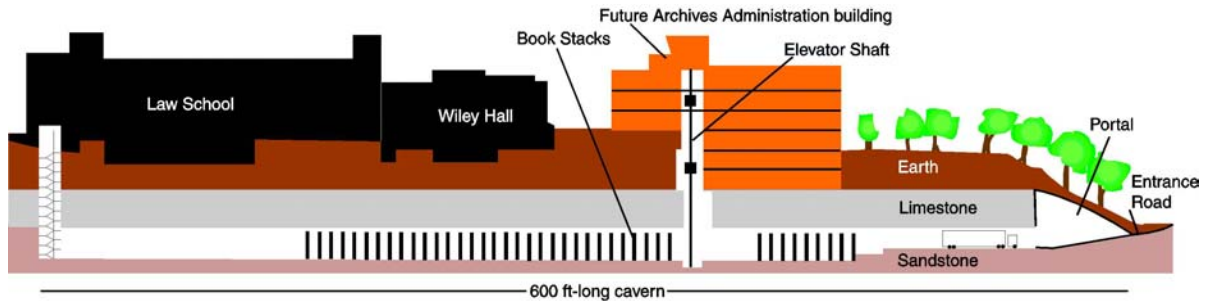


University of Minnesota Underground Space Studies

The unique geology of the Minneapolis/St. Paul, Minnesota area permits economical construction of underground space facilities. The University of Minnesota has exploited these conditions in construction of campus facilities, including the Civil Engineering Building, Minnesota Library Access Center, and numerous utility tunnels. In addition, CNA has conducted underground space studies for project siting and long range planning purposes. These include a Nuclear Magnetic Resonance Facility (NMR) and several underground parking studies.



The geology of the campus consists of 10 feet to 50 feet of overburden material overlying approximately 30 feet of Platteville limestone. A 4-foot thick Glenwood shale layer and the 150-foot thick St. Peter sandstone lie below the Platteville. Mined spaces are typically constructed in the easily-excavated Glenwood and St. Peter. The Platteville forms a competent roof that permits large roof spans with no damaging surface deflection. The University's Minneapolis campus is cut by the Mississippi River, which has sliced through these bedrock units. This provides for drive-in portal access to the mined space, which reduces construction costs and provides permanent access.

Key CNA staff worked at the University of Minnesota Civil Engineering Department during the 1970's, conducting research on cavern design, construction and performance. The technology developed is now being used on construction of the Dallas Metro, and in underground space development at many locations in the United States.

CNA was the prime consultant to the University of Minnesota for the NMR Facility and Parking studies. They were responsible for feasibility study, site selection and investigation, space planning, and cost estimating. The NMR Facility study was conducted in 1987. Underground parking studies were conducted in the 1980's and 1990's (as recently as 1998) and such facilities are part of the campus master plan. The University is developing all surface and underground projects with careful consideration of the impact on future underground development.

Owner — University of Minnesota

Completion Date — 1970's to present

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