GILSANZ MURRAY STEFICEK LLP

ENGINEERS AND ARCHITECTS

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August 1, 2017

Pam Horn
The Lightstone Group
460 Park Ave. Suite 1300
New York, NY 10022

Re: 130 William St., New York, NY 10038
Independent Structural Engineering Review
GMS Project Number 16641

Dear Ms. Horn,

As per your request, Gilsanz Murray Steficek LLP conducted an independent structural engineering peer review for the proposed 130 William St. project. We reviewed drawings prepared by McNamara Salvia, dated 6/14/2017 (100% CD). A complete drawing list is included at the end of this letter and at the end of our peer review report. Our review is limited to the building structure only and does not include a geotechnical review.

Based on our review, the design shown on the plans and specifications is generally in conformance with the requirements of the NYC Building Code. The results of the peer review are detailed in the attached report, and are summarized as follows:

1. The structural design loads conform to the NYC Building Code.

2. The structural design criteria and design assumptions generally conform to the NYC Building Code, and are in accordance with generally accepted engineering practice.

3. The existing condition at the site has been investigated by a geotechnical engineer and by a wind tunnel consultant. We have reviewed the draft geotechnical investigation report and the preliminary wind tunnel results and confirmed that the design generally incorporates their results. We did not confirm the accuracy of the information provided by the specialty consultants.

4. The superstructure has a complete load path.

5. The adequacy of a representative fraction of the structural system, members, and details has been confirmed through calculations.

6. The structural integrity provisions of the code are being followed.

7. The structural plans are in general conformance with the architectural plans.

8. The major mechanical items shown at this time are accommodated in the structural plans.

9. It is our opinion that the structural plans and specifications are generally complete.

Our review included the following referenced sheets from the drawing set for New Building job number 121192903:

S-001, , FO-001, FO-002, FO-003, FO-004, FO-100, FO-200, FO-201, FO-202, FO-203, FO-204, FO-205, FO-206, FO-210, FO-300, FO-301, FO-302, FO-303, FO-304, FO-305, FO-306, FO-307, FO-308, , FO-309, S-010, S-011, S-020, S-021, S-030, S-031, S-040, S-041, S-050, S-051, S-060, S-061, S-070, S-071, S-090, S-091, S-110, S-111, S-140, S-141, S-150, S-151, S-160, S-161, S-180, S-181, S-190, S-191, S-260, S-261, S-270, S-271, S-280, S-281, S-290, S-291, S-370, S-371, S-390, S-391, S-400, S-401, S-410, S-411, S-420, S-421, S-430, S-431, S-440, S-441, S-450, S-451, S-500, S-501, S-510, S-511, S-570, S-571, S-600, S-601, S-610, S-611, S-620, S-621, S-630, S-631, S-910, S-911, S-912, S-915, S-920, S-921, S-922, S-923, S-924, S-930, S-931, S-932, S-933, S-934, S-940, S-941, S-942, S-943, S-950, S-960, S-980, S-981

I trust this information is sufficient for your current purposes. If you have any questions or comments, please do not hesitate to contact us.

Very truly yours,

Ramon Gilsanz, PE
Partner
Gilsanz Murray Steficek, LLP

Jennifer Lan, PE
Associate
Gilsanz Murray Steficek, LLP

INDEPENDENT STRUCTURAL ENGINEERING PEER REVIEW

130 WILLIAM ST.
NEW YORK, NY

August 1, 2017

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Executive Summary

Gilsanz Murray Steficek LLP conducted an independent structural engineering peer review for the proposed 130 William St. project. We reviewed drawings prepared by McNamara Salvia, dated 6/14/2017 (100% CD). A complete drawing list is included at the end of this letter and at the end of our peer review report. Our review is limited to the building structure only and does not include a geotechnical review.

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7. The structural plans are in general conformance with the architectural plans.

8. The major mechanical items shown at this time are accommodated in the structural plans.

9. It is our opinion that the structural plans and specifications are generally complete.

Information Provided to GMS for Review:

- Structural drawings, prepared by McNamara Salvia, dated 6/14/2017 (100% CD).
- Architectural drawings, prepared by Hill West Architects dated 6/14/2017 (Issued for Construction).
- Wind Loading Study-BMT Fluid Mechanics – BMT Project # 431848, dated 12/20/2016
- Report of Geotechnical Investigation, dated 4/19/17, prepared by RA Consultants LLC

Design Codes

- New York City Building Code 2014 Edition
- ACI-318 Building Code Requirements for Structural Concrete

Design Criteria

The gravity loading criteria is based on occupancy per loading schedule on drawing S-001.

The wind loading criteria is based on BMT's wind tunnel study, in addition to the requirements of NYCBC 2014.

The seismic loading criteria are based on the Geotechnical Report by RA Consultants, in addition to the requirements of the NYC Building Code.

Building Description:
The project is located in 130 William St., New York, NY. It is a residential building consisting of a 60-story tower and one below ground levels. The building will be 755 feet above street level.

