

PHYSICAL EVALUATION

SECTION TWO PHYSICAL EVALUATION

SMMA has conducted an existing conditions review of Beverly High School. This analysis, when viewed with other components of the Feasibility Study, has provided the design team and the Owner the necessary information to determine the long-term needs and direction for the physical plant of Beverly High School.

SMMA architects and engineers evaluated the building to determine the condition of building systems and components. Evaluations have included:

- Meeting with school maintenance staff to understand past issues and current problems.
- Review of existing documentation including the original contract documents and the 1998 Strelakovsky and Hoit Schools Needs Study.
- On site review of building systems.

Beverly High School was constructed between 1963 and 1965. It was first occupied in 1965. The building contains 220,500 S.F. in the original High School building, and 53,800 S.F. in the Patten Wing, for a total of 274,300 S.F.

The Patten Wing was originally designed as a vocational school. In recent years it has served as an Elementary School. In the fall of 2001 it will be used by the High School with some related citywide school services.

The following is a summary of building systems and their conditions. Detailed reports in all categories can be found in the complete "Existing Conditions Report" in Appendix A of this report.

SITE/CIVIL ENGINEERING

Originally, the design team felt that soil borings would be advisable to determine sub soils conditions and their possible effect on the building structure and water infiltration.

Upon further inspection, Haley and Aldrich, SMMA's geotechnical engineers, in consultation with our civil and structural engineers, recommended a program of test pits in lieu of borings. These test pits were done on Friday, August 3rd, 2001. The geotechnical engineer and civil engineers were on site to observe the test pits.

The analysis of the test pits suggests that the ground water infiltration experienced in recent years has been caused by a built-up of surface water

outside the building. The ground becomes saturated and has no place to go because of the clay subsoils. This condition is referred to as a perched water table. This perched water table, at its extreme, finds its easiest outlet, which typically has been into the building. Re-grading around the building and installation of a system of perimeter and area drains should mitigate the ground water problems.

There do not appear to be any sub soils structural issues.

ARCHITECTURE

This discussion is broken down into a number of categories.

Exterior Walls - These have been and continue to be a source of water infiltration and heat loss. Intersections of materials (precast to precast, windows to precast or masonry, etc.) are generally in poor condition. These joints have been a source of much of the infiltration. Prolonged water infiltration has caused collateral damage to ceilings, wall surfaces, structural connections and mechanical equipment. It has likely been a source of recent mold and mildew problems.

Any building renovation would include a recommendation for repair of all exterior joints to either find a way to insulate the walls or undergo a more extensive wall replacement. All water-damaged materials should be replaced.

Roofing - All roofs have been replaced within the past four to ten years. This appears to have stopped the water infiltration from all but the field house roof. It is reported that 3 ½" to 4" of rigid insulation was added at the time of reroofing. This will be reviewed for conformance with current energy code requirements.

Accessibility - The building is generally **not** accessible to disabled persons. Issues include lack of access to all (10) levels within the building; toilet rooms are generally not accessible; typical classrooms and other teaching spaces are generally not accessible.

Any substantial renovation will require complete accessibility within the school consistent with new construction.

BUILDING STRUCTURAL

The building appears to be structurally sound, though it does not meet all current code requirements. The degree of structural reinforcement needed will vary based on the extent of other renovations.

HVAC (HEATING, VENTILATING AND AIR CONDITIONING)

The building systems have generally outlived their useful life. Systems are in poor condition; do not meet building code requirements or recommended practices.

Any substantial building renovation if undertaken will include a recommendation for a complete replacement of the HVAC systems.

PLUMBING

The building plumbing systems have generally outlived their useful life. Systems are in poor condition; do not meet current building code requirements or recommended practices.

Any substantial building renovation if undertaken will include a recommendation for a complete replacement of plumbing systems.

FIRE PROTECTION

There is no fire protection system. The current building code requires that one be installed at the time of major renovation.

ELECTRICAL

The building electrical systems have generally outlived their useful life. Systems range from new (telephone system) to original equipment. The majority of systems are original equipment.

Any substantial building renovation if undertaken will include a recommendation for a complete electrical systems replacement.