



June 20, 2011

Sample Report

Re: *Sample Report*

The purpose of this inspection report is to describe the scope of the structural inspection and findings during the June 20, 2011 structural inspection at Sample Report.

Scope

The scope of this structural inspection was to evaluate the below-bulleted structural elements with respect to lateral shifting and cracking.

- Interior basement/ cellar rear foundation wall
- Basement/ cellar exterior stairwell retaining wall

Structure Description

The subject home is a single-family, wood frame structure constructed on a masonry foundation. The homes original construction is listed as 1940. The exterior siding is brick veneer. The masonry foundation wall forms a basement/ cellar that are accessible at the rear exterior foundation wall. All floor, wall, and attic framing is constructed with dimensional lumber. The foundation material is effectively 8" thick and mainly constructed with 8" CMU.

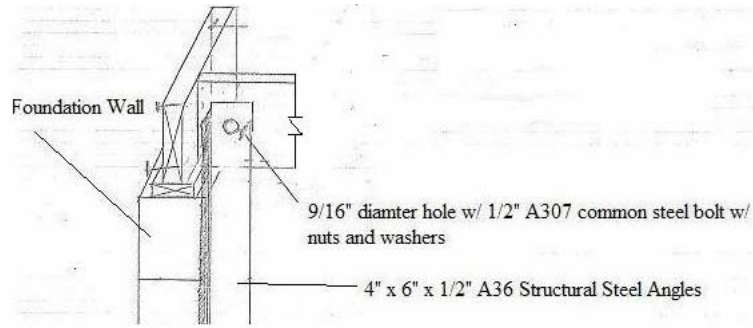
Evaluation #1 (Basement/ Cellar Rear Foundation Wall)

There are horizontal, vertical and stair-step cracks visible in the rear basement/ cellar interior foundation wall between the left rear corner and the rear exterior wall door opening. . Vertical cracks in the exterior foundation are visible near the corners of this wall. The cracking patterns are caused by bowing (bulging) of the front foundation wall with respect to the height dimension. The bow indicates that wall does not exhibit the stiffness to resist the service loads that are applied. Based on the size of the cracks, the topography of the surrounding area, soil in the surrounding area and wall height and material, this bow is increasing and will continue to increase. Therefore, the wall should be braced to prevent further deflection.

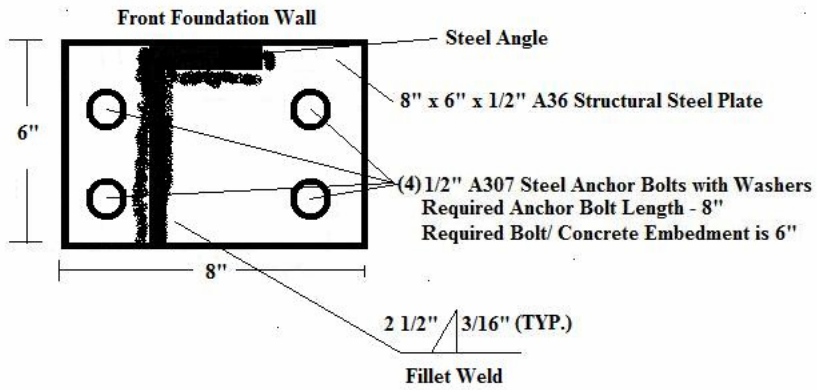
Design #1 (Basement/ Cellar Rear Foundation Wall)

Two (2) vertically aligned steel angles should be installed against the rear interior basement foundation walls. The angles must be bolted to the floor framing and bolted into the concrete slab. These angles will prevent additional bowing of the foundation walls. The required materials and details are provided in this report.

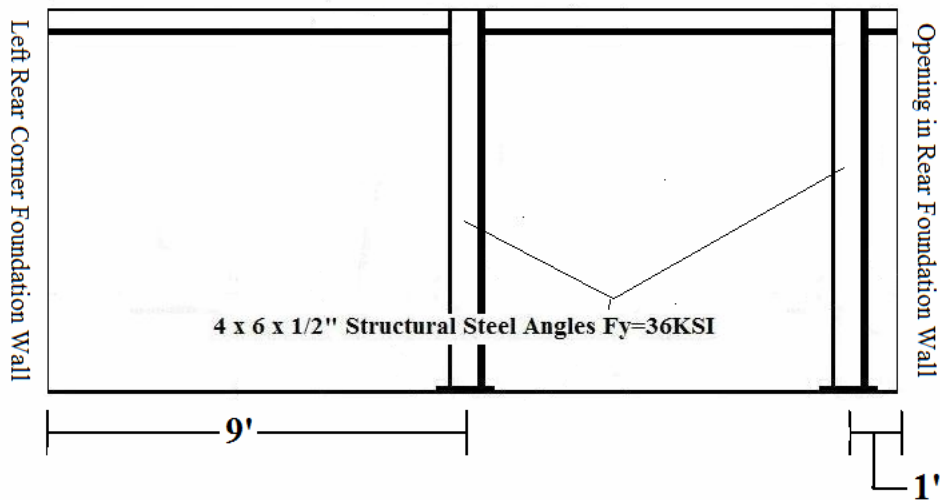
- (2) A36 Steel 4" x 6" x 1/2" approximately 7.5' long (measure for proper erecting)
- (2) A36 Steel 8" x 6" x 1/2" base plates, w/ 1/4" fillet welds where shown.
- (8) A307 1/2" common steel concrete anchor bolts with washers
- (2) A307 1/2" common thru bolts with nuts and washers.
- 2 x 10 spacers (blocking) cut to length.



