

# ENTUITIVE

January 7, 2014

Re: DOB Application BIS number 121331763

Project Address 530 West 33<sup>rd</sup> Street, New York NY

## STRUCTURAL PEER REVIEW STATEMENT

This structural peer review and report is complete for the Platform phase of the Tower, Retail Podium, and Platform phased submissions.

Structural peer reviewer name: **Barry Charnish**

Structural peer reviewer address: **Barry Charnish, Principal**

**Entuitive Engineering Design Professional Corporation (EEDPC)**

**200 University Avenue, Seventh Floor**

**Toronto ON M4L 3Z8, Canada**

**416 477 5829 direct line 416 262 0320 cell line**

Project address: **530 West 33<sup>rd</sup> Street, New York, NY Platform (foundation and structural drawings Phase 1)**

Department application number for structural work: **BIS number 121331763**

### Structural Peer Reviewer Statement

I, Barry Charnish am a qualified and independent NYS licensed and registered engineer in accordance with BC Section 1627.4, and I have reviewed the structural plans, specifications , and supplemental reports for 530 West 33<sup>rd</sup> Street, New York, NY Platform, BIS number 121331763 for structural work for the Platform Structure as part of the Tower, Retail Podium and Platform project and found that the structural design shown on the plans and specifications generally conforms to the foundation and structural requirements of Title 28 of the Administrative Code and the 2008 NYC Construction Codes. The Structural Peer Review Report is attached.

New York State Registered Design Professional

(for Structural Peer Review only)

Barry Charnish

Limited Permit to Practice Professional Engineering Permit number 00411

Signature

Date 2014 January 7, 2014

A circular professional seal for Barry D. Charnish, a Registered Professional Engineer in the Province of Ontario. The seal contains the text "REGISTERED PROFESSIONAL ENGINEER", "B. D. CHARNISH", and "PROVINCE OF ONTARIO". A handwritten date "2014.01.07" is stamped across the seal. A blue ink signature is written over the seal.

CC: Mr. James White  
Senior Vice President  
RELATED Judson Yards

CC: Mr. Eli Gottlieb  
Thornton Tomasetti



THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

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State Board for Engineering and Land Surveying, Education Building, 89 Washington Avenue, 2<sup>nd</sup> Floor Mezzanine-East Wing  
Tel. (518) 474-3817, Ext. 140

Fax (518) 473-6282

E-mail: [enginbd@mail.nysed.gov](mailto:enginbd@mail.nysed.gov)

E-mail: [lsurvbd@mail.nysed.gov](mailto:lsurvbd@mail.nysed.gov)

"COPY"

June 18, 2013

Barry D. Charnish  
31 Northern Dancer Blvd  
Toronto, Ontario M4L-3Z8  
Canada

Dear Mr. Charnish:

The enclosed Limited Permit authorizes you to practice professional engineering in New York State for the single engineering project identified on the permit.

If you have questions regarding this permit, please contact the Board Office. The contact information is provided above.

Sincerely,

Jane W. Blair, P. E.  
Executive Secretary

Enclosure



THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

State Board for Engineering and Land Surveying, Education Building, 89 Washington Avenue, 2<sup>nd</sup> Floor Mezzanine-East Wing  
Tel. (518) 474-3817, Ext. 140  
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E-mail: [lsurvhd@mail.nysed.gov](mailto:lsurvhd@mail.nysed.gov)

"COPY"

## LIMITED PERMIT TO PRACTICE PROFESSIONAL ENGINEERING

This permit shall entitle the holder to practice Professional Engineering in New York  
but only in connection with the specific project listed below:

<b>Permit Number: 000411</b>	<b>Issued To:</b>
<b>Permit Issue Date: 6/19/2013</b>	<b>Barry D. Charnish</b>
<b>Registration Expiration Date: 6/18/2016</b>	<b>31 Northern Dancer Blvd</b>
	<b>Toronto, Ontario M4L 3Z8</b>
	<b>Canada</b>

This is to certify that

### **Barry D. Charnish**

having applied for a limited permit to practice professional engineering in the State of New York and having submitted satisfactory evidence of established and recognized professional standing in the **Province of Ontario and holds license number 7702012**, and the State Board for Professional Engineering having recommended the issuance of such limited permit; therefore, in accordance with the provisions of Section 7207, subdivision 1, of the Education Law, the said **Barry D. Charnish** is hereby granted this limited permit to practice professional engineering in this state but only in connection with a specific project, viz., **Hudson Yards Development Project, ERY Developer LLC c/o The Related Companies LP, 511 West 33<sup>rd</sup> Street New York, NY 10001** and is authorized to file plans, specifications, and reports using his **Province of Ontario seal**, as provided in Section 7207 of the Education Law. A copy of this permit shall accompany all documents filed with building officials or others in conjunction with this project.

