

ROBERT SILMAN ASSOCIATES, PLLC

STRUCTURAL ENGINEERS

1053 31st STREET, NW, WASHINGTON DC 20007
PHONE (202) 333-6230 • FAX (202) 318-3015

MEMO

DATE: July 18, 2002
PROJECT: Luther Place
COMPANY: John Milner Associates
ATTENTION: Mike Lengyel
FROM: Kirk Mettam
RE: West Spire Stability Investigation
Preliminary Field Observations
CC: JM, File

Kirk Mettam, P.E. from Robert Silman Associates, PLLC (RSA) joined Mike Lengyel of John Milner Associates (JMA) to visit the above referenced site on Tuesday May 21, 2002. The purpose of the investigation was to assist in the review of structural conditions of the western most of the small spires at Luther Place Memorial Church in Washington DC.

Scope of Investigation

The scope of this investigation was limited. The goals were as follows:

- Identify materials and methods of original construction
- Identify modes of material deterioration and failure
- Identify general extent of observed deterioration of damage
- Evaluate the effects of the observed deterioration on stability of the spire
- Outline necessary measures to perform required repairs and/or retrofits.

This memo outlines the findings of RSA's investigation and identifies preliminary recommendations for discussion purposes only.

Methods of Investigation

This investigation was based on observations of the visible elements only, no testing or probes were conducted. Access was gained to the spire by ladder through a temporary opening in the ceiling cut for the purposes of this investigation. The area had previously been cleared of significant amounts of pigeon guano, and sanitized.

RSA observed the conditions while balancing on two main cross beams at the elevation of the spire. Flashlights and a flood lamp assisted observations. A sketch was made of the general structural framing and general locations of damage were noted.

General Description of Original Construction

The structure observed appears to be entirely original. Modifications had been made to the spires exterior, with major modifications to the louvered openings around the spire.

PROJECT: Luther Place
RE: West Spire Stability Investigation
Preliminary Field Observations

DATE: July 18, 2002

The construction consists of a wood framed spire supported on a stone masonry base. Wood sills were placed in an octagon configuration to create a 'foundation' for the spire. These sills are stacked, rather than being positioned in one layer with cut joints at the corners. At the eight corners of the spire, primary supports extend from sill plate to the peak of the spire. Between primary supports, secondary supports extend from the middle of each sill member, to about mid height of the spire where they are supported by a short header back to the primary supports. The entire spire is clad in slate over plain wood board siding.

At the base of the spire, additional diagonal members are used to create openings for triangular dormers. The siding is omitted in these areas and secondary framing outside of the spire creates the triangular dormers. Modifications to the original construction included enclosure with sheet metal panels.

Because of the stacked sills, many of these intermediate supports are creating a bending condition in the sills.

General Conditions Observed

The general conditions of the spire were noted to be poor. Starting at the sill plate, water damage has caused allowed rot and significant decay of the structural elements. The sill members and the primary and secondary elements have lost most if not all of their cross section in most locations.

Where primary members have lost their section, secondary supports are now carrying load and creating a bending condition in the sills, because of the stacked sill construction.

Findings and Preliminary Recommendations

It appears that, in the absence of the primary structural elements, the sheathing and various subsequent cladding modifications are carrying significant loads and compensating for the lack of structural support. This is an unsafe condition. While, there may not be an urgent need for repairs, this condition could lead to an overall failure of the spire if the exterior elements are modified prior to reinforcing the primary structure and sill foundation of the spire.

We recommend that the primary structure of the spire be repaired as soon as possible, and prior to any other work on the spire. Repairs can be achieved by a sensitive internal retrofit to the existing structure. This can be accomplished in a relatively simple manor, due to the generous interior ledge of the masonry base.