others, not by Anutone).

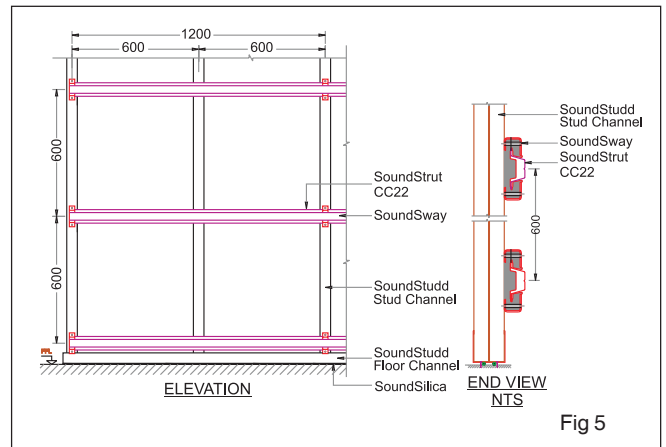


Fig 5

For openings, like windoors (windows/glazing and doors), ducting etc SoundStudd™ Box Channel (BC) or a pair of mated SoundStudd™ SC50 channels are used for additional reinforcement. The BC/SC channels are connected at right-angle joints with SoundStudd™ L-Clamps (LC). (See Fig 6)

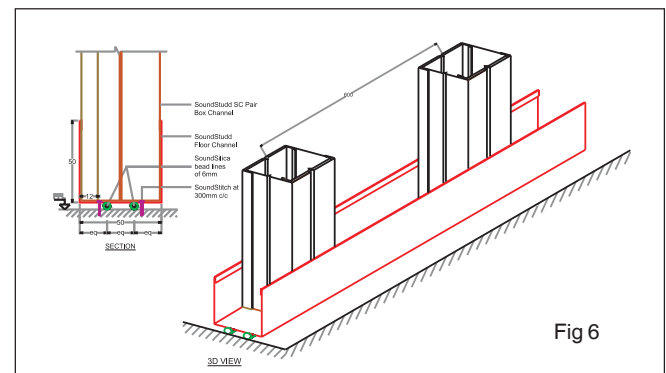


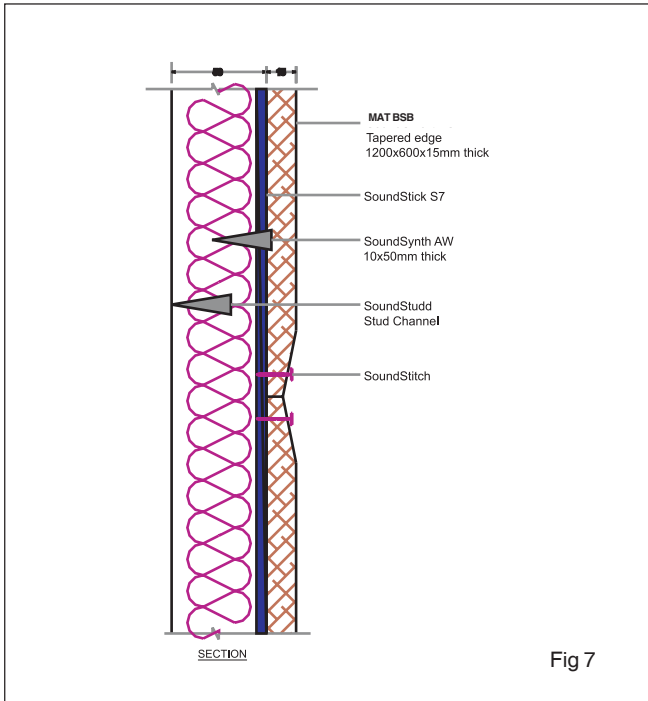
Fig 6

If HC / FC / SC channels need to be mechanically connected then use SoundStitch™ BTH813 fasteners (Code OC5-8-18x13-BTH-RP)

Part Three - Infill

Infill - SoundSynth™ AW with SoundStick™ S7

SoundSynth™ AW - a thermally-bonded, chemically-free, polyester-wadding acoustic infill - of specs 10x50 and factory-sized 600mm width is positioned in between the SoundStudd™ air cavity and retained by adhering with SoundStick™ S7, a contact adhesive, onto the framework.



