Proposal for

Building Envelope Management Program (BEMP)

School District of Palm Beach County

Program Management
Maintenance & Plant Operations
Environmental Control

Building Envelope Components

- ✓ Roofs
- ✓ Exterior Walls
- ✓ Windows & Skylights
- ✓ Exterior Doors
- ✓ Storefronts

BEMP Goals

Establish a Building Envelope Management Program (BEMP) directed towards:

- minimizing thermal and moisture problems,
- maximizing overall facility asset life,
- improving indoor air quality,
- maximizing reimbursement in the event of loss,
- enforcing manufacturers' and installers' warrantee and repair obligations, and
- saving the District money by reducing: a) repairs due to leaks, b) poor IAQ claims, c) emergency/unscheduled work, and d) energy costs.

Building Envelope Status

Roofs

- The District currently owns about 25 million square feet of roofing with an asset value of approximately $109 million.
- Roof asset depreciation is estimated at $5 million annually, however replacement expenditures have averaged only $1.5 to $2 million annually.
- 13 re-roofs are being performed due to 2004 hurricane damage.
- The District has hired a consultant to establish a Roof Asset Management Program, R.A.M.P.

Building Envelope Status

Exterior Walls

- The District owns 1,695 buildings and millions of square feet of exterior walls made with various materials ranging from wood to concrete.
- Aging Brick Veneer and Concrete Tilt-Up facilities require the maintenance and replacement of moisture control systems. Wall leaks can be the result of deterioration, structural problems or other less common causes.
- Leaks behind walls typically go unnoticed for years and can result in significant repair costs.

Building Envelope Status

Windows & Skylights

- The District has several hundred thousand windows, some of which are more than 75 years old.
- Most manufacturers recommend that the caulking around windows be inspected annually and replaced once every 5-10 years. This is not currently being done.
- Window leaks can result in mold growth and negatively impact indoor air quality.
- Window leaks cause damage to walls, floors, ceilings, furniture and equipment costing the District thousands of dollars each year.

Building Envelope Status

Exterior Doors

- The District has several thousand exterior doors, many of which are opened and closed hundreds of times every day.
- Most exterior doors have several moving parts, weather stripping and caulk which all require maintenance to keep water from entering buildings.
- Some of the exterior doors in the District date back to the 1920's.
- Even with the best of maintenance, over the years doors rust and weather stripping and caulk dries up.

Building Envelope Status

Storefronts

- Hundreds of buildings within the District have storefronts.
- Storefronts have doors and windows that have weather stripping and/or caulking that needs to be inspected and repaired to avoid leaking.

Building Envelope Status

All Building Envelope Components:

- Building envelope leaks result in damage to interior finishes and equipment and can result in mold growth, poor indoor air quality and the lose of use of facilities.
- There were 3,839 work orders related to leaks in the building envelope for the last two years with a repair cost of $702,246.63.
- M&PO staff can only perform minor repairs and replacements, which is almost always done on a reactionary basis.
- Warrantee inspections/claims and preventive maintenance procedures are not being performed or enforced in a manner which would optimize our assets.

Unacceptable Alternative

Unacceptable Alternative

Unacceptable Alternative

Unacceptable Alternative

Alternative Unacceptable

BEMP Objectives

- The Florida Department of Education's *Maintenance and Operations Guidelines for School Districts and Community Colleges* states:

  "… good maintenance practices that address the total building envelope (e.g. walls, roof and floor), major systems, equipment and other critical features will significantly decrease the number of problems, add value, and shorten the rate at which the structure shows signs of functional obsolescence."

BEMP Objectives

1. Complete the R.A.M.P. for all facilities with roof decks greater than 7 years old, update annually.
2. Establish a 5-year roof replacement budget of $4-7 million annually to catch up to needed roof replacements by 2010.
3. Establish a roof and building envelope maintenance budget of $1.5-2 million annually to perform repairs to brick veneers, tilt wall panel joints, flashing, skylights and minor roof repairs.
4. Hire staff to run the BEMP and manage consultants and contractors.
5. Replace roofs on regular schedule, based on roof type and roof life expectancy.
6. Develop and implement regular inspections of all exterior doors, walls, windows, storefronts and skylights.

BEMP Objectives

7. Manage all building envelope related thermal and moisture concerns for all SDPBC facilities.
8. Enforce warranty requirements for all building envelope components.
9. Initiate a new roof warranty program targeted at manufacturer and contractor/installer compliance. Re-establish warrantee obligations on roof decks installed during the past 1 to 7 years.
10. Develop lessons learned and best practices for building envelope components and include in District standards.
11. Standardize installation procedures and products.
12. Develop building envelope maintenance manuals, obtain manufacturers' product training and trade certifications and reduce the need for long-term consultant services.

Cost of BEMP

Staff (manager, 2 assistants & clerical)	$ 393,000
Consultants	$ 220,000
Subtotal:	$ 613,000
Repairs & Replacements	$ 8,000,000
Total Estimated Annual Expense:	$ 8,613,000
Estimate Cost Per Square Foot	$ 0.32

How do we pay for the BEMP?

- Capital project costs for design, repair and replacement of building enclosure components will be carved out of the non-construction one mill funds.
- Project overhead, including staff and consultants, will be funded from a capital project overhead allocation not to exceed 10% of project costs. For example: If we spend $8 million in design, repair and replacement costs per year, overhead expenses will not exceed $800,000.
- This is an investment in the District's second most valuable asset, its facilities. Savings will be realized in a number of ways.

What are the potential savings to the District?

- Our roof consultant has provided options that provide a ROI of 101% to 900% . It is anticipated that $1 million in repairs may equal up to $5 million in added roof life.
- Warrantee repairs performed by manufacturers and/or the original installers. Repairs to .05% of roof decks >7 years old = $218,500.
- Reduction of indoor air quality complaints, ECO investigations, emergency maintenance repairs and employee absenteeism. (Est. savings = several hundred thousand dollars per year.)
- Budgeting, benchmarking, and grouping of repairs and roof replacement projects. (Est. savings = 10-20% of repair cost.)
- The cost to prematurely replace a roof is approximately $2 million. (Est. savings = $100k-200k/year based on 1 premature replacement every 5-10 years.)

What are the potential savings to the District?

- Reduce wasted energy costs resulting from poor insulation and air infiltration. Brevard received a $1 million energy rebate for its program. (Est. savings = 0.5-2% of the District's energy bill).
- The cost to vacate, temporarily house students and staff, remove mold laden drywall and ceiling tiles and replace materials has resulted in multi-million costs and disruptions to education. (Est. savings = $250k - $2 million/year)
- Avoid lawsuits and workers' compensation payouts (Est. savings = $50k - $1 million/year)
- The District's potential exposure for not implementing a program such as this is incalculable!

Implementation Steps

1. CORC's review, evaluation and endorsement of the BEMP. – (COMPLETED – August 11, 2005)
2. The SDPBC Board gives consent to the implementation of the Program and allocation of funding.
3. Hire staff by Fall 2005.
4. Kick-off meeting with various departments and consultants by January 2006.

Questions & Answers