Vestavia Shopping Center, Birmingham, Ala., was the scene two years ago of a classic confrontation between couch potato and fitness fanatic.

Customers of a video store, which rents the space below a Golds Gym in the strip mall, were disrupted frequently by loud voices, footfalls, music and other noises produced by fitness enthusiasts doing aerobics and lifting weights.

As if that wasn’t enough noise, the building’s metal frame transmitted vibrations especially well, amplifying every sound no matter how slight. A rubber mat, laid over most
of the gym’s floor in an attempt to dampen the sound, produced marginal results.

“The gym staff tried to verbally regulate it by saying, ‘Guys, don’t drop the weights,’” said architect Ken Traweek, but something more was needed. Enkasonic, a sound-reducing matting manufactured by Akzo Nobel Geosynthetics Compa-

Customers of a video store, which rents the space below a Gold’s Gym, were disrupted frequently by loud voices, footfalls, music and other noises produced by fitness enthusiasts doing aerobics and lifting weights.

ny in Asheville, N.C., was made the key component of an intricate flooring system designed to reduce as much sound as possible.

“It might just be a 100-pound weight, but if you drop it from 5 or 6 inches from the floor, you might have a real vibration problem,” said Traweek, president of Birmingham’s Traweek
Architects. “Vibration is very hard to prevent when you’re dealing with a metal-frame structure.”

Other types of recurring sound vibrations could also be mitigated with the proper sound insulation, however. After researching several products, Enkasonic was chosen as an effective between-floors soundproofing solution, Traweek said.

**Test Results**

Enkasonic is a three-dimensional nylon matting with a polyester nonwoven fabric heat-bonded to the upper surface. It is durable, pliable and proven effective as a sound-reducing matting.

Enkasonic creates a “floating floor” that breaks the sound transmission path through the floor-ceiling assembly and prevents lateral transmission through the floor-wall contact area. Tests have shown that Enkasonic has retained 97 percent of its original thickness and pliability after 10 years of use.

“We looked at three or four different systems for sound mitigation,” Traweek said. “After we set down the details of what we wanted to do, we tested it using different sample products.”

During the testing phase, Akzo Nobel Geosynthetics Company was asked to provide data on the likely effectiveness of Enkasonic under those circumstances, Traweek said.

“We drew up a plan, sent it to Akzo Nobel and they figured out what percentage of sound would be dampened using Enkasonic,” he said. Using phones to communicate between floors, Traweek and his associates tested the Enkasonic and decided that it reduced transmitted sound most effectively.

“When we couldn’t tell whether they’d dropped something upstairs or not, we said, ‘That’s the best it’s going to get,’” Traweek said. “I thought it did a very good job, considering we were working with a metal-frame building.”

**Sound Off**

Architect Ron Woodard of Traweek Architects supervised the installation.
which began in the spring of 1993. Woodard said each section was arranged to provide maximum soundproofing.

First a rubber mat was laid over 3 inches of concrete in the 23-by-40-foot room. A layer of Enkasonic then was applied, covered by quarter-inch sheets of plywood. Another layer of Enkasonic was placed on top of the plywood.

Woodard said special precautions were taken to keep the surface of this multilayered “sound stage” from being able to carry sound. Plywood panels 3/4-inch thick were turned at 70-degree angles atop the second layer of Enkasonic so that the wood grain would not run in the same direction. The panels were joined at their intersections with two-by-fours.

The product creates a “floating floor” that breaks the sound transmission path through the floor-ceiling assembly.

“The plywood was turned so that the wood could diffuse the sound,” Woodard said. “If the grain is running all in one direction, the sound will travel along the wood. This way, the configuration of the plywood helped diffuse the sound.”

A polybutylene foam sealant was applied along the walls and door frames to prevent the transmission of sound vibrations to the building’s vertical walls and to allow for the possible expansion of the finished flooring materials, said Henry Bradford, property manager for the Byrd Companies. Byrd Companies owns the Vestavia Shopping Center and installed the soundproofing system.

The system hasn’t eliminated every crash, rattle and boom, but it has restored peace and harmony to couch potato and fitness fanatic at Vestavia Shopping Center.