Alternatively, SoundSynth™ AW is installed after one layer of MAT™ BSB panels are installed on one side of SoundStudd™ and retained by adhering with SoundStick™ S7 onto the BSB panels. (See Fig 7)

SoundSynth™ AW is EHS-friendly and, unlike synthetic mineral fibres (SMF) - fibreglass wool or mineral wool, encapsulation in protective polyethylene film or tissue paper is not necessary.

Part Four - Panels

Panels - MAT™ BSB

MAT™ BSB/MAT™ BSB Plus acoustical panels of specified thickness, tapered edge profile, density and dimensions, usually 1200x600x15mm, are then mechanically fastened to the SoundStudd™ with SoundStitch™ DCSK720 at 600 mm centres by the electric self-drilling tool. 6 nos. SoundStitch™ DCSK720 for panel dimensions of 1200x600mm are fastened 12 mm from the panel edge.

The MAT™ BSB panels are butt jointed but staggered (ashlar pattern). The V-notch on the SoundStudd™ SC50 helps to sightline the joints.

Optional - To deliver an integrated and monolithic construction for superior noise isolation and prevent 'rattling' sound due to low-frequency excitation, the panel edges, their contact points with the SoundStudd™ metal framework and the SoundStitch™ mechanical fasteners, are all coated with SoundStick™ JB. Added advantage is an alteration in the natural resonant sound frequencies of the various components and superior seismic resistance (earthquake-proof).

Next, a second layer of MAT™ BSB/MAT™ BSB Plus panels of specified thickness, tapered edge profile, density and dimensions, usually 1200x600x15mm, are then mechanically fastened to the SoundStudd™ with SoundStitch™ DCSK730 at 600 mm centres by the electric self-drilling tool. 6 nos. SoundStitch™ DCSK730 for panel dimensions of 1200x600mm are fastened 12 mm from the panel edge.

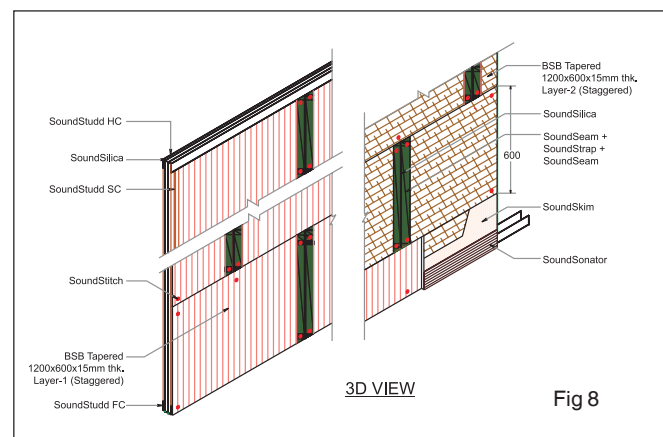
This second layer is installed on a bead of SoundFire™ caulking compound for those panel perimeters that abut the masonry floor / wall / ceiling.

The second layer of MAT™ BSB/MAT™ BSB Plus is staggered 300 and 600 mm, vertically and horizontally, respectively, such that no joints of the first and second layer coincide. This not only assists in superior noise isolation techniques but also ensures the SoundStitch™ fasteners are suitably spaced.

To achieve this the second layer bottom panel, is half-sized with an electric cutting tool. The BSB outer panels abutting the floor, wall and ceiling are caulked with SoundFire™. (See Fig 8)

