CUMING MICROWAVE

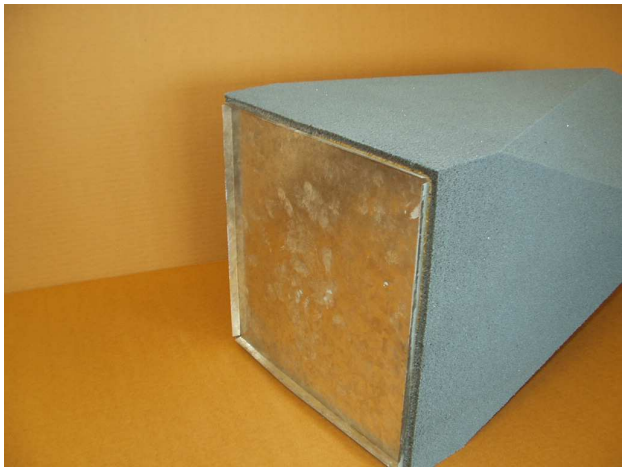
Clip and Rail System for Installation of Anechoic Chamber Absorbers

APPLICATION NOTE 300-15

Cuming Microwave Corporation offers a system for mechanical attachment of C-RAM SFC anechoic chamber absorber materials to the walls and ceiling of a chamber. This is called our Clip and Rail System.

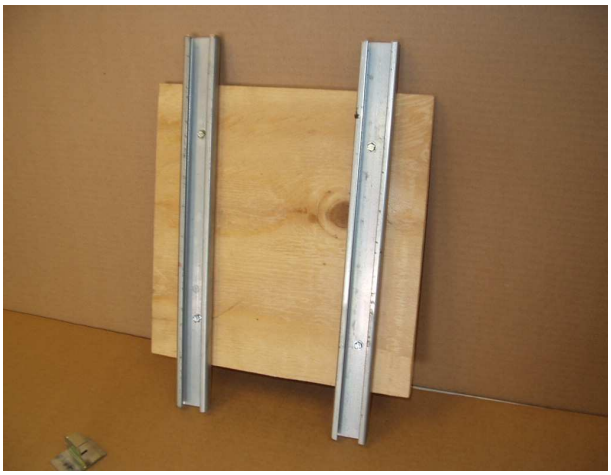
Clip and rail is used in applications where one may not want to permanently install absorbers with a contact adhesive, for instance if one is planning to relocate the chamber in the future. It is also an option if the use of the solvent based adhesive is not permitted at the facility. In this latter case, a Velcro attachment is also an option, but not recommended for absorbers greater than 24 inches tall (C-RAM SFC-24).

A galvanized steel plate is permanently bonded at our factory to the base of each absorber piece, as shown below. The plate has a 90 degree lip along each edge, about 3/8 inch (10 mm) wide



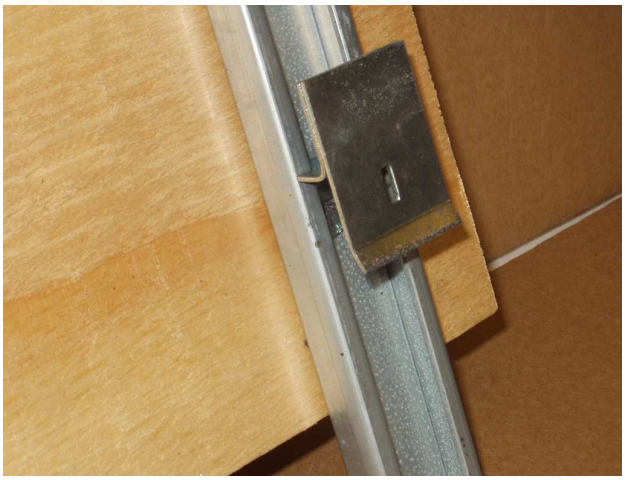
Absorbers are attached to the walls and ceiling using heavy gauge galvanized steel channels, or rails, which have a cross section like a squared-off C. These are typically sold in 10-foot lengths, but other custom lengths can also be manufactured. They have holes punched to facilitate screwing them to the walls. These must be securely attached to the walls, either using drill point screws to penetrate a steel plate substrate, or by ensuring they are screwed into the studs of the wall. Simply screwing into a sheetrock surface is not strong enough to support the weight of the absorber pieces.

For each 24 inch wide column of absorbers running up a wall (or across the ceiling), two parallel rails are fastened, about 16 inches apart, as shown in the picture below.



Special steel clips are used to attach the substrate plate of the absorber to these rails. Each absorber piece is held in place with four clips, two at the top and two at the bottom. Each clip is shared by two absorber pieces; the top clips of one piece become the bottom clips of the next piece. These clips twist and slide in the rail, and have two feet, which are wedged between the plate and the bottom of the foam absorber, at the adhesive line. See the pictures on the following page for a detail of this wedging action.

225 Bodwell Street, Avon, MA 02322 USA ● Tel 508.580.2660 ● 800.432.6464 ● Fax 508.584.2309
mwsales@cumingcorp.com ● www.cumingmw.com



There are many considerations when using a clip and rail installation. The pieces are readily removable, but it is not meant as a system for continual removal and replacement of absorbers. Since pieces share clips, an entire column of absorbers must be removed if one wishes to remove a single piece.

Special cuts must be made to fit around doorways and vents, and at the edges of walls. First the steel plate must be cut with a reciprocating saw, then the absorber itself can be cut. One must also consider conduits or other protrusions inside the chamber.

Cuming Microwave has installed numerous chambers using clip and rail, and have learned many ‘tricks of the trade’ over the years. We recommend consulting with our engineers if you plan to install the absorbers yourself; we can provide drawings of rail layouts, and design to minimize the special cuts required in the chamber.

Installation time using clip and rail is roughly the same as adhesive installation, particularly in large chambers where there are large sections of full pieces. There is more preparation work installing the rails and making sure they are located properly, but then the actual attachment of the pieces using clips is very rapid.