LERA

Leslie E. Robertson Associates, R.L.L.P
Consulting Structural Engineers

40 Wall Street, 23rd Floor
New York, NY 10005-1339

Tel: (212) 750-9000
Fax: (212) 750-9002
http://www.lera.com

William J. Faschan
Partner
william.faschan@lera.com

17 March 2015
File: P818

Ms. Michele Fei
Vice President - Construction
Extell Development Company
805 Third Avenue, 7th Floor
New York, NY 10022
Via e-mail: MFei@extelldev.com

217 West 57th Street
Superstructure Permit Application
Structural Peer Review

Dear Michele:

At the request of Extell Development Company, Leslie E. Robertson Associates, R.L.L.P. has conducted a Structural Peer Review of the superstructure design of 217 West 57th Street as required by New York City Building Code Section 1627. The foundation peer review was completed by us and the report was filed in 2014. This superstructure report summarizes the extent and findings of our latest review.

We have reviewed the following:

- Structural drawings listed in Appendix A.
- Structural Design Criteria as shown in Drawings FO-001.02 and S-670.01 through S-672.00. These drawings are included in Appendix B. Furthermore, gravity loading criteria is further supplemented by information provide in plan drawings and in the input data for the Etabs analysis model.
- RWDI's Preliminary Results of April 2014 Testing - Wind-Induced Structural Responses, EXTELL Project 865 - New York, New York, RWDI Project #1300272, January 29, 2015. Refer to Appendix C.

Through our review, we have confirmed the following aspects of the superstructure design, as required by Section 1627.6.1:

- the design loads conform to the Building Code;
- the design criteria and design assumptions conform to the Building Code;
- the design properly incorporates the recommendations of the wind tunnel laboratory;
- the superstructure has a complete load path;
- based on our independent calculations of representative slabs, beams, link beams, columns, belt walls, transfer walls and shear walls, we find that the design of the foundations have adequate strength;
- the structural plans are in general conformance with the architectural plans regarding loads and other conditions that affect the structural design; and
- the structural plans are generally complete.

Accordingly, we find the design of the superstructure to be in general conformance with the structural design provisions of the Building Code.

In addition to new building components not required to be reviewed by Section BC1627 of the code, the following aspects of the superstructure design have not been reviewed:

- The effect of the new construction on adjacent buildings.
- The effect of the new superstructure loads and construction on the historic building (1780 Broadway) that is to be incorporated into the project.

The opinions expressed in this letter represent our professional view, based on the information made available to us. In developing these opinions, we have exercised a degree of care and skill commensurate with that exercised by professional engineers licensed in the State of New York for similar types of projects. No other warranty, expressed or implied, is made as to the professional advice included in this letter.

Regards,

LESLIE E. ROBERTSON ASSOCIATES, PLLC

William J. Faschan

WJF/rz

cc: Mr. Yoram Eilon, WSPCS via e-mail: yoram.eilon@wspcs.com

STRUCTURAL PEER REVIEW STATEMENT

This structural peer review and report, dated 17 March 2015, is complete for the superstructure submission. The foundation submission, dated 5 November 2014, has been separately filed.

Structural Peer Reviewer Name: William J. Faschan
Leslie E. Robertson Associates

Structural Peer Reviewer Address: 40 Wall Street, FL 23
New York, NY 10005

Project Address: 217 West 57th Street, Block #1029, Lot #19

Department Application Number for Structural Work: #121328205

Structural Peer Reviewer Statement:

I , William J. Faschan , 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 217 West 57th Street, Block #1029, Lot #19, Application #121328205 and found that the structural design shown on the plans and specifications generally conforms to the superstructure 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)

Name William J. Faschan

Signature _____ Date 3/17/15

Cc: Project Owner: Michele Fei
Project Registered Design Professional: Ahmad Rahimian

APPENDIX A

217 WEST 57TH STREET

STRUCTURAL DRAWING LIST

DRAWING NUMBER	DRAWING TITLE	REV	DATE
FO-001.02	General Notes, Legend and Abbreviations	22	02-10-2015
FO-002.01	NYC Transit Notes	8	02-05-2015
FO-100.02	Foundation (Sub-Cellar 3) Plan	20	02-05-2015
FO-101.01	Site Key Plan	10	02-05-2015
FO-102.01	Mat Reinforcement Plan	14	02-05-2015
FO-200.02	Typical Foundation Details 1	14	02-05-2015
FO-201.02	Typical Foundation Details 2	15	02-05-2015
FO-202.02	Typical Foundation Details 3	14	02-05-2015
FO-203.02	Typical Foundation Details 4	13	02-05-2015
FO-300.01	Foundation Sections 1	16	12-19-2014
FO-300.02	Foundation Sections 1	17	02-05-2015
FO-301.02	Foundation Sections 2	17	02-05-2015
FO-302.02	Foundation Sections 3	18	02-05-2015
FO-303.02	Foundation Sections 4	10	02-05-2015
S-001.01	Subcellar 2 - Framing Plan	18	02-10-2015
S-002.01	Subcellar 2 – Part General Arrangement and Reinforcing Plan	8	02-10-2015
S-010.01	Subcellar 1 - Framing Plan	19	02-10-2015
S-011.01	Subcellar 1 - Part General Arrangement and Reinforcing Plan	7	02-10-2015
S-020.01	Cellar Framing Plan	19	02-10-2015
S-021.01	Cellar - Part General Arrangement and Reinforcing Plan	8	02-10-2015

DRAWING NUMBER	DRAWING TITLE	REV	DATE
S-110.01	Ground Floor - Framing Plan	18	02-10-2015
S-111.01	Ground Floor - Part General Arrangement and Reinforcing Plan	7	02-10-2015
S-115.00	Ground Floor - Mezzanine Framing Plan	9	02-10-2015
S-120.00	2nd Floor - Framing Plan	15	02-10-2015
S-121.00	2nd Floor – Part General Arrangement and Reinforcing Plan	5	02-10-2015
S-130.00	3rd Floor - Framing Plan	15	02-10-2015
S-131.00	3rd Floor – Part General Arrangement and Reinforcing Plan	5	02-10-2015
S-140.00	4th Floor - Framing Plan	15	02-10-2015
S-141.00	4th Floor – Part General Arrangement and Reinforcing Plan	5	02-10-2015
S-150.00	5th Floor - Framing Plan	15	02-10-2015
S-151.00	5th Floor – Part General Arrangement and Reinforcing Plan	5	02-10-2015
S-160.00	6th Floor - Framing Plan	14	02-10-2015
S-161.00	6th Floor – Framing Part Plans	7	02-10-2015
S-162.00	6th Floor – Part General Arrangement and Reinforcing Plan	4	02-10-2015
S-170.00	7th Floor - Framing Plan	13	01-14-2015
S-171.00	7th Floor - Framing Part Plans	8	02-10-2015
S-172.00	7th Floor – Part General Arrangement and Reinforcing Plan	5	02-10-2015
S-180.00	8th Floor - Framing Plan	13	01-14-2015
S-185.00	8th Floor - Framing Part Plans	5	01-14-2015
S-186.00	8th Floor Mezzanine – Framing Plan	7	01-14-2015
S-190.00	9th Floor (MEP) – Framing Plan	9	01-14-2015
S-200.00	10th Floor – Framing Plan	8	01-14-2015
S-205.00	10th Floor Mezzanine – Framing Plan	8	01-14-2015
S-210.00	11th Floor (MEP) – Framing Plan	8	01-14-2015
S-213.00	12th Floor – Framing Plan	2	01-14-2015
S-215.00	13th Floor – Framing Plan	9	12-19-2014

DRAWING NUMBER	DRAWING TITLE	REV	DATE
S-220.00	14th-19th Floors – Framing Plan	8	12-19-2014
S-225.00	20th Floor – Framing Plan	6	12-19-2014
S-230.00	21st-26th Floors – Framing Plan	7	12-19-2014
S-235.00	27th Floor (MEP) – Framing Plan	7	12-19-2014
S-240.00	28th Floor – Framing Plan	7	12-19-2014
S-245.00	29th-45th Floors – Framing Plan	5	12-19-2014
S-250.00	46th Floor (MEP) – Framing Plan	7	12-19-2014
S-255.00	47th Floor – Framing Plan	8	12-19-2014
S-260.00	48th-66th Floors – Framing Plan	7	12-19-2014
S-265.00	67th Floor (MEP) – Framing Plan	7	12-19-2015
S-270.00	67th Floor Mezzanine – Framing Plan	4	12-19-2015
S-275.00	68th Floor – Framing Plan	8	12-19-2015
S-280.00	69th Floor – Framing Plan	7	12-19-2014
S-285.00	70th-88th Floors – Framing Plan	7	12-19-2014
S-290.00	89th Floor – Framing Plan	7	12-19-2014
S-295.00	90th Floor – Framing Plan	7	12-19-2014
S-300.00	91st Floor – Framing Plan	7	12-19-2014
S-305.00	92nd Floor – Framing Plan	8	12-19-2014
S-310.00	93rd Floor (EMR) – Framing Plan	5	12-19-2014
S-315.00	94th Floor(TMD) – Framing Plan	6	12-19-2014
S-320.00	95th Floor – Framing Plan	5	12-19-2014
S-325.00	95th Floor Mezzanine – Framing Plan	1	12-19-2014
S-330.00	96th Floor (Roof) – Framing Plan	5	10-15-2014
S-400.01	Shearwall Reinforcement Details 1 - Foundation Up to Ground Floor	15	02-10-2015
S-401.01	Shearwall Plan Reinforcement Details 2 – Ground to U/S 6th Floor	4	02-10-2015
S-402.00	Shearwall Plan Reinforcement Details 3 – 6th Floor to U/S 8th Floor – Part 1	2	12-19-2014
S-403.00	Shearwall Plan Reinforcement Details 4 – 6th Floor to U/S 8th Floor – Part 2	2	12-19-2014

