



EXECUTIVE SUMMARY

Howard Community College in Columbia, Maryland is constructing a new building known as the Arts and Humanities Instructional Building (AHIB). The AHIB is 77,000 square feet of classrooms, offices, musical and theatrical theaters. Additionally, the project is delivered at a GMP of \$20 million in 21 months, from September 2004 to July 2006.

After the project is studied, three areas of further analysis are identified in this report to improve the sustainability and schedule of the project. The first study compares a traditional 4-ply built-up roof system to a green roof system. Another study identifies problems with the scheduling sequence of the façade in order to provide a more efficient sequence. The final analysis is used to establish a waste management plan for the project and review the associated costs.

When analyzing the different roof systems, several criteria are established for the comparison. They are installation costs, material costs and initial mechanical equipment savings. Although the green roof did offer mechanical savings, the reductions are minimal and do not result in a substantial financial gain. The high installation cost of the green roof makes the installation impractical. A 4-ply built up roof is recommended based on the lower material and installation costs.

Due to the complex footprint of the AHIB and differing façade materials, substantial coordination is required to schedule and construct the façade. Three different materials, brick veneer, curtain wall, and aluminum panels, are on all sides of the building, which presents a few scheduling concerns. After analysis, it was discovered that the curtain wall sequence is broken and does not provide a continuous construction sequence. To correct this problem, the north façade of the building is re-scheduled to phase in the construction of the curtain wall with the construction of the brick veneer. This re-sequencing will save a week of construction time, but more importantly provides a logical and more efficient sequence of construction for the curtain wall installer.

Thirdly, a waste management plan is analyzed for the AHIB. This analysis compared the cost of recycling wood, concrete, and gypsum debris created on the jobsite to the cost of not recycling them. The comparison concluded that if only 50% of the previously listed materials are recycled, a savings of about \$2,500 is expected. A higher recycling rate would provide for increased cost savings.

In conclusion, the final recommendations are to construct the 4-ply built-up roof and not the green roof; follow the alternative schedule proposed for the façade construction; and implement the waste management plan. The following report presents the three phases of the analysis in greater detail.