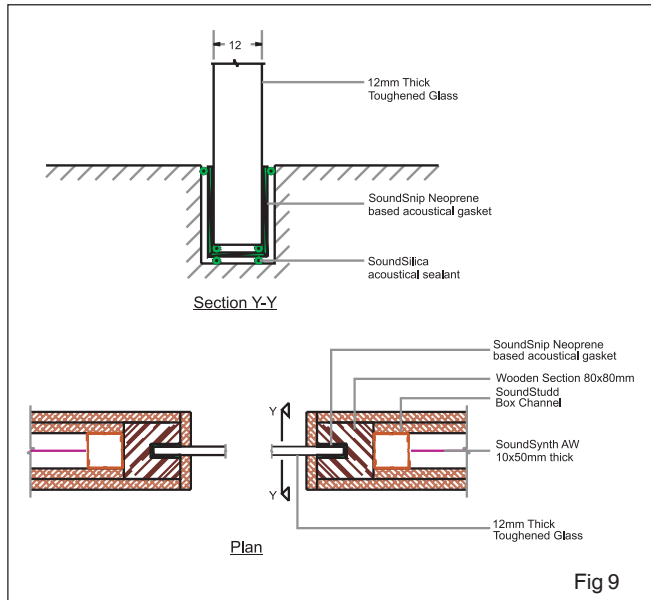
Sealing - SoundSilica™/ SoundFire™

All the butt joints of the MAT™ BSB are first sealed with a continuous bead of SoundSilica™ fire-rated acoustical sealant by means of a caulking dispenser tool - the SoundSilica™ cartridge gun.



Sealing - Glazing

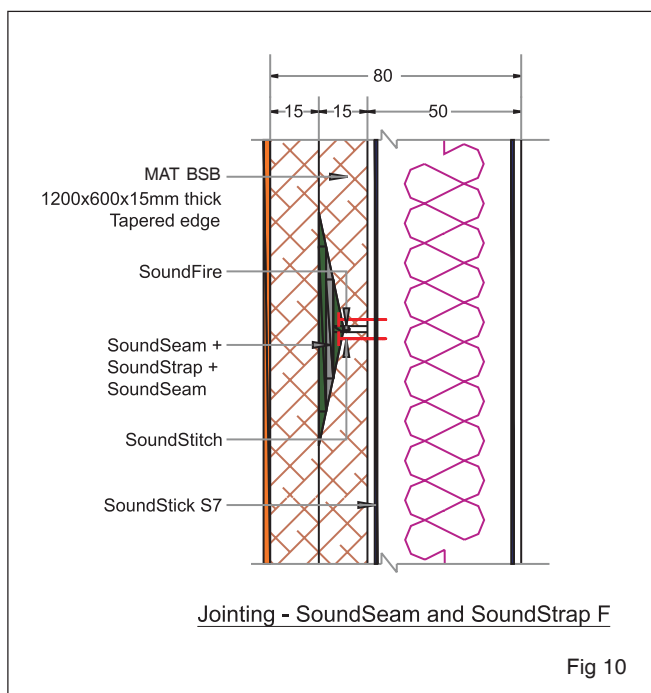
Optional - If glazing is used in conjunction with the 110mm acoustical partition walls of the room, then SoundSnip™ neoprene-based acoustical gaskets with SoundSilica™ acoustical sealant is used at the junction of the dissimilar materials. (See Fig 9)



If two glass panels are butt jointed for continuous visual clarity then SoundSilica™ acoustical sealant must be injected into the joint depth. It is recommended the glazing matches the STC rating of the 110mm thick acoustical partition. The glazing must consist of at least 12mm thick laminated glass to isolate the sound waves in the speech frequencies.

Jointing - SoundSeam™ and SoundStrap™ F

Jointing of BSB panels is either manual with spatula tool or mechanised with taping banjo / automatic taping machine tool.



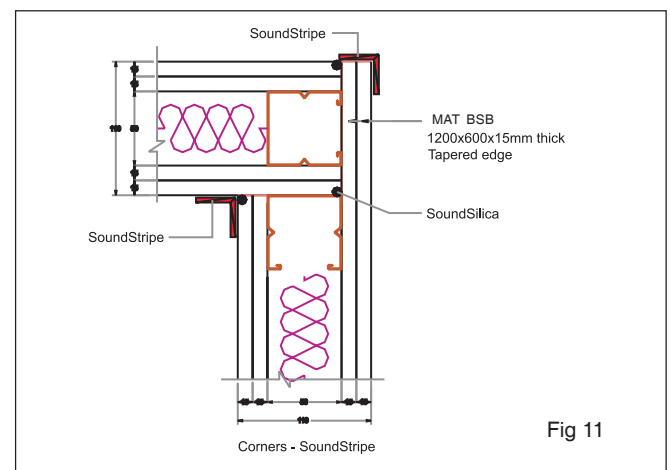
For the SoundSmart™ BSB panels with TaperEdge, SoundSeam™ is applied 1 mm thick, then SoundStrap™ F is applied and again SoundSeam™ 1 mm thick is applied. (See Fig 10)

On drying the joints are sanded with a pole sander tool using grit 150 sandpaper.