Jane W. Blair, PE  
Executive Secretary

**Non-transferable**  
**Valid only for project listed above**

Professional Engineers must register triennially with the department to practice the profession in New York State. Limited permit holders whose projects may take longer to complete than the three-year registration period must renew their NYS registration to practice the profession in New York State.

# ENTUITIVE



**Barry Charnish** P.Eng.  
**PRINCIPAL**

Barry is a founding Principal of Entuitive and specializes in large-scale commercial projects, working closely with architectural firms, developers and construction clients.

With nearly 40 years of experience in consulting engineering, Barry is a seasoned professional who retains his enthusiasm for each and every project. He has worked on large, complex structures in Canada, the United States, China and Germany, and is recognized for his expertise in tall building design.

Barry's projects include cultural centres, hotel and residential structures, commercial high rises, government buildings, and educational and institutional facilities.

Contributing to the profession is important to Barry, and he has helped develop quality assurance standards for the engineering industry. Also, Barry publishes articles and gives lectures on high-rise building design.

#### Education

Bachelor of Applied Science in Civil Engineering degree (Honours Graduate), University of Toronto

#### Memberships

Professional Engineers Ontario (PEO)  
Association of Professional Engineers and Geoscientists of Alberta (APEGA)  
Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS)  
American Society of Civil Engineers  
Association of Consulting Engineers of Canada  
Canadian Institute of Steel Construction, Associate Professionals Group  
Council of Tall Buildings and Urban Habitat  
Precast/Prestressed Concrete Institute  
Structural Engineering Institute (charter member)

#### Awards

CISC National Steel Design Awards, The Bow, 2012

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“ OUR APPROACH IS TO OFFER CLIENTS THE BEST OF BOTH WORLDS – THE EXPERIENCE OF AN ESTABLISHED CONSULTANCY WITH THE PASSION OF A START-UP. SO OUR PRINCIPALS ARE INVOLVED WITH EVERY CLIENT AND WE APPROACH EACH BUILDING AS OUR NUMBER ONE PROJECT.”

**Commercial**

First Canadian Place, 100 King Street, Toronto, Canada  
 Bay Adelaide Centre East Tower, Toronto, Canada  
 Brookfield Place Calgary, Calgary, Canada  
 Deloitte Tower, Montréal, Canada  
 World Financial Center Tower One and World Financial Center Tower Three, New York, USA  
 200 West Street, New York, USA  
 Harbour Centre, Vancouver, Canada  
 TransCanada Tower, Calgary, Canada  
 Shell Centre, Calgary, Canada  
 Fifth Avenue Place, Calgary, Canada  
 The Bow Tower, Calgary, Canada  
 Manitoba Hydro Headquarters Building, Winnipeg, Canada  
 131 Queen Street, Ottawa, Canada  
 Phase Two World Exchange Plaza, Ottawa, Canada  
 Thompson Reuters Building at Kennedy and 401, Toronto, Canada  
 Commerce Point, Richmond Hill, Canada  
 One Queen East, Toronto, Canada  
 Two Queen East, Toronto, Canada  
 Exchange Tower, Toronto, Canada  
 180 Queen Street West, Toronto, Canada  
 Waterpark Place Phase Two, Toronto, Canada  
 18 York Street, Toronto, Canada  
 RBC Dexia Centre, Toronto, Canada  
 105 Adelaide Street West, Toronto, Canada  
 Richmond Adelaide Centre Revitalization, Toronto, Canada  
 Corus Headquarters, Toronto, Canada  
 Bay Adelaide Centre West Tower, Toronto, Canada  
 33 Bloor Street West, Toronto, Canada  
 One King West, Hamilton, Canada  
 Seven King West, Hamilton, Canada  
 China Overseas Shipping Building, Shanghai, China  
 Shanghai Commercial Centre, Shanghai, China  
 College Park Commercial Tower, Toronto, Canada  
 Bell Trinity Square Office Tower, Toronto, Canada  
 Barrie Computer Centre, Barrie, Canada  
 Bank Computer Centre, Toronto, Canada  
 CIBC Recovery Centre, Hamilton, Canada

