**Prob. 1** An ice cube of edge length $a = 3.0$ cm has a spherical air bubble of radius $r$ trapped inside it. The mass of the ice cube is measured to be 26.0 gm. Determine the radius of the trapped air bubble. Use the mass density of ice $\rho_{\text{ice}} = 10^3$ kg/m$^3$ and $\rho_{\text{air}} = 0$. 
Prob. 2 The mass density of air, \( \rho_{\text{air}} \), is not really zero as we assumed in Prob. 1.

[a] Find, from a book or any other source, the value of the mass density of air under ordinary room temperature and pressure conditions.

[b] The figure below shows the dimensions of the side view of a 12.0 m-wide lecture hall at Drexel. Determine the mass of the air enclosed by the hall.

Given: \( AF = 8.0 \text{ m}, AB = 15.0 \text{ m}, BC = DC = FE = 3.0 \text{ m} \).

(Note: Think of the diagram below as the base of a prism that is 12.0 m high)