Corners - SoundStripe

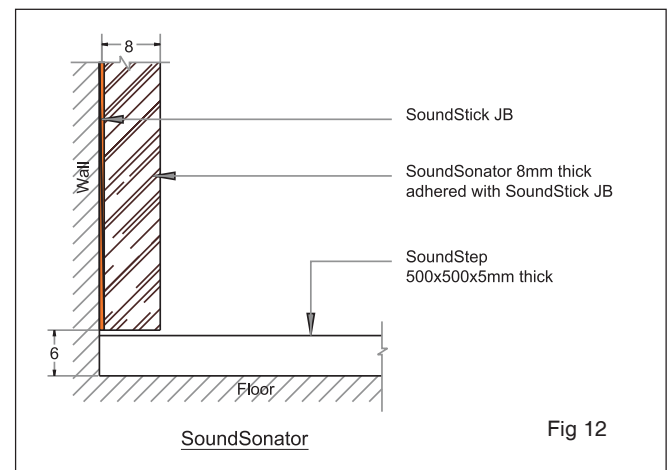
SoundStripe™ is installed at the outside and inside corners including ceiling-wall junctions for the perfect angular alignment, corner straightness and sharpness, plus the added advantage of resistance to post-occupancy abuse. (See Fig 11)

SoundStripe™ is dipped in SoundSeam™ using a special tool and embedded in the corner joints of the MAT™ BSB.



Skirting - SoundSonator™

The wall-floor junction is offset with a 150mm high skirting of 8mm thick SoundSonator™. The SoundSonator™ is adhered on the second layer of BSB with SoundStick™ JB. Optional - Care is taken to ensure the lower edge of SoundSonator™ is raised 6mm from the floor to accommodate the 5mm thick SoundStep™ acoustic carpet tiles. (See Fig 12)



Part Five - Openings

Penetrations - MAT™ BSB, SoundSeam™ etc

All penetrations to the walls of the room must achieve the same noise isolation to ensure overall acoustical effectiveness.

The perimeter of all openings must be ringed with SoundStudd™ BC and receive two layers of MAT™ BSB similar to the wall. All panel joints must be sealed with SoundSeam™ and SoundStrap F.

Optional - Where HVAC duct vibration is likely, a layer of SoundStand™ Neo, 110mm depth x 5mm thick x 55 duro hardness is adhered onto the opening with SoundStick™ S7. (See Fig 13)

HVAC noise control - SoundSplit™

For supply air, SoundSplit™ noise attenuators may be installed if the walls of the room form the boundary of the acoustically-sensitive architectural space.

Similarly for return air, either SoundSplit™ or SoundSieve™ acoustical louvres may be installed. These are friction

fitted (and joints sealed) in the treated wall openings that are created above the false ceiling level in the plenum space. (See Fig 13)

Optional - If roof or duct vibration is an issue the SoundSplit™ attenuators may be suspended from the roof by SoundSuspend™ AF acoustical hangers.

It is strongly recommended that the internal lining of the HVAC ducting for sound absorption and thermal insulation is done with SoundSconz™ Sonex™ acoustical melamine foam and not Synthetic Mineral Fibres (SMF) as the latter is not EHS-compliant.

Doors - SoundStay™

SoundStay™ wooden frame-shutter assemblies are installed as per aesthetics and acoustics requirements, the latter usually being STC40. (See Fig 14)

Optional - If SoundStay™ acoustical doors are not opted for then SoundSnip™ NN acoustical gaskets must be used in the wooden frame-shutter assemblies of custom-made doors by the fitout vendor. The

