

June 1, 2010

John Balog
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Dear John,

Five Winds International and PE Americas have completed the initial study related to the Environmental benefits of the Pliteq unique solution to the construction of acoustically isolation between spaces. The application of this construction practice is beneficial to structures such as hotels, schools, multi-family residential units such as apartments and condominiums. Our understanding is that Pliteq's clip system of construction provides both STC and IIC ratings for floor/ceiling assemblies in these structures such that the required standards are satisfied without the typically need to place gypsum concrete in the structure. Although there are other structural changes required to meet this acoustical and structural performance the elimination of the gypsum concrete offers substantial environmental benefits.

The purpose of this study is to determine the likely magnitude of the beneficial impact from a Life Cycle standpoint. This approach has considered the Life Cycle Impacts of Primary Energy (from fossil fuel sources) and Green House Gas emissions associated with the manufacture of the major component of Gypsum Concrete. Clearly a more extensive LCA, compliant with all ISO 14040 standards would be required to have a complete and publishable outcome. This study is intended to inform Pliteq's management as to the potential business value of a more extensive study. The current evaluation focus only on the environmental aspects of the production of Gypsum concrete, not including installation, use phase or disposal. It is based on data gathered from German sources, and therefore might differ in results from gypsum concrete manufactured in the US.

The literature supplied by Pliteq suggests that typical floor/ceiling structures consist of up to 1" thickness of Gypsum Concrete to achieve the STC performance of 55. The literature further shows that the typical density of Gypsum Concrete is approximately 112 PCF (pounds per cubic foot). This translates to 83.3 cubic feet of Gypsum Concrete for a MSF of floor/ceiling constructed in the typical fashion. Assuming a 1" application of Gypsum Concrete in a typical installation the impact for 83.3 cubic feet will have 4242 kg gypsum concrete, or 4.242 metric tons.

The Fossil Energy embodied in 1 MSF of Gypsum Concrete is 5345 MJ. This is equivalent to a 60 watt bulb on for 7616 hours.

The Global Warming Potential represented by 1 MSF of Gypsum Concrete is 3742 kg CO₂ eq. This is equivalent to driving 9000 miles in a typical automobile.

An interactive calculator is attached for evaluative purposes.