



L & L STRUCTURAL
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January 13, 2004

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Subject: St. Dominic's Family Housing Renovation-**Special Inspections**

Items Inspected: Structural Fill Gradation and Compaction, Concrete mix design,
Concrete Footings & Walls, Concrete reinforcing, and Structural Steel.

Inspection Notes

CONCRETE FOOTINGS, FROST WALLS & PIERS

Soil Bearing:

As indicated in foundation note #2 on the original design drawing S1 exterior strip footings are to bear directly on compacted structural fill or native soil. A visual inspection of the footings prior to placing concrete indicated the footings are founded on bedrock, compacted structural fill, compacted crushed stone or native soil. This meets the design requirements. In addition, R. W. Gillespie & Associates performed soil gradation and compaction tests on the soils. The on-site existing soil utilized beneath concrete footings and slabs was tested and meets or exceeds the required specifications indicated in foundation note #5 & #6 on drawing S1 for gradation and compaction respectively.

Concrete Mix Design:

A 3,000 psi mix design is required for footings, piers, and frost walls and a 4,000 psi mix design is required for slabs on grade as indicated in concrete note #2 on drawing S1. The mix design we reviewed for the 3,000 psi and 4,000 psi mix developed by Dragon Product Company is in compliance with Section 03300 of the project manual as well as the design drawings. Concrete cylinder tests were taken for each batch of concrete. Later 28-day cylinder breaks performed by R. W. Gillespie & Associates indicate that the concrete strength for the slabs, footings, piers, and frost walls meets the design requirements.

St. Dominic's Family Housing Renov. - Special Inspections

1/13/04

Page 2

Concrete Formwork:

The Steel-Ply Forming system manufactured by Symons including all form ties and accessories was submitted for concrete wall and pier forming. This is an acceptable system to meet the design requirements.

Foundation Reinforcement:

The steel reinforcing bar was supplied by Barker Steel Company, Incorporated. We reviewed the shop drawings prepared by Barker Steel Company, Inc., which adequately indicated the placement of reinforcing bars required for the project. A visual inspection of the footing reinforcement indicates there are 3#5 continuous reinforcing bars placed 3" above the bottom of the footing as indicated on the foundation plan on drawing S6. The reinforcing bars are ASTM A615 Grade 60 deformed bars as required in concrete note #6 on drawing S1. Wall forms are adequately tied and are coated with form oil as required in section 03300 of the project manual. The 2#5 deformed bars meeting the requirements of ASTM A615 grade 60 have been installed at the top and bottom of the wall and the pier reinforcement was properly installed as indicated on drawing S6.

MASONRY CONSTRUCTION:

Subsequent to the project initiation, we discovered that the existing three wythe thick brick wall at the third floor level was incapable of resisting the code stipulated design loading from the new fourth floor, existing roof, and wind and/or seismic loading. Consequently, the two interior wythes of the existing brick masonry in the existing three wythe thick brick wall were replaced with a reinforced 8" thick concrete block wall. And the remaining exterior brick wythe was fastened to the new masonry wall. At the time of our inspection vertical dowels for the new 8" block masonry were placed at 24" on center as indicated in the section on drawing SKS-8 (revised 6/4/03). The bars are #5 deformed bars meeting the requirements of ASTM A615 and are placed in the center of the wall as required. The block was being laid in running bond as required.

STRUCTURAL STEEL:

The structural steel for the new fourth floor framing, the new stair tower, and the required miscellaneous lintels in the new masonry wall was fabricated and supplied by a local steel fabricator LMC Light Iron, Incorporated. A review of the structural steel notes on the design drawings as well as the specification section 05120 indicates that all Structural Steel shall meet the requirements of ASTM A36, all welding is to conform with AWS D1.1 using E70XX electrodes, and all bolting shall be performed using 3/4" diameter A325N bolts. A review of the shop drawings indicates the steel being supplied meets the requirements of ASTM A36, the bolts are A325-N (Bearing Type), and the welds used in the fabrication process are in conformance with AWS D1.1 for E70xx welding procedures. A visual inspection of the erected steel indicates the beam sizes and locations are in conformance with that shown on drawing S4 (fourth floor framing plan) and S6 (stair tower framing plans).

St. Dominic's Family Housing Renov. - **Special Inspections**

1/13/04

Page 3

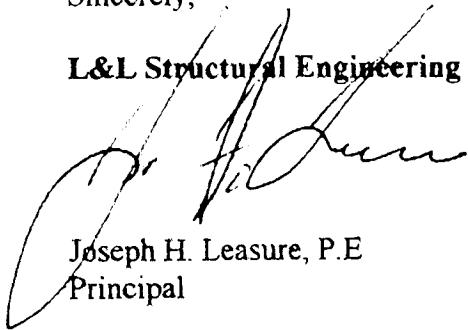
STRUCTURAL STEEL (cont.):

A visual inspection of the beam connections indicates the bolts used for steel erection are A325N bolts, all bolt holes are filled, and the plane of the beam web is in contact with the plane of the shear tabs. This meets the AISC ASD requirement for bearing type connections where slip critical connections are not required. A visual inspection of the bracing welds indicate the welds to be 1/4" fillet welds on the average 6" long. No weld size was shown on the design drawings, or on the approved shop drawings, however, this is acceptable to the EOR. The fourth floor framing connections were randomly tested by Quality Assurance Labs, Inc. and were found to be acceptable. The stair tower was erected slightly out of plumb (approximately 2" in the full height of the tower) which is slightly outside the acceptable erection tolerances as specified by the American Institute of Steel Construction (AISC). Our subsequent analysis of the erected stair tower framing indicates that the existing 2" out of plumb over the full height of the frame is acceptable.

If you feel any of the above information is inaccurate, please do not hesitate to call so we have the opportunity to perform a re-inspection of the specific item.

Sincerely,

L&L Structural Engineering Services, Inc.



Joseph H. Leasure, P.E.
Principal

