

Longan Elementary School

**Building Dialogue**

11/9/2006

Year Open: 1955 Additions:

Square Footage: 49523 Acreage: 240

**FACILITY MANAGEMENT SYSTEM****Date      Dialogue****10/13/2006 Mechanical : Cost estimate for HVAC improvements**

The cost estimates are based on rules of thumb for the building size, age, condition and types of usage. Any requirements of asbestos removal are not included in the following estimation:

1. Install two(2) 2400 MBH hot water boilers with recirculation pumping system - \$300,000
2. Install 300-ton chilled-water system with chillers, condensers, pumps and additional two-pipe setup - \$400,000
3. Install new 4-pipe unit ventilators and piping - \$300,000
4. Replacement of AHU serving new addition - \$50,000
5. Install AHUs with heating, cooling and OA ventilation for gymnasium and auditorium - \$100,000
6. Install gas-fired MAU for kitchen ventilation - \$50,000
7. Install new exhaust system for all restrooms - \$20,000
8. New DDC control system with WEB based Lonworks protocol - \$200,000
9. Demolition and removal allowance - \$50,000
10. Miscellaneous and architectural allowance - \$20,000

**10/12/2006 Mechanical : Recommendations for HVAC renovation**

Two(2) 2400 MBH hot water boilers and recirculation system are proposed to replace the existing steam heating system. The existing two-pipe steam circulation loop is to be reused. A two-pipe system will be introduced to form a four-pipe circulation loop for heating and cooling. A 300-ton central chilled-water recirculation system is proposed to provide cooling throughout the building. The system will include chiller(s), condenser(s), circulation pumps and other associated accessories. The rooftop AHUs serving the administrative office area shall be removed. Unit ventilators with heating, cooling and OA ventilation capabilities are proposed to serve all classrooms, computer room, cafeteria, administrative office and other areas in the original building. The AHU with hot-water heating, DX-cooling and OA ventilation serving the new addition shall be replaced with new similar unit, with chilled-water coil. AHUs are proposed to provide heating, cooling and OA ventilation to the gymnasium and auditorium. New exhaust system shall be provided in all restroom areas. A DDC control system with WEB based Lonworks protocol is also proposed to operate the new HVAC system efficiently and economically.

**10/4/2006 Mechanical : Existing HVAC System**

Two(2) L.E.S. boilers generate low pressure steam for heating with steam heating coils in AHUs and cast-iron radiators throughout the building. A heat exchanger converts steam to hot water used for heating at the AHU serving the new addition of the school building. Unit ventilators with heating only and OA ventilation are currently serving the classrooms and other areas of the facility. Circulation fans with heating coils provide tempered OA ventilation to the gymnasium and auditorium.

Partial air-conditioning is provided for the offices, library, and computer rooms areas by DX-cooling with remote located condensing units.

**8/30/2006 Asphalt/Concrete : Asphalt paving**

Parking and playground areas show some cracking in poor surface texture. 24 parking and 2 handicap stalls need restriping.

**8/30/2006 Asphalt/Concrete : Concrete**

Two stairs and areawell at east parking are broken and eroded. Broken and settling sidewalk on west side.

**8/30/2006 Asphalt/Concrete : Play equipment**

There is none. Resurface and repaint asphalt on North side. There is a clogged drain ar northwest corner.

**8/30/2006 Doors: Exterior Entrances**

Hollow metal with some rusting doors and frames. Hardware appears worn and dated. No insulated glazing.

**8/30/2006 Windows: Windows**

Aluminum, non insulated typical, with lower vents and plexiglass. Some loose rubber gasketing and missing exterior screens. Minimal lintel rusting or cracked glazing.

**8/30/2006 Walls : Exterior walls**

Brick appears to be in fair condition with only minor joint deterioration and cracking. The perimeter stone retaining wall shows several damaged and shifted stone caps and open joints in the ashlar. EIFS has only minor damage in the parking area. The interior side of the exterior walls generally in fair condition with minimal ceiling water staining on 1X1 tile and 2X4 acoustical tile. Some peeling paint on kitchen sills.

**8/29/2006 Electrical : General Description**

The 42,063 square foot building constructed in 1955 has a 1200A, 208/120V, 3-Phase electrical service, being fed from a 150KVA KCP&L transformer (No. JAB950857). Electrical service metering is found outside the building with and meter serial no. of 02710967. The Main entrance panelboard seemed to be loaded with practically no available spares and spaces. TVSS is not found as a part of the electrical system. Electrical Room seemed clean. The equipment spacing and clearances did comply with National Electrical Code. It is obvious that the present electrical service needs to be upgraded to a new 480V service with new HVAC and other misc. addition/alteration from the present situation. In general the lighting is done with recessed 2x4 34W 4-lamp T12 acrylic prismatic lensed troffers. Some Light fixtures looked well-maintained. But some of the light fixtures like the ones at Cafeteria needs to be replaced with 3-lamp T8 troffers with new lens and electronic ballasts. We would also recommend to retrofit all T12 troffers with energy efficient 2-lamp T8 lamps with specular reflector (85% reflectivity) for saving energy. Lighting in Computer Rooms with 4-lamp 18-cell parabolic fixtures seems adequate. Light fixtures in the office areas need to be upgraded with the same to reduce glare. Incandescent Lighting in gymnasium needs to be upgraded with either rapid start metal halide fixtures or T5HOs. Lens replacement is necessary in fixtures at the restrooms. In general, all the light fixtures are controlled by Toggle Switch. Application of occupancy sensors are required all over the place to comply with the latest codes and standards. Non-cut off exterior lighting needs to be upgraded with full-cut off, photocell-timer-sensor controlled lighting. Manual Pull stations found at designated exits. Smoke Detectors found at

#### 7/11/2006 Roofing : Roof Inspection

Matt Pierce and Glenn Robinson conducted a roof inspection today. Most important maintenance item to prevent roof failure would be to clean out all drain baskets on an annual basis, most of them are currently clogged. The safety rail on the northwest side of the building is a hazard due to broken base supports.