

EXECUTIVE SUMMARY

The Robert M. Arnold Public Health Sciences Building was constructed on the campus of the Fred Hutchinson Cancer Research Center (FHCRC). The Public Health Sciences Building houses four programs: Epidemiology, Cancer Biology, Biostatistics & Mathematics, and Cancer Prevention. Both laboratories and offices occupy Arnold Building. The building height is five stories (60') above grade. The structure also extends three stories below ground. There is an entrance plaza, service road, and turnaround at the building entrance. These public spaces are supported by a portion of the submerged structure.

The existing structural system is cast in place concrete. The slabs are typically two-way post-tensioned slabs with drop panels. The majority of the columns are made of reinforced concrete. The lateral force resisting system consists of reinforced concrete shear walls. This paper proposes the structure below grade remain the same construction as was originally design. The portion of the building which extends above ground will be redesigned using steel instead of concrete. This section of the building will be divided into 3 separate structures surrounding the atrium. In addition to this alternative structural system a green roof system will be designed for the existing design. Finally a construction management study will be completed regarding both the alternate structural system and the green roof design. Both cost estimating and construction scheduling will be done for the structural system. The green roof retrofit will only be analyzed on the basis of cost and a life cycle comparison to more typical roof constructions.
