

Emergency Repair of Hangar Doors - Westover Air Reserve Base Chicopee, MA

Project Description:

Location

Chicopee, MA

Owner

Westover Air Reserve Base

Duration

2005

Prime/Sub

Prime

Construction Cost

\$2 million

AI Engineers, Inc. was retained by the Department of the Air Force to provide engineering services for an investigative study of the hangar doors on the Pull-Through Hangar Building No. 7040 at Westover Air Reserve Base in Chicopee, MA. These hangar doors had operational issues and were placed on restrictive use as a result. Our investigation involved a structural and mechanical site inspection, a door condition survey and a structural analysis of the doors. The report included our investigative and analytical results as well as recommendations and cost estimates to obtain proper performance from the doors.

In this study, we utilized our own findings as well as various other sources of information provided by the Air Force, such as a 1995 study by Krupnick and Crosskey, correspondences from International Door, Inc. and the 2004 Plans for the aperture doors by GPS Specialty Doors, Inc. For analysis and evaluation, the Unified Facilities Guide Specifications was used to the extent possible with ASCE 7-02 as a complementary specification.

Non-destructive testing was performed in this project to determine the strength of the structural steel and to determine if any of the welded connection cracked.

Investigations performed by AI revealed that improper performance of the doors was caused by two factors, the misalignment of the bottom rails and the deformations of the vertical door columns. Various scenarios outlining the repair of both items including the associated costs were provided.

No structural issues in the door framing members were found from the analysis. Since the individual contributions from each of the two factors to the overall door operational issues are unknown, problem-free operation of the doors may only be obtained by the replacement of the whole assembly including the rails, doors and the carriages- all of which is considered a long-term/high-cost solution.



Salient Features

- Structural & Mechanical Site Inspection
- Non-Destructive Testing