**Cultural**

Ripley's Aquarium of Canada, Toronto, Canada  
 Remai Art Gallery of Canada, Saskatoon, Canada  
 Centre for the Performing Arts, Vancouver, Canada  
 Oriental Theatre, Chicago, USA  
 Hilton Theatre (former Lyric / Apollo), USA  
 Four Seasons Centre for the Performing Arts, Toronto, Canada  
 Panasonic Theatre, Toronto, Canada  
 TELUS Centre Royal Conservatory of Music, Toronto, Canada  
 Sony Centre, Toronto, Canada  
 Pantages Theatre, Toronto, Canada  
 Mariinsky Theatre II, St. Petersburg, Russia  
 Festival Theatre, Stratford, Canada  
 Shaw Theatre, Niagara on the Lake, Canada  
 Canadian Museum of Human Rights, Winnipeg, Canada  
 Silver City at Yorkdale, Toronto, Canada  
 Rama Casino, Rama, Canada  
 Rama Sports and Entertainment Centre, Rama, Canada  
 Niagara Butterfly Conservatory, Niagara, Canada  
 Clouds Park at Bay Adelaide Centre, Toronto, Canada

**Hospitality**

Quantum Towers at Yonge Eglinton, Toronto, Canada  
 Residences at the Ritz, Toronto, Canada  
 Trump International Hotel and Tower, Toronto, Canada  
 Rama Hotel and Conference Centre, Rama, Canada  
 Courtyard Marriott, Toronto, Canada  
 Park Hyatt, Hotel, Toronto, Canada  
 Bristol Place Hotel, Toronto, Canada

**Institutional**

University of Toronto, School of Architecture Renovations, Toronto, Canada  
 University of Toronto Scarborough Management Building, Toronto, Canada  
 University of Toronto, St. George Campus Rotman Management Building Expansion, Toronto, Canada  
 Ryerson University Student Learning Centre, Toronto, Canada  
 Ryerson University Student Centre, Toronto, Canada  
 George Brown College Casa Loma Expansion, Toronto, Canada  
 Graduate House, University of Toronto, Toronto, Canada

York Lanes at York University<sup>\*</sup>, Toronto, Canada  
Tom Longboat School<sup>\*</sup>, Toronto, Canada  
Gateway Public School Expansion<sup>\*</sup>, Toronto, Canada  
Valley Park Middle School Expansion<sup>\*</sup>, Toronto, Canada  
The National Ballet School<sup>\*</sup>, Toronto, Canada  
Parkhurst Knitting Factory<sup>\*</sup>, Toronto, Canada

**Retail**

Stadium Shopping Centre Redevelopment, Calgary, Canada  
Rideau Centre Expansion, Ottawa, Canada  
Yorkdale Centre Expansion<sup>\*</sup>, Toronto, Canada  
Holt Renfrew Centre<sup>\*</sup>, Toronto, Canada  
Toronto Life Centre at 10 Dundas<sup>\*</sup>, Toronto, Canada

First Canadian Centre Shopping Centre<sup>\*</sup>, Toronto, Canada  
Donghai Shopping Centre<sup>\*</sup>, Shanghai, China  
Gloucester Plaza<sup>\*</sup>, Ottawa, Canada  
Frankfurt Urban Plaza<sup>\*</sup>, Frankfurt, Germany

**Sports and Recreation**

Antibes Community Centre<sup>\*</sup>, Toronto, Canada  
Fairbank Memorial Centre<sup>\*</sup>, Toronto, Canada  
Glen Long Community Centre<sup>\*</sup>, Toronto, Canada  
Squirrels Nest Community Centre<sup>\*</sup>, Toronto, Canada

**Transportation**

Manhattan West Platform, New York, USA

<sup>\*</sup> Project led by Barry Charnish while employed at a previous firm.

# ENTUITIVE

January 7, 2014

Mr. James White  
Senior Vice President  
RELATED – Hudson Yards  
511 West 33<sup>rd</sup> Street  
New York, NY 10001

Re: Hudson Yards East Platform  
530 West 33<sup>rd</sup> Street, New York, NY  
Our Project No. C012 0248

Dear Mr. White:

Entuitive Engineering Design Professional Corporation, (EN) has completed our review of the structural drawing package prepared by Thornton Tomasetti Inc. (TT) for the Platform structure planned for the Hudson Yards East site. We have reviewed the following structural design drawings for the conformance to the New York City Building Code Sections 1627.6 and 1627.7:

