

## What Is a Sustainable School Building Project?

In this time of rapidly evolving energy technology, carefully considering the energy footprint of a school building project is an important part of planning, particularly since the building will be used for 30 to 50 years or more. There are significant advantages to building a sustainable school. Economic benefits result from savings in escalating and unpredictable fossil fuel costs; environmental benefits occur by eliminating fossil fuel extraction and emissions. A sustainable school project is a fundamental part of decreasing Lincoln's carbon footprint.

The School Building Committee has identified sustainability as an important community value, recommending net zero building options with solar PV in order to meet Lincoln's Energy Bylaw. So, what is a net zero building? It is a different way of thinking about building design and construction. A net zero building generates at least as much energy as it uses. In other words, the energy that the building consumes is offset by renewable energy generated onsite. In order to accomplish this, the building must be comprised of a very tight, high-performance building envelope (outside walls and roofs) and highly energy efficient building systems which reduce the building's energy needs significantly; then solar panels are added to generate the energy needed by the building.

Opportunely, as a consequence of this design, net zero buildings typically have an abundance of natural light, views to the outdoors, and the personal comfort provided by energy efficient heating and air conditioning. Because involvement is needed by the students, faculty, and others in the community throughout the lifetime of the school to achieve a highly energy efficient space, a net zero building provides educational value. (For example, shutting off lights, turning off water, unplugging devices when not in use and then studying data collected on the operation of the building.) In addition, the heating and cooling systems are less complex, resulting in lower life cycle costs and easier maintenance. No boiler, backup system, fuel, control equipment, pipes, etc.! Just air source or ground source heat pumps.

Net zero buildings are sometimes a little more expensive to build but then save considerably on energy costs throughout the long lifespan of the building. Building a sustainable school that Lincoln could use for the next 50 years is a substantial opportunity for our community, both in addressing climate change and in the positive effect it will have on the proud and energy savvy school community!

A little about Lincoln's Energy Bylaw: it necessitates we build very energy efficient town-owned buildings which use very little to no fossil fuels. Passed at Town Meeting in 2008, the Bylaw requires that the school, which will be constructed/renovated in the 2020 timeframe, use 80% less fossil fuels than a comparable building in 2003.

For an inspiring and informative short video of a net zero elementary school, try <https://www.youtube.com/watch?v=2kTS4UODWwc> .