

## PRODUCT APPLICATION SHEET

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Engineers and acoustical consultants commonly specify external isolation on air handling units – even those that include internal isolation under the fans. Due to complex resonances that can occur with spring isolators in series, the external isolation is typically selected to be significantly different than the internal isolation. In this example, the internal fans are on 1” or 2” deflection springs (Vibro-Acoustics type FS), while the entire unit is placed on double-layer neoprene rubber pads (Vibro-Acoustics type NSN). The springs under the fans provide isolation for the fan and motor vibrations. The pads isolate the entire unit which vibrates from airflow turbulence and short-circuit paths around the internal fan isolation.



A small vibration force can create a significantly audible noise problem. Placing neoprene pads under the unit helps mitigate low-level, high-frequency vibrations. The old adage “a penny of prevention is worth a pound of cure” is quite true. In this example, there are many “pennies” under the unit to meet project-specific requirements. Typical AHU installations will have fewer pads farther apart.

Neoprene pads are available in a variety of sizes and durometers (hardness) to provide appropriate deflection. A single layer of neoprene (Vibro-Acoustics type N) will provide about 0.08” of deflection under design load conditions, while a double layer (Vibro-Acoustics type NSN) will provide about 0.15”. An additional steel plate on the top of any neoprene pad isolator will help distribute equipment point loads over the pad surface (e.g., Vibro-Acoustics type NS or NSNS).



In seismic applications, restraints will be required. For isolated units using a toe-out channel base, one method of restraining the unit from earthquake motions is overlapping plates on all four sides. These are shimmed high enough so they do not touch the channel base in normal operation. Where minimal vibration isolation is required, anchor bolts can be passed directly through the frame, or through steel angles welded to the frame, with rubber grommets to minimize short-circuiting.



Vibro-Acoustics’ application engineers provide specifications, details and instructions for all neoprene pad isolator applications to meet project and code requirements. We are always available to assist you with any noise, vibration, or seismic restraint concerns you may have.