SHEET NO.	SHEET NAME	PHASE	DATE
<b>1. SO SERIES: GENERAL STRUCTURAL NOTES</b>			
S-001.00	Structural Abbreviations and Symbols	DI-02 Phase 1 Structural Update	11/1/2103
S-002.00	Structural General Notes	DI-02 Phase 1 Structural Update	11/1/2103
S-003.00	Structural General Notes	DI-02 Phase 1 Structural Update	11/1/2103
S-004.00	Loading Diagrams	DI-02 Phase 1 Structural Update	11/1/2103
S-005.00	Loading Diagrams - East Platform Overbuild Loads	DI-02 Phase 1 Structural Update	11/1/2103
S-010.00	West Platform Isometric View	DI-02 Phase 1 Structural Update	11/1/2103



S-011.00	East Platform Isometric View (With Slabs)	DI-02 Phase 1 Structural Update	11/1/2103
S-012.00	East Platform Isometric View (Without Slabs)	DI-02 Phase 1 Structural Update	11/1/2103
2. S1 SERIES: STRUCTURAL PLANS			
S-102.00	Composite Plan, Foundation	DI-02 Phase 1 Structural Update	11/1/2103
S-103.00	Composite Plan, Platform Lower Level	DI-02 Phase 1 Structural Update	11/1/2103
S-104.00	Composite Plan, Platform Upper Level	DI-02 Phase 1 Structural Update	11/1/2103
S-121.00	Foundation Plan Section 01	DI-02 Phase 1 Structural Update	11/1/2103
S-122.00	Foundation Plan Section 02	DI-02 Phase 1 Structural Update	11/1/2103
S-123.00	Foundation Plan Section 03	DI-02 Phase 1 Structural Update	11/1/2103
S-124.00	Foundation Plan Section 04	DI-02 Phase 1 Structural Update	11/1/2103
S-125.00	Foundation Plan Section 05	DI-02 Phase 1 Structural Update	11/1/2103
S-126.00	Foundation Plan Section 06	DI-02 Phase 1 Structural Update	11/1/2103
S-127.00	Foundation Plan Section 07	DI-02 Phase 1 Structural Update	11/1/2103
S-128.00	Foundation Plan Section 08	DI-02 Phase 1 Structural Update	11/1/2103
S-129.00	Foundation Plan Section 09	DI-02 Phase 1 Structural Update	11/1/2103
S-131.00	Platform Lower Level Plan Sector 01	DI-02 Phase 1 Structural Update	11/1/2103
S-132.00	Platform Lower Level Plan Sector 02	DI-02 Phase 1 Structural Update	11/1/2103
S-133.00	Platform Lower Level Plan Sector 03	DI-02 Phase 1 Structural Update	11/1/2103
S-134.00	Platform Lower Level Plan Sector 04	DI-02 Phase 1 Structural Update	11/1/2103
S-135.00	Platform Lower Level Plan Sector 05	DI-02 Phase 1 Structural Update	11/1/2103
S-136.00	Platform Lower Level Plan Sector 06	DI-02 Phase 1 Structural Update	11/1/2103
S-137.00	Platform Lower Level Plan Sector 07	DI-02 Phase 1 Structural Update	11/1/2103

S-138.00	Platform Lower Level Plan Sector 08	DI-02 Phase 1 Structural Update	11/1/2103
S-139.00	Platform Lower Level Plan Sector 09	DI-02 Phase 1 Structural Update	11/1/2103
S-141.00	Platform Upper Level Plan Sector 01	DI-02 Phase 1 Structural Update	11/1/2103
S-142.00	Platform Upper Level Plan Sector 02	DI-02 Phase 1 Structural Update	11/1/2103
S-143.00	Platform Upper Level Plan Sector 03	DI-02 Phase 1 Structural Update	11/1/2103
S-144.00	Platform Upper Level Plan Sector 04	DI-02 Phase 1 Structural Update	11/1/2103
S-145.00	Platform Upper Level Plan Sector 05	DI-02 Phase 1 Structural Update	11/1/2103
S-146.00	Platform Upper Level Plan Sector 06	DI-02 Phase 1 Structural Update	11/1/2103
S-147.00	Platform Upper Level Plan Sector 07	DI-02 Phase 1 Structural Update	11/1/2103
3. S2 SERIES: STRUCTURAL ELEVATIONS			
S-201.00	Elevations Grids P1, P2, P3	DI-02 Phase 1 Structural Update	11/1/2103
S-202.00	Elevations Grids P4, P5, P6	DI-02 Phase 1 Structural Update	11/1/2103
S-203.00	Elevations Grids P7, P8, P9	DI-02 Phase 1 Structural Update	11/1/2103
S-204.00	Elevation Grids P9A, P10, P11	DI-02 Phase 1 Structural Update	11/1/2103
S-205.00	Elevations Grids PA to PD	DI-02 Phase 1 Structural Update	11/1/2103
S-206.00	Elevations Grids PE to PH	DI-02 Phase 1 Structural Update	11/1/2103
S-207.00	Elevations Grids PJ to PM	DI-02 Phase 1 Structural Update	11/1/2103
S-208.00	Elevations Grids PN to PR	DI-02 Phase 1 Structural Update	11/1/2103
S-240.00	Tower E Platform Sections and Elevations	DI-02 Phase 1 Structural Update	11/1/2103
S-241.00	Tower E Foundation Sections	DI-02 Phase 1 Structural Update	11/1/2103
S-250.00	Elevation at Grid Line A-A	DI-02 Phase 1 Structural Update	11/1/2103
S-251.00	Elevation at Grid Line A	DI-02 Phase 1 Structural Update	11/1/2103

