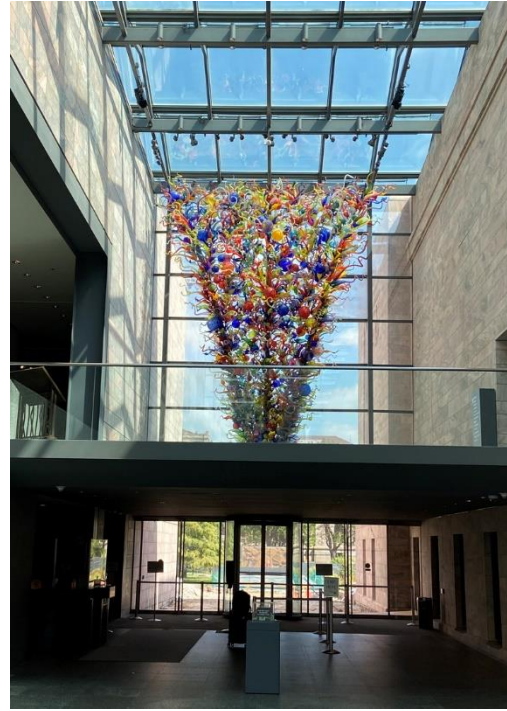




PROJECT PROFILE

Joslyn Art Museum

Vibration Control during Museum Expansion | Omaha, NE



CLIENT

Joslyn Art Museum

BACKGROUND

The Joslyn Art Museum opened in 1931, funded by a \$3 million gift from Sarah Joslyn as a memorial to her late husband George. Today, the collection contains more than 12,000 objects, representing more than 5,000 years of creativity.

In 2018, the museum announced plans for an expansion to be designed by Snohetta and constructed by Kiewit, with Accenture owner's representative. Construction occurred from 2021—2024 and added 24,000 square feet of building area, including a new entry, retail shop, community space, and new galleries. Existing building spaces were also renovated.

Protecting the museum's collections from the vibrations caused by the construction was of paramount importance.

The Joslyn Art Museum retained WJE as a vibration control expert to develop guidance for protection of its collections during the construction. The museum remained open to the public during the first several months of construction. The construction generated significant vibrations near art collection areas, including site demolition, excavation and grading, and new deep foundations just outside the existing walls. Areas closest to the interface with the new wing included art galleries, art storage rooms, and a 30-foot-tall glass sculpture by artist Dale Chihuly.

SOLUTION

Using a vibration control methodology developed and refined through work on dozens of museum projects, WJE vibration engineers performed work in three stages: before, at the start of, and during construction. The first two stages were consolidated, and very specialized testing methods and monitoring regimes were employed for the Chihuly sculpture.

Before construction, we conducted vibration testing by instrumenting the art collection areas and Chihuly sculpture with vibration sensors while the contractor performed controlled trial activities with selected vibratory equipment. Data were used to develop a vibration control and monitoring plan, including stand-off distances for critical equipment and minimum requirements and guidance to mitigate vibration transmission.

At the start of construction, vibration trials were conducted to verify vibration transmission. During construction, vibration monitoring was performed along "safe lines" between the construction and art collection areas. Monitors were programmed to send notifications of any above-threshold vibrations alerting the contractor to halt work, quickly review the data, and change methods, if appropriate. Monitoring included accelerometers mounted to the armature of the Chihuly sculpture.

Our expert execution of vibration control allowed for advance planning by the museum and unencumbered construction.

