

THE MASTER PLAN

Looking Ahead to Campus Improvements with Purpose

By Emily Jones, *Director of The Putney School*

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We embarked on the process of creating a master plan for our campus well aware of the challenges involved. More than mere buildings and facilities, Elm Lea Farm embodies a way of life that is a critical part of the education of Putney students. The beauty of the place both teaches and inspires. The simplicity of the architecture reflects our values, and the spaces between the buildings are as important as the buildings themselves. One disturbs the character of this place at one's peril.

We have gathered the history of Putney's buildings and the land, examined the patterns of our community life, projected needs for faculty housing, created a forest management plan, looked at the agricultural uses of the land, and imagined ourselves into the future with every lens we could bring to bear. We realize that, in spite of all this, we actually can have no idea what the future will look like, and so we have made the "plan" a living document that will change and adapt as we move forward.

Although the full document contains some 1,500 pages, there is little in this master plan that would make the campus look much different. Rather, it is a working document that provides the history, measurements, data, and possibilities to make good decisions about Putney's facilities and land over the next 25 years.

Here's what we know: Environmental sustainability was not a priority when these facilities were built; too much needed maintenance has been deferred these past 76 years; and we would like to free the campus from the need for fossil fuels, following the lead of the new Field House.

We also know that we need data and tools for analysis so that when we have money to spend, we can get the most bang for our buck. And we know that we want to preserve the character and beauty of Putney's campus while creating a solid infrastructure, sustainable buildings, and a greatly reduced energy bill.

The new master plan tells us what it would take to make each of Putney's buildings "renewable ready"—insulated enough to make it possible to heat with renewable energy sources. The plan provides detailed data that will help us make good decisions about energy, given that this field is changing very rapidly. We have drawings that will allow us to return some of the buildings somewhat closer to their original historic shape, while reconfiguring others to better serve the needs of the academic and residential programs.

Indeed, we have already relied on the master plan data, with promising results. Last spring, when the oil-powered heating system of the Main Building failed, we invested in a wood-pellet stove. The heat in the building is now consistent—no more hot spots!—we're heating with renewable energy, and are saving a tremendous amount of money and fuel in the process. Without the master plan, we likely would not have made this choice, even though it seems so obvious in hindsight.

Putney is increasingly being seen as a leader in environmental education and sustainability. Although it will be some time before we have the funds to do the work we have outlined in the master plan, the analysis we have done is

itself a new way of thinking about the future of our campus. Ironically, the fact that we didn't spend a great deal of money on buildings in the years in which many schools were engaged in a "facilities arms race" allows us now to plan for a campus that will retain its historic character while becoming energy-independent.



The master plan takes into account the architectural and historical significance of The Putney School's campus, while offering guidance on which way to go when it comes time to maintain and upgrade existing buildings or to build additional ones.

