



## PROJECT DESCRIPTION



2020 - 2021



Michigan State  
Quinn Evans

After 143 years of dedicated service to state lawmakers and the public, the Michigan State Capitol Building, a National Historic Landmark designed by Elijah E. Myers, underwent major renovations. These included the construction of the Heritage Hall Visitor Center, a \$40M underground expansion serving as a welcoming venue for visitors, and the main entry point for school groups, tourists, and others. Heritage Hall features a 600-person auditorium and conference center with space for historical exhibits.

## EXCAVATION AND MONITORING WORKS

Schnabel, an earth-retention contractor & foundation construction company, was hired for the project to provide temporary and permanent excavation support. The excavation depth-averaged 26 feet, with up to two levels of tiebacks. A permanent secant wall with tiebacks was chosen to control both horizontal and vertical movements in areas where shoring was needed within the Capitol's zone of influence. Temporary excavation support, including driven soldier piles, lagging, and tiebacks, was used in all other areas away from the Capitol.

In the midst of the pandemic, Sixense joined the project to deploy a solar-powered automatic total station that was used to continuously monitor twenty-five locations on the Capitol and thirty locations on the permanent and temporary excavation support. Three (3) seismographs located in the basement of the Capitol were also installed to monitor the vibration from nearby pile driving, secant drilling, and tieback drilling. The seismograph data was continuously monitored as pile driving approached the Capitol to confirm the vibration stayed below a certain threshold. The team closely monitored both vibrations and movements on the Capitol during the drilling process.

## PROJECT TAKEAWAYS

Sixense faced challenges related to the ongoing pandemic, but were able to navigate them by implementing innovative solutions and adhering to numerous new safety precautions to comply with state guidelines. The project was completed in September 2020, without exceeding the movement criteria of the Capitol or any of the excavation support, and finishing on time to the

<b>1</b> AMTS (Cyclops)	<b>25</b> Structure Monitoring Points
<b>30</b> Support of Excavation Points	<b>3</b> Vibration Monitors During Piling





# Michigan State Capitol Heritage Hall Project

Monitoring excavation works during historical building renovation

**Lansing - UNITED STATES**

satisfaction of the client. The consistent reliability of Sixsense's data made the project stakeholders confident that the existing structures were safe during the works.