DRAWING NUMBER	DRAWING TITLE	REV	DATE
S-420.01	Typical Steel Frame Bracing Elevation Details	6	02-05-2015
S-430.01	Typical Concrete Shear Wall Details	12	02-05-2015
S-440.00	Link Beam Schedule	8	12-19-2014
S-450.01	Shearwall Elevations Along Gridline (1 of 3)	9	02-10-2015
S-451.00	Shearwall Elevations Along Gridline (2 of 3)	3	12-19-2014
S-452.00	Shearwall Elevations Along Gridline (3 of 3)	2	12-19-2014
S-453.01	Shearwall Elevations Along Gridline 4 (1 of 3)	8	02-10-2015
S-454.00	Shearwall Elevations Along Gridline 4 (2 of 3)	2	12-19-2014
S-455.00	Shearwall Elevations Along Gridline 4 (3 of 3)	3	12-19-2014
S-456.01	Shearwall Elevations Along Gridlines 5.2 & 5	8	02-10-2015
S-457.00	Shearwall Elevations Along Gridline B (1 of 2)	3	12-19-2014
S-458.00	Shearwall Elevations Along Gridline B (2 of 2)	3	12-19-2014
S-459.00	Shearwall Elevations Along Gridline C (1 of 3)	8	02-10-2015
S-460.00	Shearwall Elevations Along Gridline C (2 of 3)	3	12-19-2014
S-461.00	Shearwall Elevations Along Gridline C (3 of 3)	3	12-19-2014
S-462.00	Shearwall Elevations Along Gridlines D, E & F	3	12-19-2014
S-463.01	Shearwall Elevations Along Gridlines G & G.4	7	02-10-2015
S-464.00	Shearwall Elevation Along Gridline 2	3	12-19-2014
S-465.00	Shearwall Elevation Along Gridline 4.5	3	12-19-2014
S-466.01	Shearwall Elevations Along Gridline A & F.5	6	02-10-2015
S-500.01	Steel Column Schedule	18	02-10-2015

DRAWING NUMBER	DRAWING TITLE	REV	DATE
S-501.01	Typical Steel Column Details	10	02-05-2015
S-510.01	Concrete Column Schedule 1	8	02-10-2015
S-511.00	Concrete Column Schedule 2	6	02-10-2015
S-512.00	Concrete Column Schedule 3	5	02-10-2015
S-513.01	Typical Concrete Columns Details 1	12	02-05-2015
S-600.01	Typical Superstructure Steel Details 1	12	02-05-2015
S-601.01	Typical Superstructure Steel Details 2	6	02-05-2015
S-602.02	Typical Superstructure Steel Details 3	13	02-05-2015
S-603.02	Typical Superstructure Steel Details 4	13	02-10-2015
S-604.01	Typical Superstructure Steel Details 5	8	02-10-2015
S-620.01	Typical Superstructure Concrete Details 1	10	02-05-2015
S-621.01	Typical Superstructure Concrete Details 2	10	02-05-2015
S-622.01	Typical Superstructure Concrete Details 3	7	02-05-2015
S-623.01	Typical Superstructure Concrete Details 4	4	02-05-2015
S-624.01	Typical Superstructure Concrete Details 4	6	02-05-2015
S-650.01	Typical Concrete Masonry Details	8	02-05-2015
S-670.00	Loading Diagrams 1	11	03-02-2015
S-671.01	Loading Diagrams 2	9	12-19-2014
S-672.00	Loading Diagrams 3	11	01-14-2015
S-700.01	Superstructure Base Sections 1	13	02-10-2015
S-701.01	Superstructure Base Sections 2	7	02-05-2015
S-702.01	Superstructure Base Sections 3	5	02-10-2015
S-800.01	Typical Stair Details	11	02-05-2015
S-801.01	Stair Sections	4	02-05-2015
S-802.01	Stair Sections	3	02-05-2015

APPENDIX B

217 WEST 57TH STREET

Superstructure Peer Review

Design Criteria

DRAWING NUMBER	DRAWING TITLE	REV	DATE
FO-001.02	General Notes, Legend and Abbreviations	22	02-10-2015
S-670.00	Loading Diagrams 1	11	03-02-2015
S-671.01	Loading Diagrams 2	9	12-19-2014
S-672.00	Loading Diagrams 3	11	01-14-2015

ABBREVIATIONS:

AB	ANCHOR BOLT	JT	JOINT
ABV	ABOVE		
AC	AIR CONDITIONER	K	KIP (1000 POUNDS)
ACI	AMERICAN CONCRETE INSTITUTE	KPF	KIPS PER SQUARE FOOT
ADDTL	ADDITIONAL	KSI	KIPS PER SQUARE INCH
ADJ	ADJACENT		
AFF	ABOVE FINISHED FLOOR	L	LOW
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LB	LINK BEAM
		LBS	POUNDS
ALT	ALTERNATE	LBFT	POUNDS PER FOOT
ALUM	ALUMINUM	Ld	DEVELOPMENT LENGTH
ANCH	ANCHOR	LG	LONG
ANG	ANGLE	LL	LIVE LOAD
APPD	APPROVED	LLRS	LATERAL LOAD RESISTING SYSTEM
APPROX	APPROXIMATE		
ARCH	ARCHITECTURAL	LP	LOW POINT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	LRFD	LOAD RESISTANCE FACTOR DESIGN
AVG	AVERAGE	LT	LIGHT
AWS	AMERICAN WELDING SOCIETY	LW	LIGHT WEIGHT
B	BUTTRESS	MAX	MAXIMUM
BETW	BETWEEN	MAS	MASONRY
BF	BRACE FRAME	MATER	MATERIAL
BKT	BRACKET	MAX	MAXIMUM
BL	BUILDING LINE	MC	MOMENT CONNECTION
BLDG	BUILDING	MD	METAL DECK
BM	BEAM	MECH	MECHANICAL
BOTT	BOTTOM	MEP	MECHANICAL ELECTRICAL
BRK	BRICK		PLUMBING
BSTL	BOTTOM OF STEEL	MEZZ	MEZZANINE
BS	BOTH SIDES	MF	MOMENT FRAME
		MFG	MANUFACTURER
CANT	CANTILEVER	MIN	MINIMUM
CF	CUBIC FOOT	MISC	MISCELLANEOUS
CG	CENTER OF GRAVITY		
CIP	CAST IN PLACE	N	NORTH
CJT	CONCRETE JOINT	NA	NOT APPLICABLE
CL	CENTER LINE	NIC	NOT IN CONTRACT
CLG	CEILING	NO	NUMBER
CLR	CLEAR	N-S	NORTH/SOUTH
CM	CONSTRUCTION MANAGER	NTS	NOT TO SCALE
CMU	CONCRETE MASONRY UNITS	NW	NORMAL WEIGHT
COL	COLUMN		
CONC	CONCRETE	O/C	ON CENTER
COND	CONDITIONS	OPNG	OPENING
CONN	CONNECTION	OPP	OPPOSITE
CONST	CONSTRUCTIONS		
CONT	CONTINUOUS	PC	PILE CAP
CONTR	CONTRACTOR	PCF	POUNDS PER CUBIC FEET
COORD	COORDINATE	PL	PLATE
CORR	CORRUGATED	PLF	POUNDS PER LINEAR FOOT
CY	CUBIC YARD	PSF	POUNDS PER SQUARE FOOT
		PSI	POUNDS PER SQUARE INCH
DEMO	DEMOLITION	PT	POST TENSION
DEPT	DEPARTMENT		
DET	DETAIL	RC	REINFORCED CONCRETE
DIA	DIAMETER	RD	ROOF DRAIN
DIM	DIMENSION	REF	REFERENCE
DIR	DIRECTION	REINF	REINFORCEMENT
DN	DOWN	REQD	REQUIRED
DWL	DOWEL	RFI	REQUEST FOR INFORMATION
DWG	DRAWING		
		S	SOUTH
E	EAST	SB	SPANDREL BEAM
EA	EACH	SCHED	SCHEDULE
EF	EACH FACE	SECT	SECTION
EL	ELEVATION	SF	SQUARE FOOT
ELEC	ELECTRIC	SHT	SHEET
ELEV	ELEVATOR	SL	SLAB
EMBD	EMBEDMENT	SPA	SPACING
ENCL	ENCLOSURE	SPEC	SPECIFICATIONS
EOR	ENGINEER OF RECORD	SQ	SQUARE
EOS	EDGE OF SLAB	STD	STANDARD
EP	EMBEDDED PLATE	STIFF	STIFFENER
EQ	EQUAL	STL	STEEL
EQUIP	EQUIPMENT	STRUCT	STRUCTURAL
ETC	ETCETERA	SW	SHEARWALL
EW	EACH WAY	SIM	SIMILAR
E-W	EAST WEST		
EXIST	EXISTING	T&B	TOP AND BOTTOM
EXP	EXPANSION	THK	THICK
		TI	TOP OF
EP_JT	EXPANSION JOINT	TBD	TO BE DETERMINED
EXT	EXTENSION	TEMP	TEMPORARY
EXTR	EXTERIOR	TSF	TONS PER SQUARE FOOT
		TYP	TYPICAL
FL	FLOOR		
FND	FOUNDATION	U/ON	UNLESS OTHERWISE NOTED
FOB	FACE OF BUILDING	U	UPTURNED BEAM
FP	FIRE PROOFING		
FT	FOOT	VERT	VERTICAL
FTG	FOOTING	VIF	VERIFY IN FIELD
GA	GAUGE	W	WEST
GALV	GALVANIZED	W/	WITH
GC	GENERAL CONTRACTOR	W/O	WITH OUT
GB	GRADE BEAM	WF	WIDE FLANGE
GRTG	GRATING	WP	WORKING POINT
GYP. BD	GYPSUM BOARD	WPG	WATER PROOFING
		WS	WATER STOP
H	HIGH	WT	WIND TRUSS
HDR	HEADER	WWF	WELDED WIRE FABRIC
HGT	HEIGHT		
HORIZ	HORIZONTAL	&	AND
HP	HIGH POINT	L	ANGLE
HR	HOUR	℄	CENTERLINE
HS	HIGH STRENGTH	Ø	DIAMETER
HVAC	HEAT, VENTILATION & AIR CONDITIONING	▱	PLATE
ID	INSIDE DIAMETER		
IF	INTERIOR FACE		
IN	INCH		
INCL	INCLUDING		
INFO	INFORMATION		
INSUL	INSULATION		