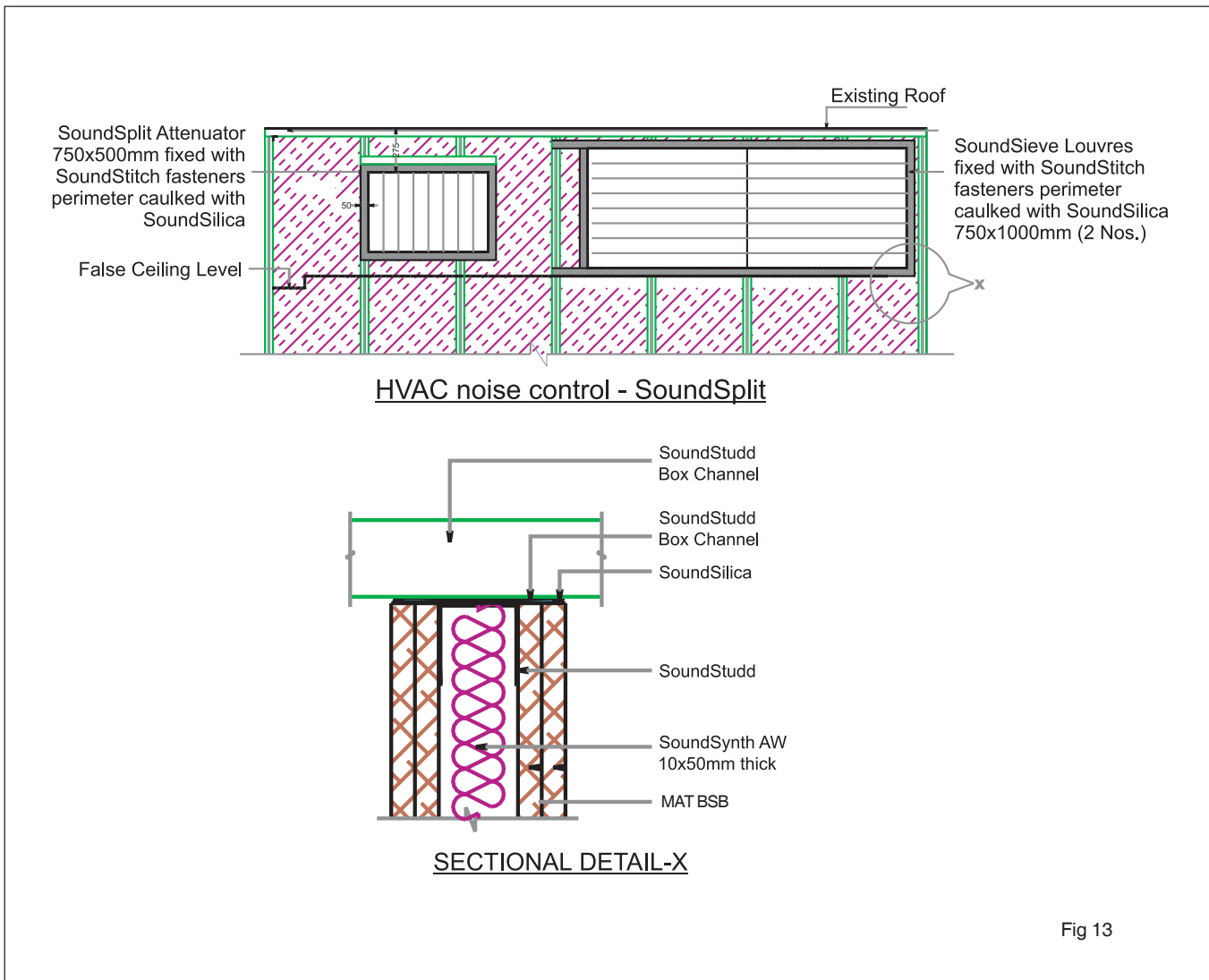
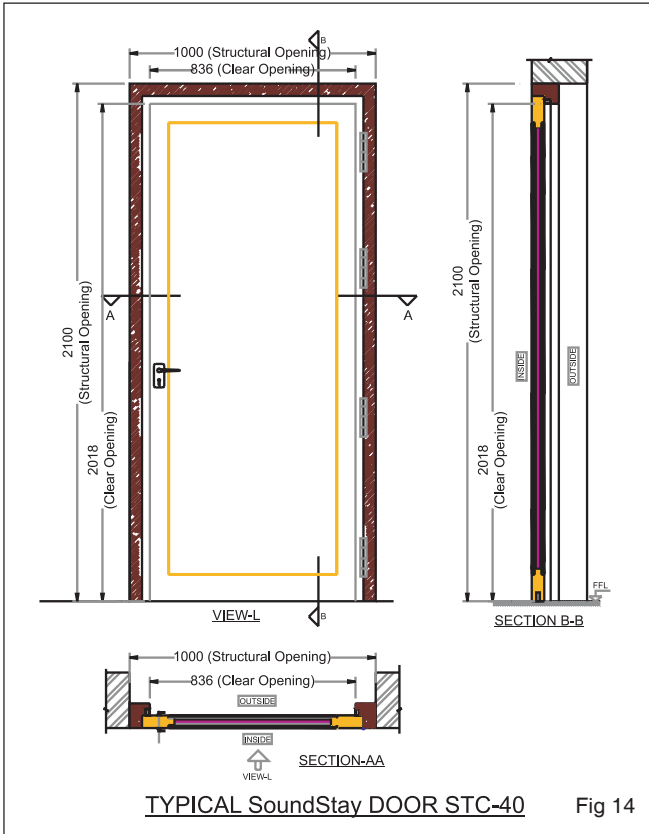


