

**From:** Mark Giorgetti  
**Date:** July 27, 2010  
**Subject:** Letter to the editor  
**To:** George Johnson

Dear George Johnson,

I see that you have posted excerpts from my rebuttal to your website, which I appreciate. But I must press you further on your argument that improving a property (by size or value) is somehow inherently un-sustainable.

When discussing green building, we must learn to consider the entire "Life Cycle" environmental impacts of buildings including all the energy and material resources that are embodied within a building PLUS its energy and water consumption over its useful life span. The total life cycle impacts would include the environmental impacts of raw material extraction (mining, forestry, etc.); the transportation and manufacturing of those raw materials into useful building products; the energy and water inputs to the construction process itself; the energy and water consumption attributable to the continued operation of the building over the numerous decades of its useful life; and ultimately the impacts of the decommissioning (or demolition and disposal/recycling) of the building and its components. This is obviously a very complex set of data calculations to conduct, but it has been done by research institutions in various parts of the world in test cases. And so we can speak (in an informed way) about the general characteristics of the life cycle assessment of buildings from an environmental perspective.

In general, the environmental impacts associated with the ongoing operations of a building after its construction (heating, lighting, water consumption, etc.) tend to represent about 80% of the overall life cycle impacts of a building. The remaining 20% are attributable

to the materials and processes embedded in the construction and decommissioning processes. In light of this, the nuance of truly green construction rests mainly in the energy efficiency aspects of the building, those characteristics which minimize the energy and water inputs to the operations of the building over its useful life span. The embodied energy inherent in the materials and construction processes is also important to consider (but only to a factor of one fifth the importance of the energy efficiency measures). Anywhere you can minimize environmental impact in the energy efficiency while also minimizing the impacts embedded in the construction is a WIN-WIN opportunity. But to minimize the overall environmental impact of a building, the primary focus should be on efficient operations of the building over its useful life.

In the case of the project in your neighborhood, we have made a significant effort to minimize both of these life cycle impact aspects, the operational and the embedded. Regarding the construction process, we are re-using the vast majority of the materials of the existing residence (rather than tearing it down), minimizing the environmental impacts attributable to the demolition of the existing home. We have, as discussed in the previous email, replaced the outdated and inefficient, windows and doors with high performance (and sustainably sourced) windows and doors. Furthermore we will be insulating the entire building (original and addition) to beyond code, and providing energy efficient heat and hot water. Thus minimizing the life cycle environmental impacts of the property, as opposed to allowing an inefficient building to continue to operate for decades more.

Now I can appreciate your aversion to the rock excavation, as a neighbor you are especially entitled to your distaste of that aspect of the process. It has been loud and long, and was an unforeseen aspect of the job. When rock was discovered, we discussed with our clients various options for re-design to minimize the intensive rock chipping. After considerations of the costs and benefits to changing the design (and gaining Historic Board approval of the re-design), it

was decided to proceed with the chipping and stay with the original design. So it was done. But to make the assertion that the project is inherently un-sustainable because one of the inputs to the construction process has been energy intensive, dismisses the larger (and more important) reality that building an energy efficient home will minimize the life cycle environmental impacts of the property over time, as compared to allowing an inefficient building to continue to operate.

Now I would love the opportunity to quantify in real terms the actual impacts attributable to this, and all other construction projects I engage in. But, alas, I do not have the resources to do so. In turn, I rely on the research-based body of knowledge that is out there to make informed decisions about my work.

My assessment is that the gallons of diesel fuel which were consumed in the rock chipping process will negate only a small fraction of the overall energy savings which this house will provide as a result of being properly remodeled with efficiency in mind.

I would appreciate it if you post these comments to your website.

Sincerely,

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