INTERIM REPORT
PROJECT NO. DE-FG02-80R510216
BRIDGEVIEW PARK FACILITY SOLAR RETROFIT

MASTER

This project involves the weatherization and insulation of a presently unheated frame park building and the installation of a trombe wall on the south side of the structure to provide passive solar heating. The 2700 square foot building is used primarily between May and September and because of the large number of visitors, it provides an excellent site for demonstration of passive solar technology.

Bridgeview Park, where the Bridgeview Beach facility exists, is located on the southern reaches of Lake Springfield in the Illinois state capital. Just off Interstate 55, two hours from St. Louis and four hours from Chicago, the large lake is one of the most widely accessible recreational spots in the state. Bridgeview Beach, traditionally the most popular park on the lake, is enjoyed by large numbers of local residents and visitors every summer. Between 1978 and 1980, over 28,000 people held reservations at the Bridgeview Beach House between Memorial Day and Labor Day. Within a twenty mile radius, it is accessible to 125,000 people. It is within a forty mile radius of more than 300,000 people and within a 60 mile radius of almost 600,000.

The major objectives of this project are to increase the exposure of local residents and visitors to passive solar technology and to demonstrate the applicability of passive solar technology to residential, commercial and recreational buildings.

To accomplish these goals, City Water, Light and Power will:

1. fully insulate the existing building, including ceiling, walls, floor and foundation;
2. install a trombe wall on the south side of the building for solar collection;

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3. provide for improved drainage around the building;
4. install air locks (vestibules) around all doors;
5. provide a natural ventilation system used in conjunction with ceiling fans;
6. improve landscaping to enhance energy efficiency;
7. install dark reinforced vinyl floor tiles for increased heat absorption and radiation;
8. monitor temperatures and relative humidity;

The original plan also called for the installation of a solar hot water heating system and a wood burning stove for back-up heat. Because the primary water use at the facility is for the restrooms, the solar domestic hot water heating system has been determined not to be cost effective for the facility. The funds which would have been used for this system will be used instead to construct a concrete reflective surface on the south side of the building to improve the efficiency of the trombe wall. The wood-burning stove will be installed at a later date once data shows whether it is actually needed.

Another major modification has been made to the original plan. Initially, the roof slope was to be modified to accomodate a glazed clerestory to capture additional solar heat and to provide natural illumination. That plan has been discarded for two reasons: modifications to the roof line proved too costly, and the interior size of the building proved too large to be effectively heated by the trombe wall without installing a ceiling in the building to reduce its interior air space. Thus it was decided to install a lower ceiling in the building and provide lighting through a large direct gain window on the south side. Given that change, the trombe wall is expected to provide 54% of the building's heating requirements, with back-up heat to be supplied by two existing resistance heaters. Because of the large number of people commonly using the building, it is expected that back-up heat will seldom be required.

Included as attachments to this summary report are architect's drawings of the modifications to be made and specifications books. The project is scheduled to be bid on April 28, 1981. The landscape plan is in early planning stages, and a drawing will be provided in subsequent reports.

ABSTRACT

The weatherization and insulation of a presently unheated frame park building and the installation of a Trombe wall on the south side of the structure for passive solar heating are planned. The major objectives of the project are to increase the exposure of local residents and visitors to passive solar technology and to demonstrate the applicability of passive solar technology to residential, commercial and recreational buildings. Some changes in the original plans are discussed. Five blueprints illustrate the planned improvements. (LEW)

- ELECTRICAL NOTES
1. Provide and install two (2) Exit Lights (one over door number two and one over door number four). Exit Lights to be complete with emergency battery pack as approved by Fire Safety Division, City of Springfield, Illinois.
 2. Provide and install one (1) - two-lamp emergency light fixture. Locate in Open Area section of building. Emergency Light fixture to be furnished complete with battery pack. Fixture to be approved by Fire Safety Division, City of Springfield, Illinois.
 3. Provide and install the following basic Fire Alarm System:
 - 2 - Rate-of-rise fixed temperature detectors in the Open Area.
 - 2 - Fixed temperature detectors in the Attic Space.
 - 1 - Inside fire alarm bell.
 - 1 - Exterior fire alarm bell.
 - 1 - Control panel.
 Installation to be as approved by Fire Safety Division, City of Springfield, Illinois.
 4. Provide electrical power to and connect all controls at rolling steel door operators, including but not limited to: timer, switch, etc.
 5. Provide electrical power to ceiling mounted exhaust fans. Each fan to have a separate wall mounted switch.
 6. Provide and install vestibule lighting fixtures complete with wall mounted switch, see detail 8/A-5.
 7. Remove and reinstall existing ceiling mounted fixtures in Open Area as required to install new drywall ceiling system.
 8. Provide all Labor and Materials required to remove and relocate unit heater at southeast corner of building, see plan on sheet A-2.

- GENERAL NOTES
1. INSTALL NEW 5/8" THICK PLYWOOD SIDING AT ALL EXTERIOR WALL SURFACES (NEW & EXISTING) SIDING AT EXISTING CONSTRUCTION IS TO BE INSTALLED OVER EXISTING PLYWOOD SIDING.
 2. INSTALL NEW 5/8" THICK PLYWOOD PANELING AT ALL INTERIOR WALLS EXCEPT AT MASONRY TRIMMER WALL.
 3. INSTALL TAPE, SPOCKLE & FINISH NEW 5/8" FIRE RATED DRYWALL CEILING OVER NEW 2x6 WOOD CEILING JOISTS.
 4. ALL PAINTING, STAINING, AND FINISHING (EXCEPT WHERE NOTED OTHERWISE AT TRIMMER WALL CONSTRUCTION) IS THE RESPONSIBILITY OF THE OWNER TO PROVIDE AND INSTALL WITH THEIR OWN WORK FORCE. ALL EXPOSED WOOD & DRYWALL IS TO BE INSTALLED COMPLETE BY CONTRACTOR AND TO BE PREPARED (SAND, ETC) BY THE CONTRACTOR READY FOR FINISH BY OWNER.
 5. ALL EXPOSED CONCRETE WORK (FLOOR SLABS, & REFLECTIVE PAD) TO BE TROWEL FINISH.

FLOOR PLAN

SCALE 1/4" = 1'-0"

POLYCARBONATE GLAZING
POLYCARBONATE GLAZING TO BE AS MANUFACTURED BY ONE OF THE FOLLOWING:
1) EXOLITE POLYCARBONATE SHEET CYRO INDUSTRIES 697 ROUTE 46 CLIFTON, N.J. 07015 - 201-500-0485
2) TUFFAK - TWINVAL ROHM AND HANS 5750 WEST JORDAN AVE. CHICAGO, ILL. 60648 312-774-9100