CONTROLLED INSPECTIONS

(TERMINOLOGY PER CURRENT TR-1) SPECIAL INSPECTION	CURRENT CODE REFERENCES	(PREVIOUS TERMINOLOGY) "CONTROLLED INSPECTION"
CONCRETE - CAST IN PLACE	1704.4	CONCRETE
CONCRETE TEST CYLINDERS* (TR2)	1905.6	CONCRETE TEST CYLINDERS
CONCRETE DESIGN MIX* (TR3)	1905.3	CONCRETE MIX DESIGN
MASONRY	1704.5	MASONRY
SOILS - SITE PREPARATION	1704.7.1	SUBGRADE
SOILS - FILL PLACEMENT & IN-PLACE DENSITY	1704.7.2 1704.7.3	CONTROLLED FILL
SOILS - INVESTIGATIONS (BORINGS/TEST PITS) (TR4)	1704.7.4	BORINGS / TEST PITS
UNDERPINNING	1704.9.1	UNDERPINNING
STRUCTURAL SAFETY - STRUCTURAL STABILITY	1704.19	STRUCTURAL STABILITY
EXCAVATION - SHEETING, SHORING AND BRACING	1704.19 & 3304.4.1	SHORING & SHEETING
PROGRESS INSPECTION		
FOOTING AND FOUNDATION	109.3.1	SOIL BEARING PRESSURE
FINAL	28-116.2.4.2 & 109.5 AND DIRECTIVE 14-(1975)	FINAL INSPECTION

* THESE TEST MUST BE PERFORMED BY A LICENSED CONCRETE TESTING LAB.

NOTES:

1. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION ON SCOPE AND DETAILED REQUIREMENTS FOR INSPECTIONS.
2. ALL SPECIAL INSPECTIONS SHALL BE PERFORMED UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK.
3. REPORTS OF RESULTS SHALL BE SUBMITTED TO THE OWNER AND ARCHITECT FOR REVIEW. SIGNED COPIES OF ALL TESTS AND INSPECTION REPORTS SHALL BE FILED WITH THE BUILDING DEPARTMENT (THROUGH THE APPLICANT).
4. REPORTS SHALL STATE WHETHER RESULTS COMPLY WITH CONTRACT REQUIREMENTS. SUMMARIZE THE TYPE OF TEST, THE LOCATION OR COMPONENT TESTED, AND RECOMMEND ANY REMEDIAL MEASURES REQUIRED. REPORT SHOULD NOTE ANY OTHER DEVIATIONS FROM THE CONTRACT DOCUMENTS.

GENERAL NOTES:

1. ALL WORK TO BE PERFORMED IN COMPLIANCE WITH THE 2008 NEW YORK CITY BUILDING CODE, LATEST EDITION AND ALL SUPPLEMENTS.
2. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS IN THE FIELD AND BE RESPONSIBLE FOR ACCURATE COORDINATION WHERE POSSIBLE. EXISTING FRAMING DIMENSIONS WAS TAKEN FROM EXISTING DWGS. AND SHALL BE VERIFIED ON SITE. DISCREPANCIES SHALL BE REPORTED TO ARCH. AND ENGINEER BEFORE PROCEEDING.
3. TEMPORARY SHORING IS REQUIRED AT ALL LOCATIONS WHERE PARTIAL REMOVAL OF BEAMS IS REQUIRED. CONTRACTOR IS RESPONSIBLE FOR ENGINEERING AND CONTROLLED INSPECTION OF TEMPORARY SYSTEMS.
4. THE CONTRACTOR SHALL USE THESE DRAWINGS IN CONJUNCTION WITH THE ARCHITECTURAL AND MECHANICAL DEMOLITION DRAWINGS. IN THE EVENT OF CONFLICTS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND THE ENGINEER.
5. ALL UNDERPINNING, SHEETING, SHORING OR OTHER CONSTRUCTION REQUIRED FOR THE SUPPORT OF ADJACENT PROPERTIES, BUILDINGS, SIDEWALKS, UTILITIES, ETC., SHALL BE SUBJECT TO SPECIAL REVIEW AS REQUIRED IN THE CODE. THE CONTRACTOR SHALL RETAIN A LICENSED PROFESSIONAL ENGINEER ACCEPTABLE TO THE ENGINEER OF RECORD TO PROVIDE THE NECESSARY DESIGN AND THE REQUIRED INSPECTION. THE CONTRACTOR'S PROFESSIONAL ENGINEER SHALL PREPARE AND FILE THE REQUIRED FORMS FOR THE WORK WITH THE BUILDING DEPARTMENT.
6. PROJECT 0'-0" = 79.38' MANHATTAN BOROUGH PRESIDENT DATUM (MBPD)

FOUNDATION NOTES:

A. EXCAVATION NOTES:

1. ALL FOOTINGS AND SHEAR WALL MAT FOUNDATION SHALL BEAR ON ROCK WITH A SAFE BEARING CAPACITY OF 10 TONS PER SQ. FT. AS RECOMMENDED IN LANGAN ENGINEERINGS GEOTECHNICAL REPORT DATED FEBRUARY 22, 2013. SEE FOOTING SCHEDULE ON DRAWING FO-100.
2. WHERE EXISTING FOOTING OR FOUNDATIONS OF ADJACENT PROPERTY IS LOWER THAN ELEVATIONS SHOWN, NEW FOUNDATIONS ARE TO BE LOWERED TO SAME ELEVATION. WHERE NEW FOUNDATION IS LOWER THAN EXISTING FOUNDATIONS CONTRACTOR IS TO UNDERPIN EXISTING FOUNDATION. CONTRACTOR IS TO ESTABLISH EXISTING CONDITIONS BEFORE COMMENCING WORK AND NOTIFY THE ENGINEER.
3. ALL UNDERPINNING, SHEETING, SHORING OR OTHER CONSTRUCTION REQUIRED FOR THE SUPPORT OF ADJACENT PROPERTIES, BUILDINGS, SIDEWALKS, UTILITIES, ETC., SHALL BE SUBJECT TO CONTROLLED INSPECTION AS REQUIRED BY THE CODE. THE CONTRACTOR SHALL RETAIN A LICENSED PROFESSIONAL ENGINEER ACCEPTABLE TO THE ENGINEER OF RECORD TO PROVIDE THE NECESSARY DESIGN AND THE REQUIRED INSPECTION. THE CONTRACTORS PROFESSIONAL ENGINEER SHALL PREPARE AND FILE THE REQUIRED FORMS FOR THE WORK WITH THE BUILDING DEPARTMENT.
4. NO CONCRETE SEALER, FOOTING OR MAT TO BE PLACED UNTIL BOTTOM OF MAT & FOOTING BEARING MATERIAL INSPECTED AND APPROVED BY N.Y.S. P.E.

