

Sound Advice

Helpful Information from *Stewart Acoustical Consultants*

A member firm of the National Council of Acoustical Consultants

7330 Chapel Hill Road, Suite 101, Raleigh, NC 27607

The information in this document is not provided as a consulting service or as a solution to any specific problem.

919-858-0899

copyright 2006

www.sacnc.com

PROBLEMS IN CONVERSION OF HISTORIC STRUCTURES FOR RESIDENTIAL USE

By Noral D. Stewart

Conversion of old mills and other historic structures into residential use has become popular. Doing so successfully can be very difficult and result in severe complaints regarding privacy.

The major problem is that floors are usually solid wood and developers want to preserve these surfaces as both the floor and the ceiling of the space below. Wood is not a good material for sound blockage unless possibly it is in layers of different thicknesses with an air cavity filled with sound absorber. The STC will be well less than 40. This solid floor also provides very poor impact isolation and strong structural flanking side to side. Ideally neither the finish floor nor ceiling surface should extend between units. An air cavity is essential to achieve normally acceptable isolation up and down.

A further problem is the cracks between the boards. These may not be a problem if there are multiple layers. However, when a wall is built between two of these floors, cracks perpendicular to the wall allow sound to leak above and below the wall. It can be difficult to seal these cracks.

Large cracks often exist where the floors meet exterior or existing interior brick walls. Even the smallest crack is a problem and must be sealed. It can also be difficult to seal new walls at uneven existing walls.

Often developers want to leave pipes or other metal structures penetrating walls. These become flanking paths.

Uneven floors can make it difficult to fit and seal doors.

Anyone planning one of these conversions should consider it carefully and if they proceed with serious compromises must market it carefully.