Base Plate and Fastening Requirements



Rear Foundation Wall (Elevation View)





Evaluation #2 (Basement/ cellar exterior stairwell retaining wall)

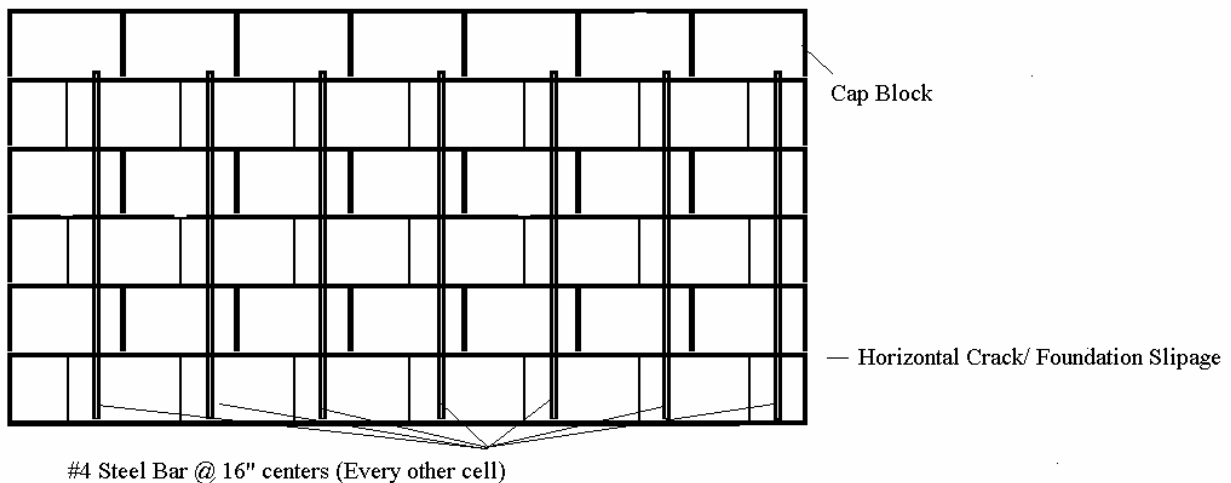
There is a rear exterior stairwell to access the basement. The stairwell is formed by 8" block surrounding pored concrete steps. The 8" block mainly supports horizontal soil loads. This loading has resulted in lateral block slippage. The slippage occurs just above the level of the concrete staircase. The block is not shifting below the staircase because the concrete stair has adequate mass and stiffness to resist the soil pressure. The most feasible repair is to install and mortar vertically aligned steel bar in the retaining wall 8" block cells.

Design #2 (Basement/ cellar exterior stairwell retaining wall)

The solid cap blocks should be removed. Removal of the cap block should expose the open cells in the CMU block. #4 steel bar should be installed in every other cell or 16" on center. The bar should be installed 12" below the line of visible horizontal block slippage. The bars must be vertically aligned before filling cells with grout. All cells where steel is installed should be completely filled with grout. The cap blocks can be re-installed after completion. Details are provided in this report.

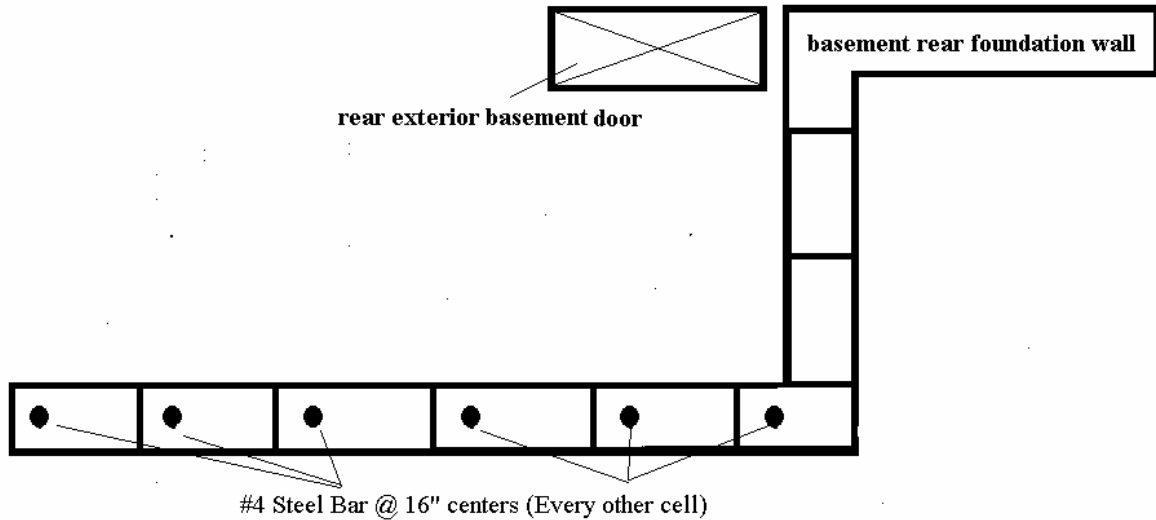
- Approximate required bar length is 50" (measure before erecting)
- (7) #4 bar @ approximate 50" lengths (measure before erecting)
- Grout, fc' 2000 PSI

Exterior Basement Stairwell Retaining Wall (Interior Elevation)





Basement Stairwell Retaining Wall Plan View



Conclusions

The designed repairs will restore the structural integrity for the structural elements evaluated. The scope of this structural evaluation is documented in the 1st paragraph of this report.

Sincerely,

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