B. CONCRETE AND STEEL REINFORCEMENT

1. NO CONCRETE FOOTING, FOUNDATION PIER, CONCRETE SEALER OR FOUNDATION WALL SHALL BE POURED UNTIL SUBGRADE FOR SAME HAS BEEN APPROVED BY A LICENSED PROFESSIONAL ENGINEER.
2. ALL CONCRETE SHALL BE READY MIXED CONCRETE AND SHALL COMPLY WITH A.C.I. BUILDING CODE AND THE CURRENT NEW YORK CITY BUILDING CODE.
3. CONCRETE STRENGTH SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - FOOTING AND MAT FOUNDATION 7000 PSI (SEE PLAN)
   - BUTTRESSES AND FOUNDATION WALLS (U.O.N.) 10000 PSI (A.E.)
   - EAST FOUNDATION WALL 12000 PSI
   - FOOTING SEALERS 3000 PSI (A.E.)
   - SLAB ON GRADE 4000 PSI (A.E.)

   * IF SLAB ON GROUND IS POURED BEFORE THE COLUMNS ABOVE THE SLAB ON GROUND STRENGTH IS TO BE ACCORDING TO DETAIL OF " BEAM AND SLAB CONCRETE PLACEMENT AT HIGH STRENGTH COLUMN"
4. ALL STEEL REINFORCEMENT SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 90,000 PSI AS PER A.S.T.M. A615 GRADE 60. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE NECESSARY CHAIRS, REBARS, TIES, SPACERS, ETC., TO SECURE AND SUPPORT THE REINFORCING WHILE PLACING THE CONCRETE.
5. ALL BARS MARKED CONTINUOUS, SHALL BE LAPPED MIN. 48 DIAMETERS AT SPLICES AND CORNERS EXCEPT AS OTHERWISE SHOWN ON PLANS. HOOK BARS AT DISCONTINUOUS ENDS.
6. VERTICAL CONSTRUCTION JOINTS IN ALL WALLS SHALL BE USED ONLY IF UNAVOIDABLE, OR UNLESS OTHERWISE NOTED, AND TO BE LOCATED AT LEAST 4'-0" FROM ANY SUPPORTING COLUMN OR WALL. DISTANCE BETWEEN JOINTS IN WALL SHALL BE ALLOWED AS PER SPECIFICATIONS.
7. IN NO CASE SHALL TRUCKS, BULLDOZERS, OR OTHER HEAVY EQUIPMENT BE PERMITTED CLOSER THAN 8'-0" FROM ANY FOUNDATION WALL UNLESS APPROVED BY THE ENGINEER.
8. TEMPORARY BRACING SHALL BE PROVIDED FOR ALL BUTTRESSES. WHERE BUTTRESSES DO NOT EXIST ON BOTH SIDES OF WALLS EXCEED 25 FEET, AND WHERE THE DIFFERENCE IN LEVEL BETWEEN INSIDE AND OUTSIDE GRADE IS MORE THAN 4'-0". INTERMEDIATE BRACING SHALL BE PROVIDED. WHERE RAMPS OCCUR, THE GRADE ELEVATION OUTSIDE OF RAMP WALLS SHALL BE USED IN FIGURING THE DIFFERENCE IN LEVEL. CORNER BUTTRESSES NEED NOT BE BRACED. NO BACKFILLING IS TO BE DONE BEFORE ALL SLABS BRACING WALLS ARE IN PLACE UNLESS APPROVED BY THE ENGINEER. PROVIDE TEMPORARY BRACING FOR ALL PIERS AND SUMP PITS.
9. CONTRACTOR TO INSTALL ALL PIPE SLEEVES, BOXED OPENINGS, ANCHOR BOLTS, ETC., AS REQUIRED FOR THE VARIOUS TRADES. ALL OPENINGS THROUGH FLOORS OR SLABS SHALL BE PROVIDED AS REQUIRED FOR THE SUPERSTRUCTURE. SHOP DRAWINGS SHOWING THE POSITION OF OPENINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER PRIOR TO PLACING CONCRETE.
10. MINIMUM COVER FOR REINFORCING STEEL SHALL BE 3/4" FOR INTERIOR MAT AND WALL SURFACES; 1 1/2" FOR BEAMS. FOR ALL CONCRETE EXPOSED TO WEATHER OR EARTH FILL, COVER SHALL BE 2" (1 1/2" FOR STIRRUPS). FOR CONCRETE PLACED AGAINST EARTH, MINIMUM COVER SHALL BE 3".
11. THE CONTRACTOR MUST SUBMIT REINFORCING SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW. NO CONSTRUCTION IS TO BE STARTED UNTIL THE SHOP DRAWINGS ARE REVIEWED BY THE ENGINEER.
12. THE STRUCTURAL ENGINEER OR HIS FIELD QUALIFIED REPRESENTATIVE MUST CHECK AND APPROVE ALL STEEL REINFORCING PRIOR TO CONCRETE PLACEMENT.

C. CODES AND TESTS

1. THIS STRUCTURE HAS BEEN DESIGNED UNDER THE PROVISIONS OF THE 2008 NEW YORK CITY BUILDING CODE AND A.C.I. 318.
2. ALL CONTROLLED CONCRETE SHALL COMPLY WITH THE A.C.I. 318 BUILDING CODE APPLICATION FOR CONTROLLED CONCRETE WITH CONCRETE TESTS AND CURVES OF TESTS FOR THE PRELIMINARY DESIGN MIX PREPARED BY AN APPROVED LABORATORY MUST BE SUBMITTED TO THE ENGINEER FOR FILING WITH THE BUILDING DEPARTMENT. NO CONCRETE SHALL BE PLACED WITHOUT THE DESIGN MIX BEING APPROVED BY THE BUILDING DEPARTMENT.
3. DESIGN AND CONSTRUCTION OF FORMWORK IS TO COMPLY WITH THE A.C.I. 318 BUILDING CODE AND NEW YORK CITY BUILDING CODE AS AMENDED.

NON-STRUCTURAL ITEMS SHOWN ON THE STRUCTURAL/FOUNDATION DRAWINGS:

THE FOLLOWING NON-STRUCTURAL ITEMS MAY BE SHOWN ON THE STRUCTURAL AND/OR FOUNDATION DRAWINGS FOR THE PURPOSE OF CLARITY IN INTERFACE WITH STRUCTURAL AND/OR FOUNDATION WORK. ITEMS BELOW MAY NOT BE FULLY DEFINED ON THE STRUCTURAL/FOUNDATION DRAWINGS. THE INFORMATION FOR NON-STRUCTURAL ELEMENTS IS FURNISHED BY OTHER CONSULTANTS AS LISTED BELOW. ALL RFI AND SHOP DRAWINGS RELATED TO THESE NON-STRUCTURAL ITEMS SHALL BE SUBMITTED TO THE CONSULTANTS LISTED BELOW FOR THEIR REVIEW AND APPROVAL.

GEOTECHNICAL ENGINEER

- FOUNDATION/UNDERSLAB WATERPROOFING, DAMPPROOFING SYSTEMS
- WALL AND UNDERSLAB DRAINAGE SYSTEM, INCLUDING SUMP PITS, PIPING GRAVEL, CLEANOUTS, ETC.
- ROCK ANCHORS
- CAISSONS AND PILES, INCLUDING REINFORCEMENT
- ROCK CONTOURS

ARCHITECT OF RECORD

- SUMP PITS WATERPROOFING/DAMPPROOFING APPLIED TO EXPOSED SURFACES, ELEVATOR OR SUMP PIT INTERIOR SURFACES
- DRAINAGE TRENCHES AND GRATINGS
- PAINT
- FIREPROOFING
- CONCRETE CURBS: HEIGHT, WIDTH, EXTENT, LOCATION
- BRICK, BLOCK, TILE MASONRY, METAL PANELS, PRECAST PANELS, CURTAIN WALLS, AND ALL OTHER FACADE SYSTEMS
- ROOFING SYSTEMS, DRAIN LOCATIONS, SLOPES TO DRAINS, FILLS, INSULATION, PAVERS, OR GRAVEL
- FLOATING/SECONDARY SLABS

FOUNDATION SYSTEM PRESENTED ON THE FO-100, FO-200 & FO-300 SERIES DWGS RELIES ON A CONTIPERMANENT GROUND WATER CONTROL PERMANENT DRAINAGE MUST OPERATE CONTINUOUSLY DURING PRESENCE OF UNDERGROUND WATER & CLEAN OUTS SHALL BE INSTALLED TO ALLOW FLUSHING OF THE UNDER DRAIN IN THE EVENT OF BLOCKAGES AS PER GEOTECHNICAL CONSULTANTS RECOMMENDATIONS.

SUPERSTRUCTURE CONCRETE NOTES:

A. CONCRETE

1. ALL CONCRETE SHALL BE NORMAL WEIGHT CONTROLLED CONCRETE, U.O.N., AND COMPLY WITH THE A.C.I. BUILDING CODE AND THE CURRENT NEW YORK CITY BUILDING CODE.
2. CONCRETE STRENGTH SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

LEVEL	f'c	SHEAR WALLS & COLUMNS MODULUS OF ELASTICITY *			SLABS f'c
	MIN. [ksi]	ACCEPTABLE LOWER LIMIT [ksi]	DESIGN [ksi]	ACCEPTABLE UPPER LIMIT [ksi]	MIN. [ksi]
75TH - ROOF	7		4,770		5
55TH - 75TH	8	4,800	5,100	3,500	5.8
40TH - 55TH	10	5,400	5,700	6,100	7.2
21ST - 40TH	12	5,900	6,250	6,700	8.6
FOUNDATION - 21ST	14	6,400	6,750	7,200	10

*MOE AT 56 DAYS UNDER 40% SUSTAINED LOAD TESTED PER ASTM C469.