S-252.00	Elevation at Grid Line A.5	DI-02 Phase 1 Structural Update	11/1/2103
S-253.00	Elevation at Grid Line B	DI-02 Phase 1 Structural Update	11/1/2103
S-254.00	Elevation at Grid Line C	DI-02 Phase 1 Structural Update	11/1/2103
S-255.00	Elevations at Grid Line D	DI-02 Phase 1 Structural Update	11/1/2103
S-256.00	Elevation at Grid Line E	DI-02 Phase 1 Structural Update	11/1/2103
S-257.00	Elevation at Grid Line F	DI-02 Phase 1 Structural Update	11/1/2103
S-258.00	Elevation at Grid Line G	DI-02 Phase 1 Structural Update	11/1/2103
S-259.00	Elevation at Grid Line H	DI-02 Phase 1 Structural Update	11/1/2103
S-260.00	Elevation at Grid Line J	DI-02 Phase 1 Structural Update	11/1/2103
S-261.00	Elevation at Grid Line K	DI-02 Phase 1 Structural Update	11/1/2103
S-262.00	Elevation at Grid Line L	DI-02 Phase 1 Structural Update	11/1/2103
S-263.00	Elevation at Grid Line M	DI-02 Phase 1 Structural Update	11/1/2103
S-264.00	Elevation at Grid Line N	DI-02 Phase 1 Structural Update	11/1/2103
S-265.00	Elevation at Grid Line 1	DI-02 Phase 1 Structural Update	11/1/2103
S-266.00	Elevation at Grid Line 2	DI-02 Phase 1 Structural Update	11/1/2103
S-267.00	Elevation at Grid Line 3	DI-02 Phase 1 Structural Update	11/1/2103
S-268.00	Elevation at Grid Line 4	DI-02 Phase 1 Structural Update	11/1/2103
S-269.00	Elevation at Grid Line 5	DI-02 Phase 1 Structural Update	11/1/2103
S-270.00	Elevation at Grid Line 6	DI-02 Phase 1 Structural Update	11/1/2103
S-271.00	Elevation at Grid Line 7	DI-02 Phase 1 Structural Update	11/1/2103
S-272.00	Elevation at Grid Line 8	DI-02 Phase 1 Structural Update	11/1/2103
S-273.00	Elevation at Grid Line 9	DI-02 Phase 1	11/1/2103

		Structural Update	
S-274.00	Elevation at Grid Line 10	DI-02 Phase 1 Structural Update	11/1/2103
S-275.00	Elevation at Grid Line 11	DI-02 Phase 1 Structural Update	11/1/2103
S-276.00	Elevation at Grid Line 12	DI-02 Phase 1 Structural Update	11/1/2103
S-277.00	Elevation at Grid Line 13	DI-02 Phase 1 Structural Update	11/1/2103
S-278.00	Elevation at Grid Line 13.5	DI-02 Phase 1 Structural Update	11/1/2103
S-279.00	Elevation at Grid Line 14	DI-02 Phase 1 Structural Update	11/1/2103
S-280.00	Elevation at Grid Line 14.5	DI-02 Phase 1 Structural Update	11/1/2103
S-281.00	Elevation at Grid Line 14.8	DI-02 Phase 1 Structural Update	11/1/2103
S-282.00	Elevation at Grid Line 16.5	DI-02 Phase 1 Structural Update	11/1/2103
S-283.00	Elevation at Grid Line 16.7	DI-02 Phase 1 Structural Update	11/1/2103
S-284.00	Elevation at Grid Line 17	DI-02 Phase 1 Structural Update	11/1/2103
S-290.00	East Platform Foundation Sections	DI-02 Phase 1 Structural Update	11/1/2103
4. S3 SERIES: COLUMN & FOUNDATION DETAILS & SCHEDULES			
S-301.00	Typical Caisson Details & Schedules I	DI-02 Phase 1 Structural Update	11/1/2103
S-302.00	Typical Caisson Details & Schedules II	DI-02 Phase 1 Structural Update	11/1/2103
S-303.00	Typical Caisson Details & Schedules III	DI-02 Phase 1 Structural Update	11/1/2103
S-304.00	Pile Cap Details & Schedule	DI-02 Phase 1 Structural Update	11/1/2103
S-305.00	Pier Details & Schedules	DI-02 Phase 1 Structural Update	11/1/2103
S-310.00	Column & Foundation Schedule - West Platform	DI-02 Phase 1 Structural Update	11/1/2103
S-311.00	Column & Foundation Schedule - Tower E	DI-02 Phase 1 Structural Update	11/1/2103
S-312.00	Column & Foundation Schedule - East Platform I	DI-02 Phase 1 Structural Update	11/1/2103
S-313.00	Column & Foundation Schedule - East Platform II	DI-02 Phase 1	11/1/2103

