Mike and Peter,
I worked out the scattering noise from point scatters ab-initio and get the following contribution to h(f) from ground motion on the chamber walls

$$h(f) = S*D*A$$

where

$$S = \frac{P_{ptscat}}{\pi P_{total}}$$

$$D = \frac{\sqrt{\lambda}}{L^{\frac{3}{2}}} x(f)$$

$$A = \sqrt{\Omega_{chamber} BRDF_{chamber} G}$$

A includes the solid angle subtended by the scattering surface of the chamber at the mirror, and the BRDF of the chamber wall. G is a directional factor for the chamber motion running between 0 to 1 with 1 being along the beam direction and 0 perpendicular. The other symbols have the usual meanings

Using a loss due to point scatterers of 10^{-5} chamber wall BRDF of 0.1, G of 0.5, solid angle subtended by the chamber of 3 at the mirror get

$$h(f) = \frac{3\times10^{-22}}{f^2}$$

here used the standard LIGO ground noise spectrum.

The result is not gruesome but does not satisfy my usual safety factor of 30 in amplitude at 10Hz . I would like some additional baffling to take care of the point scattering from near objects such as the chamber walls. In part my discomfort comes from the possible failure of the incoherence assumption.