LINK BEAMS SAME AS SHEARWALLS

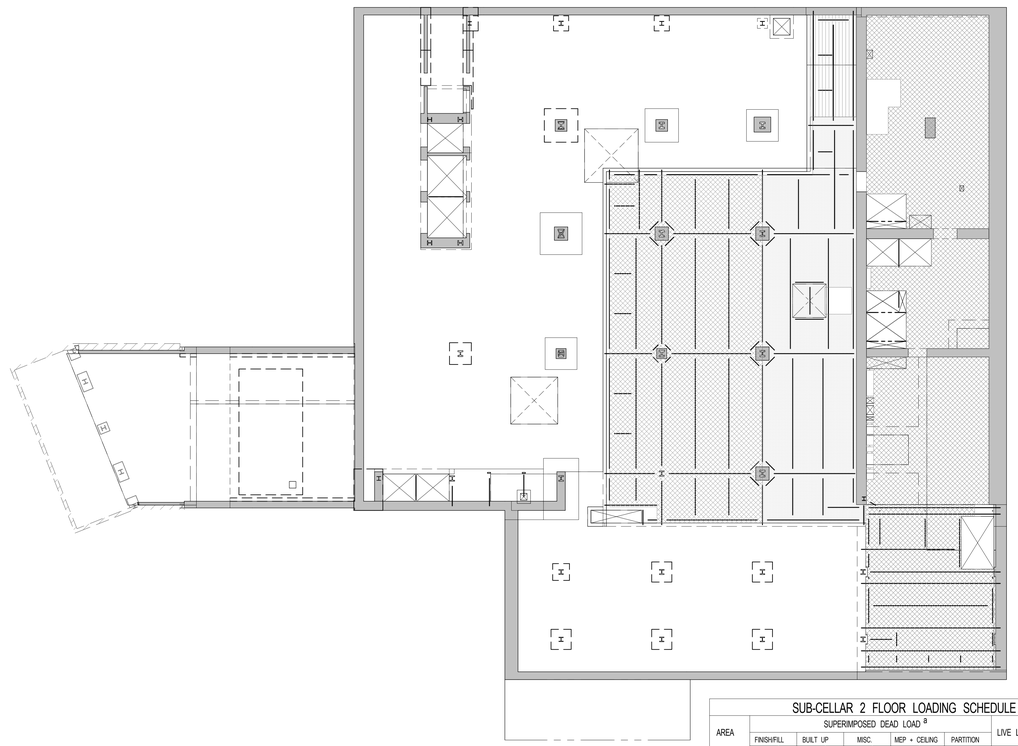
3. NO CONCRETE SHALL BE PLACED UNTIL THE CONTRACTOR HAS INSTALLED ALL THE INSERTS AND DOVETAILS NECESSARY TO SUPPORT ALL NON-STRUCTURAL ELEMENTS SHALL BE MILLED TO ACCURATE TRUE BEARING.
4. PROVISIONS SHALL BE MADE FOR CONNECTIONS OF OTHER TRADES INCLUDING CUTTING AND PUNCHING OF STRUCTURAL MEMBERS WHERE REQUIRED BY THE DWG. OR FOR WHICH INFORMATION IS FURNISHED PRIOR TO FABRICATION.
5. THE USE OF A CUTTING TORCH IN THE FIELD WILL NOT BE PERMITTED.
6. WELDING ELECTRODES SHALL CONFORM TO E70XX ELECTRODES U.O.N.
7. CONTRACTOR SHALL PROVIDE STIFFENERS PER CHAPTER K OF AISC SPECIFICATION (3RD) REGARDING THE NEED FOR COLUMN STIFFENERS.
8. ALL WELDERS TO BE LICENSED BY THE STATE OF NEW YORK BUILDING DEPT.
9. STRUCTURAL STEEL SHALL RECEIVE ONE COAT OF PAINT, ZINC OR BITUMINOUS COATING OR EQUIVALENT METAL PROTECTION BEFORE ERECTION AS SPECIFIED. PARTS OF STRUCTURAL STEEL LEFT UNPAINTED BECAUSE OF WELDING, OR BOLTING SHALL RECEIVE A FIELD APPLICATION OF METAL PROTECTION.
10. STRUCTURAL STEEL THAT WILL REMAIN EXPOSED TO VIEW SHALL RECEIVE AN ADDITIONAL COAT OF METAL PROTECTION OF ANOTHER COLOR AFTER ERECTION.
11. THE CONTRACTOR MUST SUBMIT STRUCTURAL STEEL SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW. NO CONSTRUCTION IS TO BE STARTED UNTIL THE SHOP DRAWINGS HAVE BEEN APPROVED BY THE ENGINEER.
12. ALL CAMBERS SPECIFIED ON THE DRAWINGS ARE REFERRING TO THE BEAM CAMBER MEASURED IN THE FIELD PRIOR TO SLAB/WALL CONCRETE POUR INCLUDING ALL TOLERANCES.
13. IN ADDITION TO MOMENT CONNECTIONS, PROVIDE AISC STANDARD SHEAR CONNECTIONS FOR ALL GRAVITY AND WIND LOADS.
14. DESIGN OF ALL TEMPORARY STEEL COLUMN BRACING REQUIRED DURING ERECTION SHALL BE THE RESPONSIBILITY OF THE STEEL CONTRACTOR.
15. ALL STEEL BEAMS AND COLUMNS SHALL BE SPRAY FIREPROOFED U.O.N ON ARCH DWGS. AND SPECS. (WITH THE EXCEPTION OF COLUMNS & BEAMS ENCASED IN CONCRETE) SEE ARCH. DRAWINGS FOR APPROPRIATE RATING.
24. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND BE RESPONSIBLE FOR ACCURATE COORDINATION. DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT OR ENGINEER OF RECORD IN WRITING BEFORE PROCEEDING.
25. PRIOR TO INSTALLATION OF ANCHOR BOLTS OR ANY DRILLING OF EXISTING SLAB, BEAM, WALL OR COLUMN, LOCATION OF EXISTING REINFORCING SHALL BE IDENTIFIED. NO EXISTING CONSTRUCTION.
26. ALL BEAM SPLICES, IF REQUIRED SHALL BE DONE AT CONTRACTORS EXPENSE.
27. ALL PIPING AND DUCT WORK TO BE HUNG FROM BEAMS ONLY.
28. ALL BOLTS EXPOSED TO THE WEATHER SHALL BE GALVANIZED ASTM A325.
29. FOR CLARITY, CONNECTION DETAILS MAY NOT BE SHOWN ON THE CONTRACT DOCUMENTS, NUMBER OF BOLTS SHOWN, WELD SIZE AND LENGTH ARE INDICATIVE ONLY. THE ACTUAL CONNECTIONS SHALL BE DESIGNED BY THE STRUCTURAL STEEL FABRICATOR P.E. BASED ON THE LOAD CRITERIA SHOWN ON THE CONTRACT DOCUMENTS. WHERE LOAD CRITERIA ARE NOT INDICATED, CONNECTION SHALL DEVELOP THE MEMBER CROSS SECTION IN TENSION.
30. THE FOLLOWING CONNECTIONS ARE REQUIRED TO BE HIGH STRENGTH SLIP-CRITICAL: ALL COLUMN SPLICES, CONNECTIONS OF BEAMS TO COLUMNS, ALL MOMENT CONNECTIONS, CONNECTIONS WITHIN 10 FEET OF COLUMNS, CONNECTIONS OF ALL DIAGONAL MEMBERS, POSTS, HANGERS, BEAMS AND GIRDERS SUPPORTING COLUMNS, POSTS OR HANGERS, ALL SAG AND TIE MEMBERS, ALL BEAMS CARRYING LOADS. ALL SLIP CRITICAL CONNECTIONS SHALL USE SHEAR CAPACITY WHERE SLIP IS A STRENGTH LIMIT-STATE UNLESS OTHERWISE APPROVED BY THE E.O.R.
31. CHARPY V-NOTCH (CVN) REQUIREMENTS FOR ALL MEMBERS: FOR ROLLED SHAPES GROUP 4, OR WELDED FLANGES 1 1/2" THICK AND THICKER AND PLATES EQUAL TO OR EXCEEDING 2" THICKNESS REFER TO AISC SECTION A3.1C AND A3.1D.
32. ALL HORIZONTAL HSS MEMBERS SHALL HAVE 1"Ø WEEP HOLES AT 24" O.C. AT BOTTOM FLANGE U.O.N. ALL HORIZONTAL ROLLED SECTIONS + PLATES SHALL HAVE 3 1/2"Ø WEEP HOLES AT 24" O.C. AT BOTTOM FLANGE U.O.N.
33. WHEN MULTIPLE LOADS PROVIDED FOR THE DESIGN OF ONE CONNECTION, THE CONNECTION COMPONENTS (SUCH AS PLATES, BOLTS, WELDS ETC.) SHALL BE DESIGNED FOR THE COMBINATION THAT RESULTS IN THE HIGHEST DEMAND FOR EACH COMPONENT.
34. ALL ERECTION STEEL AND/OR STRUCTURAL STEEL EMBEDDED IN CONCRETE WALLS SHALL HAVE MIN. 3" CLEAR CONCRETE COVER. NOTIFY EOR WHERE THIS REQUIREMENT IS NOT MET.
35. ALL LOADS INDICATED ON THE DRAWINGS ARE REVERSIBLE EVEN IF NOT STATED SO.
36. IT IS NOT ACCEPTABLE TO RUN CONDUITS AND OTHER UTILITIES WITHIN THE CONCRETE SLABS UNLESS SPECIFICALLY APPROVED BY THE EOR IN WRITING.
37. OPENINGS THROUGH STRUCTURAL MEMBERS ARE NOT ALLOWED UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED IN WRITHING BY THE EOR.
38. ALL WELDING ELECTRODES SHALL CONFORM TO E70XX ELECTRODES E80XX ELECTRODES SHALL BE USED ONLY IN CJP WELDS WHERE BOTH CONNECTED COMPONENTS HAVE STEEL YIELD STRENGTH OF Fy=65KSI. MIN. FILLET WELD SIZE SHALL BE 5/16". IT IS RECOMMENDED TO PREHEAT ALL WELDED STEEL (INCLUDING A913) IN ORDER TO AVOID CRACKING AFTER 72 HOURS MIN. TO DETECT COLD CRACKING.
39. WHERE STRUCTURAL STEEL MEMBER OR ANY PART OF A CONNECTION (SUCH AS, BUT NOT LIMITED, TO GUSSET PLATE) BLOCKS WALL, BEAM, SLAB OR ANY OTHER REINFORCEMENT, IT SHOULD BE CONTINUOUS BY DRILLING HOLES THROUGH THE STRUCTURAL STEEL AND ALLOW THE REBARS TO RUN CONTINUOUS OR WELD COUPLERS (SUCH AS LENTON WELDABLE COUPLERS OR APPROVED EQUAL) EACH SIDE OF THE MEMBER AND/OR STIFF. PLATES BETWEEN MEMBER FLANGES TO DEVELOP THE BARS IN TENSION.
40. IN COLUMNS AND BEAMS CONSTRUCTED OF ROLLED SECTION + WELDED PLATES SUCH AS DETAILED ON DWG. S-500 OR HSS SECTIONS, THE EOR WILL REQUIRE WEEP HOLES DRILLED THROUGH THE SECTION IN ADDITION TO THE INFORMATION SHOWN ON THE DRAWINGS. THIS INFORMATION WILL BE PROVIDED AS THE SEQUENCE OF CONSTRUCTION IS FINALIZED. HOLES MIGHT BE DRILLED IN THE SHOP OR IN THE FIELD. WHERE COUPLERS ARE USED, FULL HEIGHT STIFFNER PLATES ARE REQUIRED.
41. DESIGN LIVE LOADS NOTED ON THE DRAWINGS (S-670 SERIES DRAWINGS AND POINT LOADS ON PLANS) ARE CONSIDERED TO BE POST COMPOSITE. LOADS NOTED ON THE DRAWINGS CAN BE APPLIED ONLY AFTER THE CONCRETE HAS ACHIEVED ITS DESIGN STRENGTH. SUCH EQUIPMENT OR MECHANICAL LOADS SHALL NOT BE APPLIED ON THE STRUCTURE PRIOR TO THAT WITHOUT THE EOR APPROVAL IN WRITING.
42. U.O.N. ALL STEEL COLUMNS EMBEDDED IN CONCRETE SHALL HAVE 8-3/4" DIAMETER STUDS PER FOOT ALL AROUND. STUDS SHALL BE 8" LONG.

