



PROJECT PROFILE

Texas Governor's Mansion

Materials Assessment of Load-Bearing Masonry Walls | Austin, TX



CLIENT

Terracon Consultants

BACKGROUND

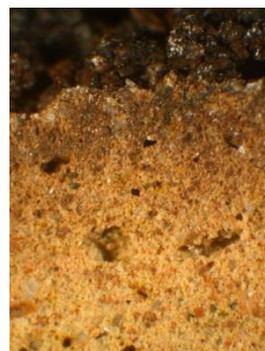
The Texas Governor's Mansion, a national historic landmark, is the fourth oldest governor's residence continuously occupied in the United States and is the oldest governor's mansion west of the Mississippi River. Architect Abner Cook designed the residence, which was built in 1854. The load-bearing masonry walls of the original structure include the north, south and east exterior walls; the original west wall, which was covered by the 1914 addition; and two interior load-bearing walls, which are oriented in the east-west direction.

On June 8, 2008, the mansion, which was under renovation, was significantly damaged by a fire. During the post-fire assessment, concern developed regarding the structural integrity of the load-bearing brick masonry walls. Terracon Consultants, on behalf of the Texas Facilities Commission, retained WJE to assess the original 1856 portion of the building and the interface of the original portion with the 1914 addition.



SOLUTION

WJE performed a limited visual survey of the load bearing masonry walls at the original portion of the mansion to document preexisting distress as well as fire-related distress. WJE used nondestructive reinforcement location equipment to assess whether dowels were present connecting the bond beam to the masonry below. No evidence of dowels extending into the masonry was detected. WJE coordinated with the project team to select sample locations of plaster, mortar, and masonry for material testing and analysis. Representative bricks were selected for petrographic examination and compression testing.



Overall, the masonry materials comprising the load bearing masonry walls of the Governor's Mansion appeared to be consistent with what would normally be expected of structures constructed during that era. Cracking in the walls appeared to have pre-existed the fire and was likely due to a combination of factors, including lintel distress and limited differential foundation settlement. Based on the petrographic examination of the samples, it appeared that little, if any, damage had occurred to the remaining brick units and mortar. WJE provided engineering recommendations for allowable stresses on the walls and developed design recommendations for repairs.