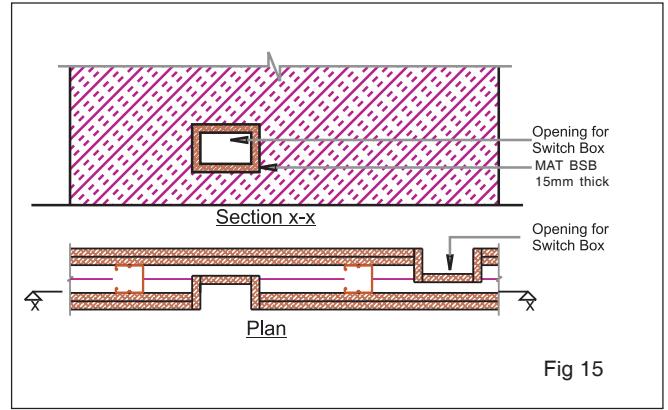
Fig 13



SoundSnip™ NN gasket set features a perimeter neoprene-aluminium seal for the jamb and head and automatic drop-down seals for a threshold-free bottom to ensure STC ratings of upto 40.

Electrical switchboxes

Openings created due to electric switchboxes or cabling are offset and backed with MAT BSB boxing that is sealed with SoundSeam™ jointing compound and caulked with SoundSilica™. (See Fig 15)



It is very important that all perimeter joints of all openings or wherever dissimilar materials meet, are treated with SoundSeam™ that is further caulked with SoundSilica™.