		Structural Update	
S-320.00	Column Details I	DI-02 Phase 1 Structural Update	11/1/2103
S-321.00	Column Details II	DI-02 Phase 1 Structural Update	11/1/2103
S-322.00	A-Frame Column Details	DI-02 Phase 1 Structural Update	11/1/2103
S-323.00	Atypical Columns (A-Frames)	DI-02 Phase 1 Structural Update	11/1/2103
S-324.00	Atypical Columns (Slanted Columns)	DI-02 Phase 1 Structural Update	11/1/2103
S-330.00	Future Column Connection Details	DI-02 Phase 1 Structural Update	11/1/2103
S-351.00	East Platform Foundation Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-352.00	East Platform Foundation Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-353.00	East Platform Foundation Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-354.00	East Platform Foundation Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-355.00	East Platform Foundation Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-360.00	Retaining Wall @ 33rd Street - Bulk Base	DI-02 Phase 1 Structural Update	11/1/2103
S-361.00	Retaining Wall @ 33rd Street - Bulk Base - Cont. Footing	DI-02 Phase 1 Structural Update	11/1/2103
S-362.00	Retaining Wall @ 33rd Street - Buttress	DI-02 Phase 1 Structural Update	11/1/2103
5. S4 SERIES: CONCRETE SUPERSTRUCTURE SCHEDULES, SECTIONS AND DETAILS			
S-400.00	East Platform Braced Frame Elevations	DI-02 Phase 1 Structural Update	11/1/2103
S-401.00	East Platform Braced Frame Elevations	DI-02 Phase 1 Structural Update	11/1/2103
S-402.00	Vertical Brace Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-410.00	East Platform Truss Elevations at Grid AA	DI-02 Phase 1 Structural Update	11/1/2103
S-411.00	East Platform Truss Elevations at Grid A	DI-02 Phase 1 Structural Update	11/1/2103
S-412.00	East Platform Truss Elevations at Grid B	DI-02 Phase 1 Structural Update	11/1/2103
S-413.00	East Platform Truss Elevations at Grid C	DI-02 Phase 1	11/1/2103

		Structural Update	
S-414.00	East Platform Truss Elevations at Grid D	DI-02 Phase 1 Structural Update	11/1/2103
S-415.00	East Platform Truss Elevations at Grid E	DI-02 Phase 1 Structural Update	11/1/2103
S-416.00	East Platform Truss Elevations at Grid F	DI-02 Phase 1 Structural Update	11/1/2103
S-417.00	East Platform Truss Elevations at Moe Grid G to L & M	DI-02 Phase 1 Structural Update	11/1/2103
S-418.00	East Platform Truss Elevations at Grid 10	DI-02 Phase 1 Structural Update	11/1/2103
S-419.00	East Platform Truss Elevations at Grid 12	DI-02 Phase 1 Structural Update	11/1/2103
S-420.00	East Platform Truss Elevations at Grid 13.5	DI-02 Phase 1 Structural Update	11/1/2103
S-430.00	Truss Support Column at Grid 13.5	DI-02 Phase 1 Structural Update	11/1/2103
S-431.00	Truss Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-432.00	Truss Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-433.00	Truss Connection Details	DI-02 Phase 1 Structural Update	11/1/2103
S-434.00	Truss Connection Details	DI-02 Phase 1 Structural Update	11/1/2103
S-435.00	Truss Connection Details	DI-02 Phase 1 Structural Update	11/1/2103
S-436.00	Truss Connection Details	DI-02 Phase 1 Structural Update	11/1/2103
6. S5 SERIES: WEST PLATFORM SECTIONS AND DETAILS			
S-501.00	West Platform Slab Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-503.00	Expansion Joint Details I	DI-02 Phase 1 Structural Update	11/1/2103
S-504.00	Expansion Joint Details II	DI-02 Phase 1 Structural Update	11/1/2103
S-505.00	Slide Bearing Details	DI-02 Phase 1 Structural Update	11/1/2103
S-511.00	West Platform Plate Girder Schedules and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-512.00	West Platform Plate Girders and Beams	DI-02 Phase 1 Structural Update	11/1/2103
S-513.00	Bridging Sections and Details	DI-02 Phase 1	11/1/2103

