Subject: Sound absorbtion
Posted by Wayne Parham on Sun, 11 Mar 2007 19:36:26 GMT
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R13 is simply fiberglass insulation that's 3.5" thick, uncompressed. It's used to absorb unwanted midrange frequencies inside the cabinet. Bass passes right through it because it isn't thick enough to absorb bass energy, and that's exactly what we want. We want the bass to react with the Helmholtz resonator formed by the bass-reflex cabinet. But midrange and higher frequencies would develop stading waves inside the cabinet, and we don't want that reflected back to the cone. So by using fiberous material inside, we absorb midrange and reduce standing waves.Insulation InfoThe same thing happens in rooms, but it happens at lower frequencies because of the size of the room. Standing waves setup inside rooms and cause peaks and dips at bass frequencies. So the best rooms are those that provide some damping. In North America, many homes are made using a framed drywall construction. This uses drywall panels mounted on studs with insulation in between. The panels flex fairly easily, and this allows some damping which actually does a lot towards reducing the strength of room modes.The Sound Absorption Properties of Walls