Typical Solutions – Panels, Absorbers, Blankets

Typical solutions for Engine Generator sets in engine rooms or containers are to insulate the walls with absorption materials made from fibrous glass/mineral wools or open cell foam panels butted tightly against each other. However this concentrates mainly on the upper Hz range and not the lower Hz range, so often composites such as [Firwin BTMM14C](#) are used which offer better attenuation over the full octave spectrum. Composites include absorption materials and barrier materials together with a decoupler layer to separate the barrier from the room/container wall.

Where space considerations limit the use of wall/ enclosure insulation, Removable Insulation Blankets can be used for the manifold, turbo, exhaust piping, silencers, etc. contained inside the room/enclosure. These blankets contain composites to bridge the full frequency band. In some situations, both wall insulated and engine and exhaust blanketed approaches together achieve the best solution. These blankets have both heat and sound insulation properties with a side benefit of energy conservation.

Factors to Consider for Proper Sound Attenuation

1. Thickness of the materials used will affect the attenuation.
2. All panels must be butted up to each other to assure that there is no sound leakage.
3. Engines and other equipment must be mounted on vibration isolation mounts or pads to stop vibration and sound transmission.
4. Baffle chambers and good Silencers are also important.
5. Where space is at premium and enclosures cannot be used, Removable Insulation blankets with built in barriers are an answer. Because the Sound Insulation package is installed directly on the equipment the attenuation is usually limited to no more than 8 to 10dB [provided the installation is done with care and diligence]
6. Very often space and economic limitations will mean that the ultimate practical possible solution is not attainable.

Each project should be regarded as a separate case due to the multiplicity of variants from application to application.