		Structural Update	
S-521.00	West Platform Truss Elevations I	DI-02 Phase 1 Structural Update	11/1/2103
S-522.00	West Platform Truss Elevations II	DI-02 Phase 1 Structural Update	11/1/2103
S-523.00	West Platform Truss Details	DI-02 Phase 1 Structural Update	11/1/2103
S-524.00	West Platform Truss Details	DI-02 Phase 1 Structural Update	11/1/2103
S-530.00	Trench Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-531.00	33RD St. Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-551.00	Tower E Sections & Details	DI-02 Phase 1 Structural Update	11/1/2103
S-552.00	Tower E Sections & Details	DI-02 Phase 1 Structural Update	11/1/2103
7. S6 SERIES: EAST PLATFORM SECTIONS AND DETAILS			
S-601.00	East Platform Slab Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-602.00	10th Ave Loading Dock - Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-603.00	10th Ave Loading Dock - Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-604.00	10th Ave Loading Dock - Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-605.00	Sections and Details Along Gridline N	DI-02 Phase 1 Structural Update	11/1/2103
S-606.00	Sections and Details Along Gridline N	DI-02 Phase 1 Structural Update	11/1/2103
S-607.00	Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-610.00	East Platform Plate Girder Details	DI-02 Phase 1 Structural Update	11/1/2103
S-611.00	East Platform Plate Girder Details	DI-02 Phase 1 Structural Update	11/1/2103
S-612.00	East Platform Plate Girder Details	DI-02 Phase 1 Structural Update	11/1/2103
S-613.00	East Platform Plate Girder Details	DI-02 Phase 1 Structural Update	11/1/2103
S-614.00	East Platform Plate Girder Details	DI-02 Phase 1 Structural Update	11/1/2103
S-615.00	East Platform Plate Girder Details	DI-02 Phase 1	11/1/2103

		Structural Update	
S-616.00	East Platform Plate Girder Details	DI-02 Phase 1 Structural Update	11/1/2103
S-650.00	Elevator Pit Sections & Details	DI-02 Phase 1 Structural Update	11/1/2103
S-651.00	Elevator Pit Details	DI-02 Phase 1 Structural Update	11/1/2103
S-652.00	Elevator Pit Details and Section I	DI-02 Phase 1 Structural Update	11/1/2103
S-653.00	Elevator Pit Details and Section II	DI-02 Phase 1 Structural Update	11/1/2103
8. S7 SERIES: TYPICAL STEEL SECTIONS AND DETAILS			
S-700.00	Typical Steel Column Details	DI-02 Phase 1 Structural Update	11/1/2103
S-710.00	Typical Steel Beam Details I	DI-02 Phase 1 Structural Update	11/1/2103
S-711.00	Typical Steel Beam Details II	DI-02 Phase 1 Structural Update	11/1/2103
S-712.00	Typical Steel Beam Details III	DI-02 Phase 1 Structural Update	11/1/2103
S-713.00	Typical Steel Beam Details IV	DI-02 Phase 1 Structural Update	11/1/2103
S-720.00	Typical Composite Steel Deck Details I	DI-02 Phase 1 Structural Update	11/1/2103
S-721.00	Typical Composite Steel Deck Details II	DI-02 Phase 1 Structural Update	11/1/2103
S-722.00	Typical Composite Steel Deck Details III	DI-02 Phase 1 Structural Update	11/1/2103
S-723.00	Typical Composite Steel Deck Details IV	DI-02 Phase 1 Structural Update	11/1/2103
S-730.00	Lap Splice Schedules	DI-02 Phase 1 Structural Update	11/1/2103
S-731.00	Typical Footing Details	DI-02 Phase 1 Structural Update	11/1/2103
S-732.00	Typical Concrete Column Pier Details	DI-02 Phase 1 Structural Update	11/1/2103
S-733.00	Typical Slab on Grade Details	DI-02 Phase 1 Structural Update	11/1/2103
9. S8 SERIES: MOE/CT/AC SUSTATION DRAWINGS			
S-800.00	Overall Slab Plan M.O.E. Track Level	DI-02 Phase 1 Structural Update	11/1/2103
S-801.00	Slab Plan M.O.E. Track Level Sector 01	DI-02 Phase 1 Structural Update	11/1/2103