Foundations:

The building has one floor below grade. The shear walls and columns are supported on piles ranging from 1200 to 1700 kips in capacity. Some low rise columns are supported on existing piles, which have 100 kip capacity. All the lateral load is taken by new piles that fall outside the influence zone of the NYCTA structure. Some piles are in tension under combined gravity and wind loads and have a tension capacity of 600 kips.

The design water level is below the elevation of the basement slab.

Superstructure:
The superstructure consists of cast-in-place slabs, shear walls, and columns. The floor slabs are of two-way flat plate construction and variable thicknesses that are typically in the range of 8"-18". The columns are transferred or walked at various locations to accommodate architectural layout. The concrete strength varies from 8100 to 8600 psi for slabs, 10,000 to 12,000 psi for columns, and 10,000 to 14,000 psi for walls.

Lateral System:
The lateral system consists of cast-in-place shear walls that vary in thickness. There is a central core and four lines of walls that extend from the core to make up the lateral system of the tower. There is a belt wall around the perimeter at the 27th floor. Shear wall openings are connected by link beams.

Structural Review:

Design Criteria & Loads:

Dead & Live Loads: The dead loads and live loads shown on the structural drawings are generally in compliance with the building code and generally accepted engineering practice. The storage areas are designed for 40 psf of live load. We assume these are intended to be very light tenant storage spaces and will not be used to store heavy objects.

Wind Loads: Wind loads provided by the BMT Fluid Mechanics wind tunnel study are used in the analysis. The governing wind exposures are exposure C from South and East and exposure B from North and West. We found the wind tunnel base moments to be approximately 69% of the code calculated wind load base moment in the X direction and 74% of the code moment in the Y direction. As required by the 2014 code, the building is also checked for 80% of the code wind loads in both directions.

Wind loads were based upon the following natural building frequencies:

Mode 1: 5.83 sec (primary Y-sway)
Mode 2: 5.41 sec (primary X-sway)
Mode 3: 4.07 sec (primary torsion)

Our analysis model shows a first mode period of 5.5 seconds, which is a shorter period than what was provided to the wind tunnel and would have reduced the calculated wind loads.

We did not review the accuracy of the wind tunnel results.

Seismic Loads: The seismic parameters shown on the structural drawings are in conformance with the requirements of the code.

Superstructure:

Columns:
We have performed an independent load takedown of the building and found the column loads shown on the column schedule to be adequate. We verified the design of several columns and found that the reinforcement is adequate. We also verified the design of the walking columns on the 27th floor, and confirmed that the reinforcing provided was adequate.

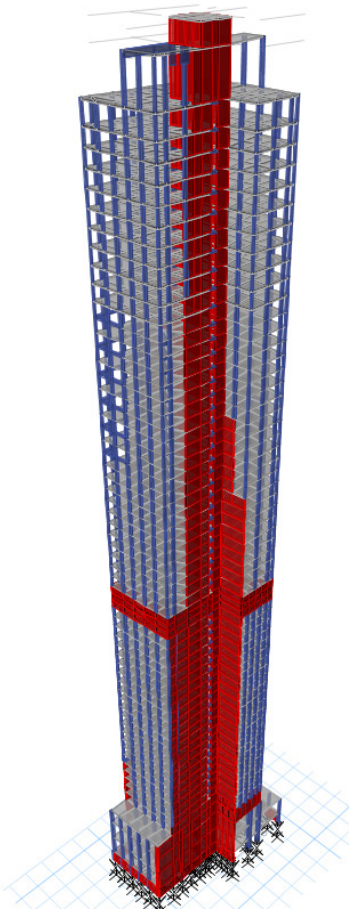
We noted that column 43 is located close to the shear wall and may move differently than the shear wall due to axial loading, creep, and shrinkage. The effect of the differential shortening should be investigated.

Slab Design:
We created independent structural analysis models using SAFE to verify the gravity design of slabs at three separate floors. We chose floor plans that are typical and representative of the majority of the building's slab construction. We confirmed the design was adequate at these floors.

Lateral System Review:
We created an independent structural analysis model using ETABS to estimate the building behavior under lateral loads. The first three modal periods of our model are similar to those provided to the wind tunnel for analysis. Our model included the following modeling idealizations:

- Inertia-gross modified per ACI coefficients for strength calculations
- Slab is modeled with shell elements.
- Link beams are modeled with line elements.
- The piles are modeled as springs.

A 3D view of the model is shown below:



3D view of finite Element Model using CSI ETABS

We reviewed the capacity of the shear walls on Cellar floor and 28th floor and found the design to be adequate. We also reviewed the belt walls at the 27th floor and found the design to be adequate.

We reviewed the link beam design at 3rd to 5th floor, 15th, 25th, 28th, 39th, 44th, 47th, and 50th floor, and found the design to be adequate. We assumed the link beams have the same concrete strength as the shear wall, which was confirmed by the EOR.

We have noted that on the lower floors, the shear wall concrete strength is greater than 1.4 times the slab concrete strength. We understand from the EOR that the higher strength was specified for stiffness only and the provisions of ACI 318-11 Section 10.12 do not apply.

Drawing List:

Our review included the following referenced sheets from the drawing set for New Building job number 121192903:

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