

June 12, 2007

Meeting of School Committee sub-committee on Buildings

re: CRLS renovation

notes from Michele Sprengnether

Rich Rossi, Deputy City Manager

CRLS project includes upgraded lighting, window replacement with operable windows, new 40-50 year roof and hvac. Under current scope of work that goes back to 1998, the cost will be \$55-60 million. The state will pay ~\$28.5 million but no more. The city manager has agreed to cover ~\$45 million, but no more, and any improvements beyond current scope would be picked up by the school district. The city manager has offered to cover the full cost of making the building accessible, and this will affect plumbing fixtures, etc...

In order to qualify for the state funding, the project must be “substantially underway” no later than June 2009. Mr. Rossi shared that there is some ambiguity about what the term “substantially underway” actually means and concern that when June of 2009 arrives there’s no doubt but that the project will have achieved that status.

Project goals are working toward LEED certified, and current scope meets that criterion. The war memorial renovation will likely be LEED silver.

400,000 square feet, built in 1980, roof is leaking, rooms have poor ventilation and temperature control, acoustics are an issue.

Now that 10 years have passed, other components of the building are showing wear. These include electrical and plumbing, kitchens. Does it make sense to undergo this level of disruption over 2.5 – 3 years, and when building is re-occupied these items will not be updated? This is for the school district to decide, and pay for.

Vassilios Valaes and George Metzger, HMFH architects

HMFH has been with project from start in 1998, and distributed a fact sheet on the scope of work. HMFH has extensive experience with high performance schools and LEED building.

Walt Henry, MIT Green Building Group

Presentation focused on integrated design process, getting all stakeholders involved at start and using a process facilitator (in addition to the project manager) who serves as an advocate for integrated thinking as a way to design a smart, efficient building. MIT is doing this for new building at Sloan School.

Set energy goals:

Cooling: 1000 sf/ton (typical bldg is 300-400 sf/ton)

Lighting 0.8 W/sf (factor of 2 better than typical)

Heating 10 Btuh/sf
Fan energy 0.6 hp/1000 cfm

New building will use chilled beam cooling, radiant heat/cooling, demand based ventilation. The benefits include reduced power consumption to move heated/cooled air around.

MIT can look at existing buildings to get a sense of what makes sense for the use. Saved \$100k's by doing this with electrical demand.

Building Projects need a sustainability project liaison, because project manager cannot attend to this alone. (Crowley perhaps mentioned this)

Mike Crowley, Harvard Green Campus Initiative

Blackstone Bldg received its Platinum LEED certification

Diverted 99% of waste from landfill; Institution Recycling Network in New Hampshire helped project try to reuse and not just recycle. Some components went to building needs in Central America.

Campus is filling up with water-less urinals and dual flush toilets *[NOTE: these are being looked at for CRLS. MOS has installed first ones.]*

Reduced number of cleaning supplies, and now have three that are green seal certified as safer; reduces side effects of exposure of cleaning staff.

Integrate education into sustainability efforts, residential advocates living in housing, competitions across university buildings and residences. First LEED kitchen, and green cooking competition. Raise awareness and get buy-in of community members.

Sam Nutter, Mass. Technology Collaborative

Has booklet on school renovations; 20 so far; 13 new buildings and 7 renovations. HMFH (CRLS architects) published a cost/benefit analysis of high performing schools, and they pay for themselves and do better than the stock market!

Commissioning is key and will be required in near future of all school buildings (that is part of CRLS current scope)

Demand control ventilation is another big cost and energy saver

MTC will pay for MA CHPS verification application. (Collaborative for High Performance Schools-an alternative checklist to LEED, started in CA, but MA has adapted version for our climate and building needs)

Water conservation and runoff considerations are component.

CHPS has 27 items, more than LEED, and some are not applicable to current renovation. 7 are not current part of scope of work.

Currently MTC pays \$40k to fund efficiency and renewable study of building project, but have proposal to raise to \$100k. HMFH has not applied because they want the \$100k, and don't want \$40 k to jeopardize greater grant. Already have proposals from two other districts for \$100k, that are waiting for first week of July to go forward.