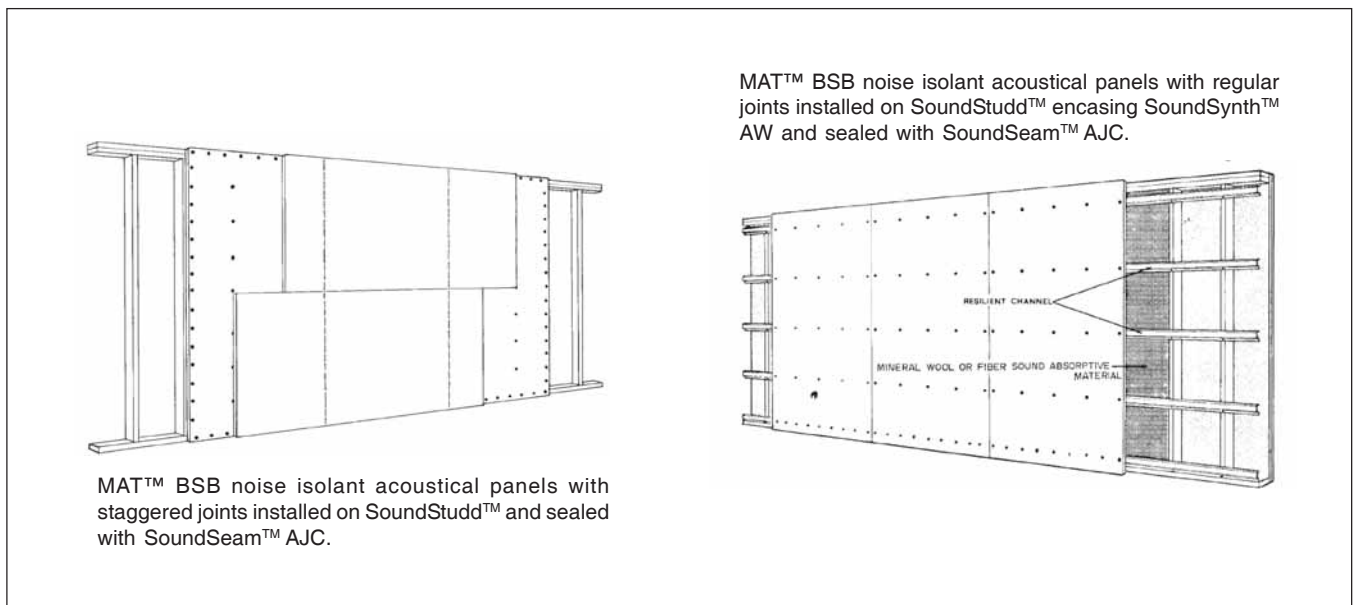
Part Six - Finishing

Surfacing

The entire wall surface is sanded smooth with a pole sander tool and wiped clean with a dampened roller tool. It is now ready to receive SoundSkin™, the final surface finish that imparts a Level 5 trim (egg shell type super smooth). Alternatively, the walls of the room are ready to receive textured pattern rendering.

SoundSkin™ is sprayed on the wall surface with an airless spray tool in a crosshatch pattern or if texture is required then it is sprayed with a pneumatic hopper gun tool. To result in super smooth surfaces light sanding may be done with the pole sander tool.

The walls are now ready to receive paint finishes as per architect's choice (not by Anutone).



Accessories

Anutone provides all products, systems and services required for fixing MAT BSB and MAT BSB Plus at project sites thus endowing architects, consultants, end users with the unique advantage of a single-source turnkey responsibility. The single-source opportunity fulfils the project credo of faster, better, cheaper.



Tools



Tech Primer

SI#	Description	MAT BSB
1	Thickness (mm)	18
2	Size (mm)	Width 600 / Length 1200
3	Core	SoundSynth / Acoustic Plaster Sandwich
4	Nominal Density (Kg / m ³)	900
5	Weight (Kg / m ²)	16.2
6	Edge	Taper
7	NRC / STC	NRC Upto 0.85 STC 45
8	Fire	Class I
9	Moisture Resistance (%)	RH 90
10	Light Reflectance (%)	70
11	Warranty	10 Years
12	Installation	CC 50, SoundStud HC / FC
13	Color	White
14	Maintenance	NA

Bill of Quantities (BoQ) - 100m²

SI #	Description	Units	MAT BSB
	Thickness / Edge	mm	18 / Taper
1	Head Channel HC50	lm	27.8
2	Studd Channel SC48	lm	28.8
3	Floor Channel FC50	lm	27.8
4	SoundSynth AW 10x50	m ²	100
5	SoundStick Adhesive S7	ltrs	35
6	SoundSilica	ltrs	2
7	MAT BSB 1200x600	m ²	100
8	Fasteners	ls	
9	SoundSeam AJC	Kgs	56
10	SoundStrap	Nos in Rolls	1
11	Labour	hrs	3
	Estimated Installed cost / m²	Rs	2770

lm - Linear meter, m² - Square meter, Ltr - Litre, LS - LumpSum, hrs - Hours



References

SoundSuite - Office

McKinsey	Mumbai
Cisco	Bengaluru
Papricas (Thomson)	Bengaluru
Franklin Templeton	Hyderabad

SoundSynchro - Studio

CSIR	Lucknow
CSIR	Chandigarh

A partial list of projects using SoundSmart Septum - a variant of MAT BSB Plus

SoundSuite - Office

Stanchart	Bengaluru
Accenture	Chennai
BNP International	Mumbai
Multi Commodity Exchange	Mumbai

SoundSpark - Cinema

Maayajal	Chennai
Matrix Mall	Chennai

SoundSyllabi - Education

Shree Cheema Foundation	Bengaluru
Kingfisher Academy	Mumbai
BS Training Academy	Nagpur

SoundSwank - Hospitality

The Park	Bengaluru
Oberoi	Mumbai

SoundSailent - Industrial

Bajaj Probiking	Pune
Arsal Packaging	Bengaluru



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