SHOP DRAWINGS SHOWING COMPOSITE LAYOUT OF ALL PENETRATIONS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

5. ALL PLUMBING AND ELECTRICAL SLOTS SHALL BE FILLED WITH CONCRETE TO THE SAME DEPTH AS FLOOR AFTER CONDUITS AND/OR PIPES ARE INSTALLED.
6. NO PIPES OR CONDUITS EXCEEDING 1/3 SLAB THICKNESS IN OUTSIDE DIAMETER NOR OVER NOMINAL 2" INSIDE DIAMETER SHALL BE EMBEDDED NOR SHOULD BE PLACED CLOSER THAN 3 DIAMETER ON CENTER NOR PASS WITHIN 24" OF COLUMN FACE. AP JUNCTION BOXES MAY BE PLACED IN STRUCTURAL CONCRETE SLAB BUT SHALL NOT EXCEED 4 1/2"sq 1/2" IN DEPTH AND SHALL BE SEPARATED FROM OTHER JUNCTION BOXES BY NOT LESS THAN 6" OF CONCRETE.
7. ALL MEMBERS IN THE FLOOR SYSTEM INCLUDING BEAMS, BRACKETS, COLUMN CAPITALS AND HAUNCHES SHALL BE PLACED MONOLITHICALLY. VERTICAL CONSTRUCTION JOINTS NECESSARY MAY BE MADE AT CENTER OF BEAM OR SLAB USING APPROVED BULKHEADS AND ADDITIONAL REINFORCING AS SHOWN ON DETAILS.
8. NO CONCRETE FLOOR SYSTEM IS TO BE INSTALLED UNTIL AT LEAST TWO HOURS HAVE PASSED AFTER THE SUPPORTING COLUMNS AND WALLS ARE PLACED.
9. WHEN PLACING CONCRETE AGAINST AN ADJACENT BUILDING OR AT EXPANSION JOINT, AT LEAST 1" (AP) OF HIGH DENSITY STYROFOAM SHALL BE PLACED AT THE INTERFACE BETWEEN THE EXISTING AND NEW CONCRETE. IN ADDITION, THE CONTRACTOR MUST TAKE ALL THE NECESSARY MEASURES SO AS NOT TO CREATE ANY DAMAGE TO THE EXISTING CONSTRUCTION WHILE PLACING THE NEW CONCRETE.
10. TEMPORARY SHORING AND RESORTING SHALL REMAIN IN PLACE AT LEAST 28 DAYS AFTER PLACEMENT OF CONCRETE.
11. NO DEVIATION FROM THE STRUCTURAL PLANS SHALL BE PERMITTED WITHOUT THE EXPRESS WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
12. WHERE ADDITIONAL REINFORCEMENT HAS NOT BEEN PROVIDED AROUND FLOOR PENETRATIONS ON PLANS REFER TO S-901 FOR DETAILS.
13. CONTRACTOR TO CONFIRM ALL SLAB EDGE INFORMATION WITH THE ARCHITECT. SIZE AND LOCATION OF OPENINGS TO BE COORDINATED WITH ARCHITECTMEP ENGINEER.

B. REINFORCEMENT

1. ALL STEEL REINFORCEMENT (STIRRUPS AND TIES INCLUSIVE) SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 90,000 PSI AS PER A.S.T.M. A615 GRADE 60 U.O.N. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE CHAIRS, REBARS, TIES, SPACERS, ETC., TO SECURE AND SUPPORT THE REINFORCING WHILE PLACING THE CONCRETE.
2. ALL #11 REINFORCEMENT SHALL BE ASTM A615 GR. 75 (Fy=75 ksi)
3. THE CONTRACTOR MUST SUBMIT REINFORCING SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW. NO CONSTRUCTION IS TO BE STARTED UNTIL THE SHOP DRAWINGS ARE REVIEWED BY THE ENGINEER.
4. THE STRUCTURAL ENGINEER OR HIS FIELD QUALIFIED REPRESENTATIVE MUST CHECK AND APPROVE ALL

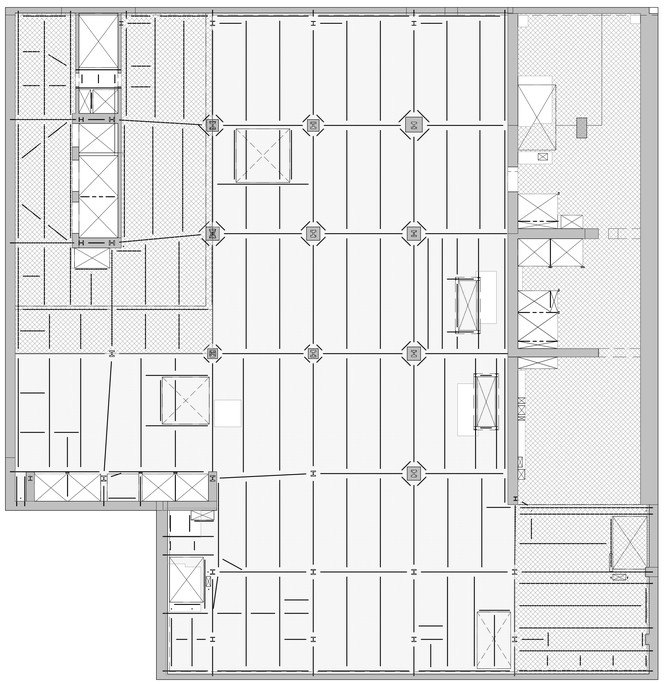


1 S-670 SUBCELLAR 2 LOADING DIAGRAM
SCALE: 1/16" = 1'-0"

SUB-CELLAR 2 FLOOR LOADING SCHEDULE

AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL	BUILT UP	MISC.	MEP + CEILING	PARTITION		
	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	(PSF)	[lbs/ft^2]	
	12		5	40	20	125	
	12		5	40	20	100	
	12		5	40		250	

NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.