Also, the MTC will fund design work. Patty asked how soon money could flow, answer was very quickly: Sense of the meeting was that the city/school district will apply for funds to explore some of the options discussed at this meeting, including possible different HVAC system, along the lines of what MIT and Harvard have done in a number of buildings (chilled beams, radiant heat, ground source heat exchange)

Q&A

Patty Nolan School Committee member and organizer of the meeting

Want to understand what additional features might be worth exploring. Specifically, What about a living roof? (benefits include possible longer roof life, fewer emissions, greater insulation value) Or a ground source heating system or other renewable type energy system. There is a building in Boston (the Transportation Building) with no boiler or furnace that uses a large reservoir under the building as a heat source in winter and sink in the summer. And thirdly, will we have the best available lighting in terms of efficiency – economical and environmental?

Jonah deCola, YouthBuild Boston and Parent in Cambridge

Green roofs are not that significant as energy savers. Thermal bridging of interior with exterior is often more significant. Green roofs make this more complicated. Conductive spots that allow the interior and exterior temperatures to communicate can ruin efforts for energy efficiency.

George Metzger, HMFH

The current scope is from 2003, and there is better lighting and air handling available now. The current roof is a 40-50 year roof that will be a gray material. It is self healing, to avoid small leaks. These small leaks, if not repaired can compromise the whole roof.

Jack Haverty, President of Teachers Association

Has been in building 30 years. Rooms that are 90 degrees, with no occupant control, are not good for learning, Neither are rain buckets to catch leaking roof. Not planning to stay for another 30 years, but a roof that will hold up at least that long would be performing much better than the current roof.

School committee member Schuster

How do we know the payback times for some of these measures? Would this be a way to think about funding?

Jim Maloney, COO of school district

Payback time is the million dollar question.

Patty Nolan

Cambridge Energy Alliance [CEA] might be a source of financing for items that have environmental benefits, but are not immediate payback. Still to be determined how the CEA will work and how soon.

Sam Nutter, MTC

HMFH's own study from two years ago has shown that these high performance schools do pay for themselves. The items studied showed a net benefit of 6 X the investment. For every \$10,000 in costs, there was \$60,000 in savings over time.

David Rabkin, Museum of Science

Often the people concerned about capital and operating budgets are different. In this case, we also have city officials who are concerned about meeting future environmental/carbon-footprint goals. If you don't have all three in the room when you're making decisions, you can't make decisions that integrate and balance those apples-oranges-and-watermelons kinds of goals.

Steve Lanou, MIT Environment

Often the most visible "green" items are not the most cost effective. For example, solar panels are among the longest payback, but are the things most visible for people. Same thing with green roofs. Which doesn't mean you don't include those items, but you make clear that less visible items, like insulation, will have a large impact on reducing energy use, and therefore although not as visible, much more important.

Doane Perry and Karen Carmean (residents)

Supportive of doing the building right. Hopeful that the district and HMFH will take the time to investigate ground source heating and cooling, and other measures. Solar PV catches the public's imagination, but it might be more costly than these other items that are not as glamorous, but save energy and costs. Karen has been in rooms where it is impossible to hear the teachers because of acoustics. [Metzger commented that acoustical boards and more quiet air handling were chosen to address this issue.]

Damon Smith, Dean of Small Learning Community R, and supervisor of environmental student group

Agree with comments of Doane and Karen, and also most concerned about the comfort and acoustics for students. Expressed desire for high school community to be involved, informed and educated about the upcoming project.

Sam Seidel (resident, Green Decade Cambridge)

What seems to be needed is to take the time, and think about options that could only be done right now during the renovation project. Perhaps don't have to do everything right away, but design the project so that other measures could be done in future.

Questions:

- 1) Does the school district pay for water? Does the school district pay for sewer costs? If not, then who pays?
- 2) Have water-less urinals or dual flush toilets passed the grade in a high school setting?
- 3) MTC mentioned \$150k - \$300 k in grants for solar photovoltaic depending upon building performance. Which will CRLS project qualify for? How much will Cambridge need to pay and what is maximum kW for each grant?
- 4) The city council has passed numerous resolutions expressing a commitment to reduce greenhouse gas emissions, so why is the city manager unwilling to release the funds necessary to walk the talk?