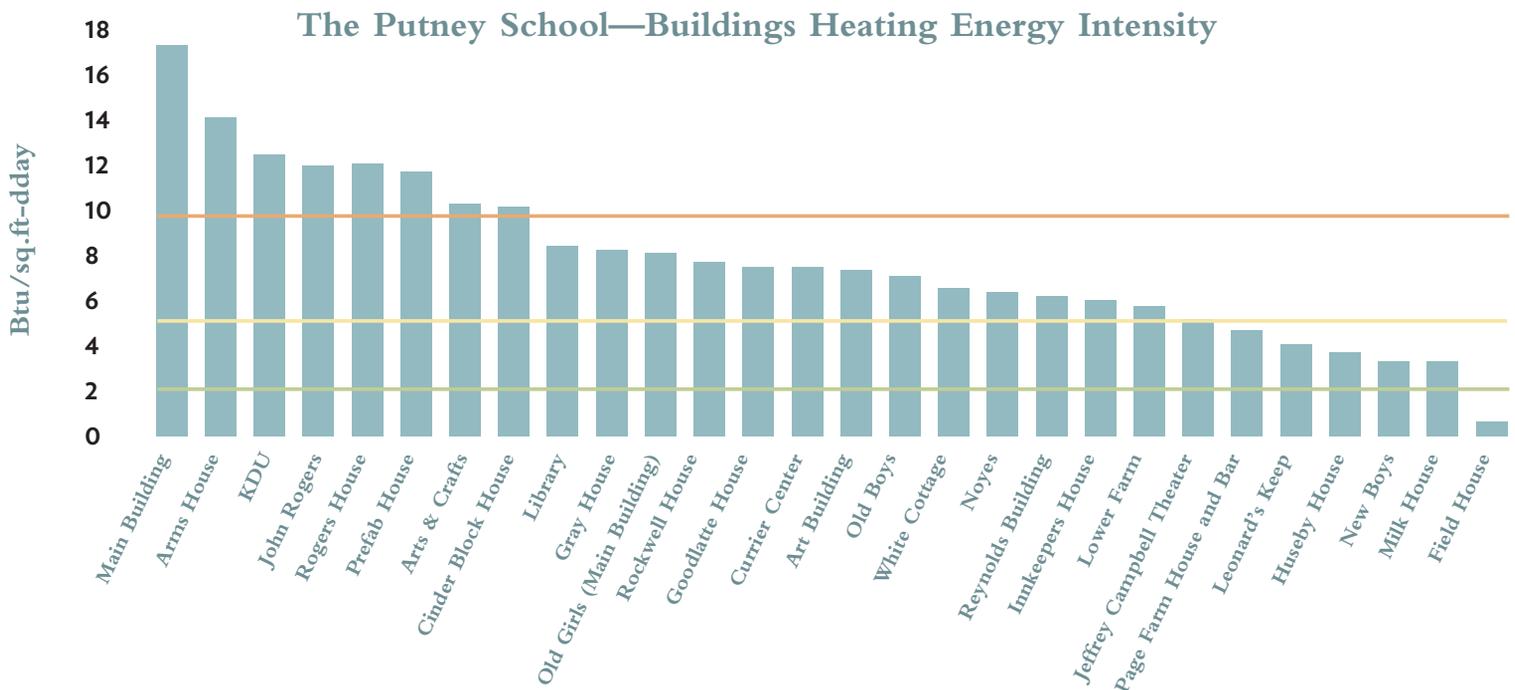
In the era in which Putney's buildings were made, heating fuel was cheaper than insulation. That's not the case today. The master plan provides guidance when, say, a building needs a new roof or windows, so we can replace them with materials and designs that will maintain the structure's architectural integrity while moving it in the direction of "renewable ready" (orange line), "net-zero" (yellow line), or "off-the-grid" (all-photovoltaic, green line). Figures are from the master plan energy audit showing average yearly energy use expressed in British Thermal Units (BTUs) per square foot per day.

**Energy Consumption & Cost
Fiscal Year 2011**

Fuel Oil	\$221,760
Electricity	\$112,000
Propane	\$33,000
Total	\$366,760

The master plan informs our fundraising efforts. These yearly energy costs represent the yield on \$9 million of endowment earning a 4% return. Might it make more sense, in this era of volatile oil prices, to raise money for insulation and upgraded heating systems than for endowment to defray energy expenses?

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easy to decide that a pellet furnace system was the best replacement option. Although



The Main Building/Barnes Assembly Hall/Old Girls Dormitory complex served as both partial inspiration and test case of the master plan. In the summer of 2005, renovations were under way in the former Music Wing after the Music Department moved to the Michael S. Currier Center. It was discovered that the Music Wing's wall studs were so rotted from rain leakage that they were no longer supporting the ceiling joists. So what started as simple remodeling, became a total demolition and rebuilding project.

Most people don't realize that in 2005 the Music Wing of the Main Building was razed and rebuilt. In its place today stands the New Wing (named for its donor, Putney School Trustee Bill New), which features low-e insulated windows, R30 walls, and sustainable bamboo flooring. Program-wise, the wing houses four classrooms and the English Department office. And the peaked roof adds to the insulating properties while providing storage space for the administrative offices in the Main Building. But from the outside, nobody noticed the difference. It was then that it became evident that the campus could have sustainable buildings that maintain their architectural integrity.

In the summer of 2011, the old oil burner and circulating hot water heating system in the Main Building complex breathed its last breath. Using data gathered to inform the master plan, it was

it's only heating and providing hot water for the Main Building complex now, it's got the capacity to heat the KDU. When that system is due for replacement, the plumbing will be done to add it on, creating a centrally pellet-heated "mini district."

The master plan's alternative energy research yielded the following information:

- 10,000 gallons of #2 fuel oil per year at \$3.58/gallon=\$35,800.
- 74.8 tons of wood pellets per year at \$200/ton=\$14,967.
- At \$20,833 per year savings, the economic break-even point on installing the new system is 3.84 years.

In other words, it pays for itself when compared to oil. The pellet boiler system also reduces carbon output to the atmosphere by 140.4 tons annually and changes nothing about the aesthetics of the building, other than making it more comfortable to occupy in the winter.

In addition to energy and aesthetic concerns, the master plan provides guidance for programmatic improvements. This is an example of what could be done with the Reynolds Science Building. The proposed floor plan takes into account current and future curriculum needs. The full renovation, including energy modifications