S-802.00	Slab Plan M.O.E. Track Level Sector 02	DI-02 Phase 1 Structural Update	11/1/2103
S-803.00	Slab Plan M.O.E. Track Level Sector 03	DI-02 Phase 1 Structural Update	11/1/2103
S-804.00	Slab Plan M.O.E. Track Level Sector 04	DI-02 Phase 1 Structural Update	11/1/2103
S-805.00	Slab Plan M.O.E. Track Level Sector 05	DI-02 Phase 1 Structural Update	11/1/2103
S-810.00	Overall Framing Plan M.O.E. Control Tower Level	DI-02 Phase 1 Structural Update	11/1/2103
S-811.00	Framing Plan M.O.E. Control Tower Level Sector 01	DI-02 Phase 1 Structural Update	11/1/2103
S-812.00	Framing Plan M.O.E. Control Tower Level Sector 02	DI-02 Phase 1 Structural Update	11/1/2103
S-815.00	Framing Plan M.O.E. Control Tower Level Sector 05	DI-02 Phase 1 Structural Update	11/1/2103
S-850.00	Moe Build back Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-851.00	Moe Build back Sections and Details	DI-02 Phase 1 Structural Update	11/1/2103
S-852.00	Moe Build back Sections and Details	LIR DI-02 Phase 1 Structural Update	11/1/2103

We have reviewed the design gravity loads and lateral loads and they are consistent with the applicable building code requirements. We have reviewed design criteria and design assumptions and they too are consistent with the applicable building code requirements and accepted structural engineering practice. We have reviewed gravity and lateral load paths and confirmed that they are conceptually correct. We have performed independent calculations and an independent computer analysis to review the load capacities of representative framing members.

We identified issues with several of the drawings during our review process and directed our comments to TT. In response to our concerns, Thornton Tomasetti made revisions to the following drawings, provided to EN on the December 10, 2013.

Drawings affected by comments and revisions:

Number and Title	Number and Title
S-002.00 Structural General Notes	S-401.00 East Platform Braced Frame Elevations
S-003.00 Structural General Notes	S-402.00 Vertical Brace Sections and Details
S-004.00 Loading Diagrams	S-415.00 East Platform Truss Elevations at Grid E

S-005.00 Loading Diagrams – East Platform Overbuild Loads	S-416.00 East Platform Truss Elevations at Grid F
S-131.00 Platform Lower Level Plan Sector 01	S-417.00 East Platform Truss Elevations at MOE Grid G to L&M
S-132.00 Platform Lower Level Plan Sector 02	S-418.00 East Platform Truss Elevations at Grid 10
S-133.00 Platform Lower Level Plan Sector 03	S-419.00 East Platform Truss Elevations at Grid 12
S-137.00 Platform Lower Level Plan Sector 07	S-436.00 Truss Connection Details
S-138.00 Platform Lower Level Plan Sector 08	S-504.00 Expansion joint details II
S-139.00 Platform Lower Level Plan Sector 09	S-505.00 Slide Bearing Details -
S-142.00 Platform Upper Level Plan Sector 02	S-521.00 West Platform Truss Elevations 1
S-145.00 Platform Upper Level Plan Sector 05	S-524.00 West Platform Truss Details
S-261.00 Elevation at Grid Line	S-530.00 Trench Sections and Details
S-276.00 Elevation at Grid Line 12	S-602.00 10th Ave Loading Dock – Sections and Details
S-320.00 Column Details 1	S-612.00 East Platform Plate Girder Details
S-330.00 Future Column Connection Details	S-614.00 East Platform Plate Girder Details
	S-615.00 East Platform Plate Girder Details

All of our comments and concerns have been satisfactorily addressed by the revisions to these drawings and / or by information provided by TT.

Therefore, we conclude that the structural design of the new Platform building planned for the Hudson Yards East is in substantial conformance with the New York City Building Code. We attach to this letter the peer review document to be filed with the City of New York Department of Buildings

Sincerely

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Limited Permit to Practice Professional Engineering

Permit number 000411