



PROJECT PROFILE: 35 Dunham Road Office Building - Billerica, MA *Masonry Restoration and Structural Stabilization*

THE CHALLENGE:

A single story load-bearing block masonry building that houses 14 individual business units had **extensive vertical cracking at the corners of each entryway**. The cracking was evident at all of the building entrances, and was determined to be a **significant structural issue** for the owners to address.

Working with a structural engineer, the Alpha team made test cuts in the existing masonry to determine the existing wall construction. There was no indication that the cracking was caused by “building settlement” as the cracking was localized at the corners of the entrances. Due to the large span of each opening, the **concern was that the masonry was being “point loaded”** in excess of its capacity.

Once the test cut locations were explored and the engineer reviewed the existing construction, it was determined that a combination of **two factors** had caused the cracking: ***Excessive point loading*** on the masonry and ***reinforcing steel grouted in the corners had started to rust and expand***, pushing out on the masonry.



THE ALPHA SOLUTION:

The successful repair solution was to **install a full-height structural tube column at each corner to transfer the loads down to the foundation** instead of through the masonry wall.

Alpha installed temporary shoring to support the existing steel beam across each entrance. The shoring needed to be sufficient to carry the existing building loads. Once the shoring was in place, Alpha was able to “tooth-out” the cracked masonry at each corner for the column installation. After the masonry was removed, the **new tube column was installed and welded into place**. The **replacement masonry had to be carefully notched** around the new columns so as not to alter the building lines.

Alpha worked closely with the property manager to complete all demolition and noisy work in the early mornings or on weekends in order to **minimize the impact** of the disruptive work and **enable the building's tenants to continue business operations** without interruption.