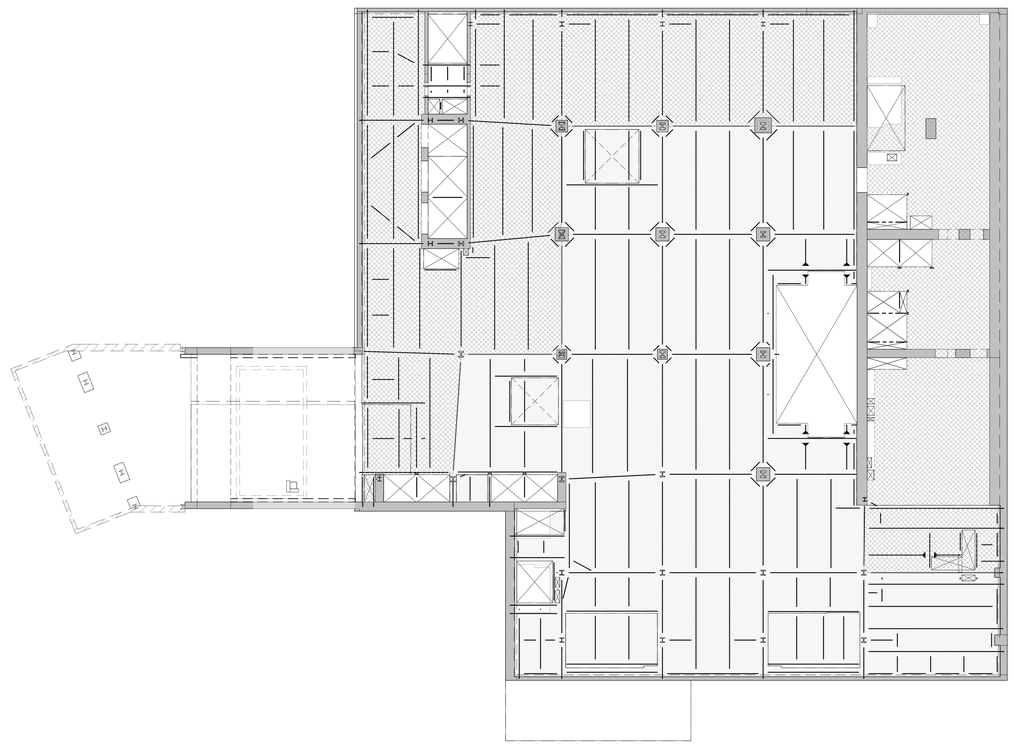


2 S-670 SUB CELLAR 1 LOADING DIAGRAM
SCALE: 1/16" = 1'-0"

SUB-CELLAR 1 FLOOR LOADING SCHEDULE

AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL	BUILT UP	MISC.	MEP + CEILING	PARTITION		
	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	(PSF)	[lbs/ft^2]	
	12		5	40	20	125	
	12		5	40	20	100	

NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.



3 S-670 CELLAR LOADING DIAGRAM
SCALE: 1/16" = 1'-0"

CELLAR FLOOR LOADING SCHEDULE

AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL	BUILT UP	MISC.	MEP + CEILING	PARTITION		
	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	(PSF)	[lbs/ft^2]	
	12		5	40	20	125	
	12		5	40	20	100	

NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.

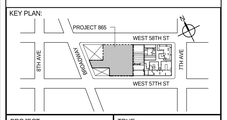
4 S-670 GROUND FLOOR LOADING DIAGRAM
SCALE: 1/16" = 1'-0"

GROUND FLOOR LOADING SCHEDULE

AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL	BUILT UP	MISC.	MEP + CEILING	PARTITION		
	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	(PSF)	[lbs/ft^2]	
**	12		5	40	20	150	TENANT LOADING
**		40				300	CONSTRUCTION LOADING
**		100				600*	CONSTRUCTION LOADING. SEE TYPICAL DETAILS FOR ADDTL REINFORCING
**		40				600*	CONSTRUCTION LOADING. SEE TYPICAL DETAILS FOR ADDTL REINFORCING

NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.
d. * LOAD CONSIDERED IS FOR HS20 OR CONCRETE TRUCK AT ANY LOCATION.
e. ** USE MAX. LOAD CASE BETWEEN TENANT OR CONSTRUCTION LOADING, WHICHEVER IS GOVERNS.

KEY PLAN:



PROJECT NORTH

TRUE NORTH

DEVELOPER:
EXTELL DEVELOPMENT COMPANY
805 THIRD AVENUE, 7TH FLOOR
New York, NY 10022 USA
TEL: 212 712 6000 FAX: 212 712 6100

DESIGN ARCHITECT: Base Building Shell & Core
ADRIAN SMITH + GORDON GILL ARCHITECTURE
111 WEST MONROE STREET SUITE 2300
CHICAGO IL 60603
TEL: 312 920 1888 FAX: 312 920 1775

INTERIOR DESIGNER: Residential
Rottet Architecture and Design Studio, PLLC
298 Fifth Ave. 7th Floor
New York, NY 10001
TEL: 646 998 7000 FAX:

ARCHITECT OF RECORD: Base Building Shell, Core, & Residential
AAI ARCHITECTS, P.C.
401 Wellington St. W., 3rd Floor
Toronto, ON M5V 1E7 Canada
TEL: 416 967 1500 FAX: 416 967 7150

STRUCTURAL ENGINEERS:
WSP
228 EAST 45th Street
New York, NY 10017 USA
TEL: 212 687 9888 FAX: 646 487 5501

MEP ENGINEERS:
AKF GROUP
1501 Broadway
New York, NY 10036 USA
TEL: 212 354 5656 FAX: 212 354 5668

GEOTECHNICAL ENGINEERS:
Langan Engineering & Environmental Services
21 Penn Plaza - 360 West 31st Street, 8th Floor
New York, NY 10001-2727
TEL: 212 479 5400 FAX: 212 479 5444

CODE CONSULTANTS:
Construction Consulting Associates
100 Church Street
New York, NY 10007
TEL: 212 385 1818 FAX: 212 385 1911

CURTAINWALL CONSULTANT:
AJLP Consulting
40 Worth Street. Suite 826
New York, NY 10013
TEL: 212 757 5659 FAX: 646 219 8508

LANDMARK/PRESERVATION CONSULTANT:
Jan Hird Pokorny Associates, Inc.
39 West 37th Street, 12A
New York, NY 10018
TEL: 212 759 6462 FAX: 212 759 6540

No.	DESCRIPTION	DATE
1	DOB FILING SET	06-17-2014
2	DESIGN DEVELOPMENT	07-01-2014
3	ISSUED FOR DESIGN DEVELOPMENT	07-31-2014
4	SE ZONE STEEL BID	08-20-2014
5	STRUCTURAL STEEL BID	09-15-2014
6	STRUCTURAL STEEL BID-ADDENDUM	10-01-2014
7	CD PROGRESS ISSUE 1	10-15-2014
8	ISSUED FOR CONSTRUCTION UP TO GROUND FLOOR ONLY	10-17-2014
9	ISSUED FOR CONSTRUCTION UP TO 5TH FLOOR ONLY	11-07-2014
10	DOB SUBMISSION	12-19-2014
11	XXXXXX	03-02-2015

CONSULTANT:
WSP
228 East 45th Street
New York, NY 10017
(212) 687-9888
www.wspgroup.com/usa

PROJECT:
217 WEST 57TH STREET
NEW YORK, NY

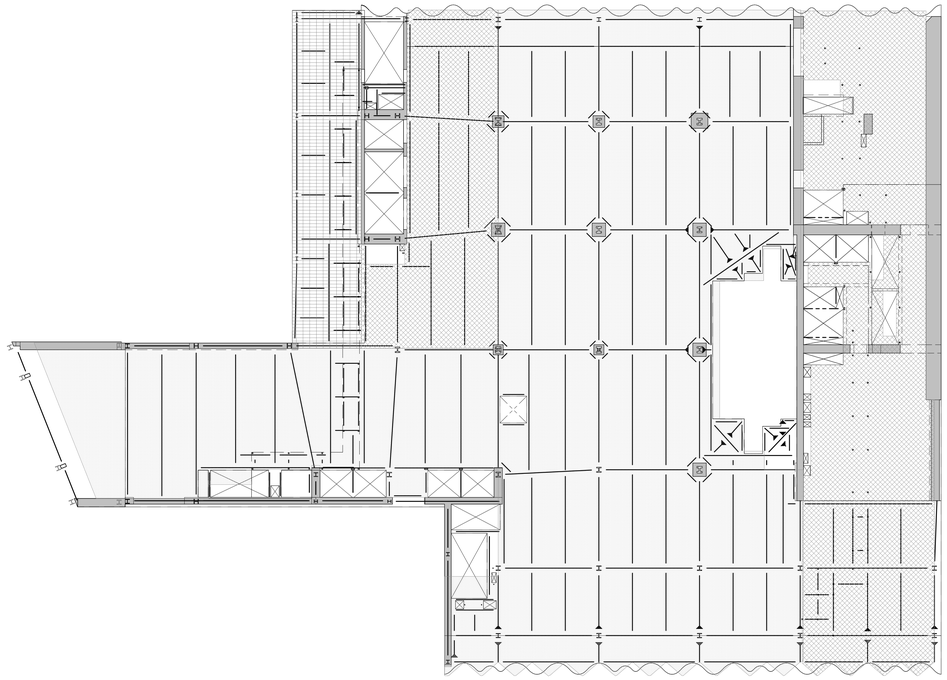
DRAWING TITLE:
LOADING DIAGRAMS 1

SEAL & SIGNATURE:

DATE: 06-17-2014
PROJECT No: 2012185
DRAWN: CADD
CHK: YE
REV: **11**
SCALE: 1/16" = 1'-0"
DWG No: **S-670.01**
DOB PAGE No: 73 of XXX

DOB EMPLOYEE STAMP:

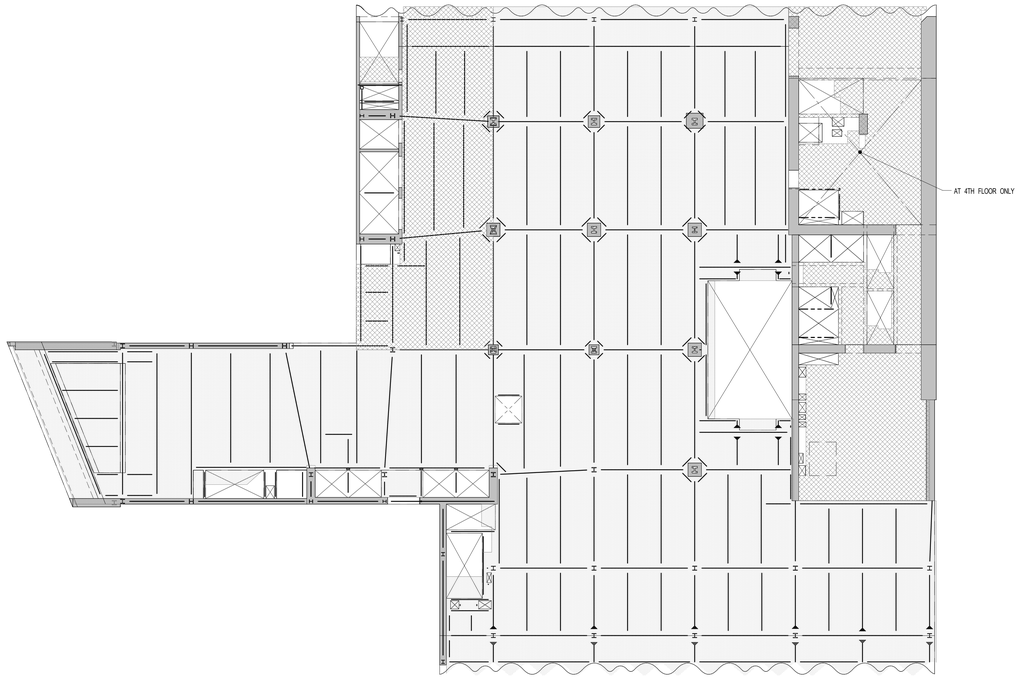
DOB B-SCAN:



1 S-671 **2ND FLOOR LOADING DIAGRAM**
SCALE: 1/16" = 1'-0"

2ND FLOOR LOADING SCHEDULE							
AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL [lbs/ft^2]	BUILT UP [lbs/ft^2]	MISC. [lbs/ft^2]	MEP + CEILING [lbs/ft^2]	PARTITION [lbs/ft^2]	[lbs/ft^2]	
	12		5	40	20	125	
	12		5	40	20	75	
	50	75	5	40		100	

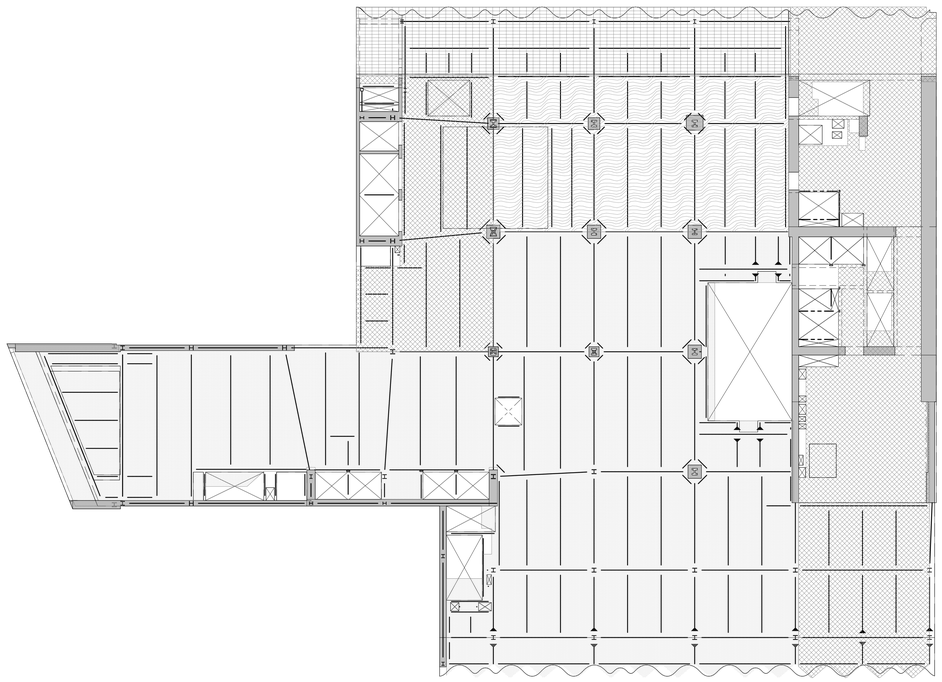
NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.



2 S-671 **3RD-4TH FLOOR LOADING DIAGRAM**
SCALE: 1/16" = 1'-0"

3RD-4TH FLOOR LOADING SCHEDULE							
AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL [lbs/ft^2]	BUILT UP [lbs/ft^2]	MISC. [lbs/ft^2]	MEP + CEILING [lbs/ft^2]	PARTITION (PSF)	[lbs/ft^2]	
	12		5	40	20	125	
	12		5	40	20	75	

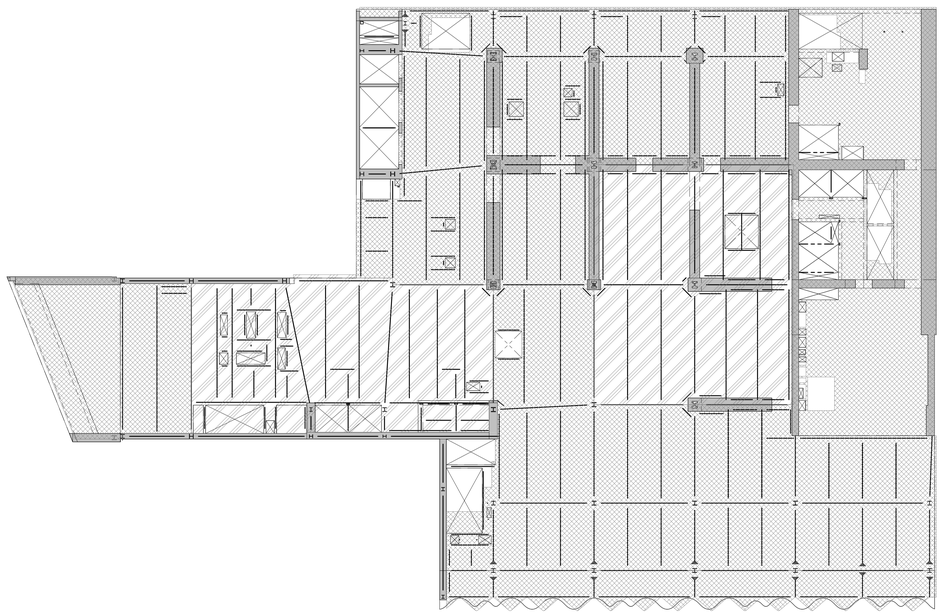
NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.



3 S-671 **5TH FLOOR LOADING DIAGRAM**
SCALE: 1/16" = 1'-0"

5TH FLOOR LOADING SCHEDULE							
AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL [lbs/ft^2]	BUILT UP [lbs/ft^2]	MISC. [lbs/ft^2]	MEP + CEILING [lbs/ft^2]	PARTITION (PSF)	[lbs/ft^2]	
	12		5	40	20	125	
	12		5	40	20	75	
	50	75	5	40		100	
	12		5	40	20	100	

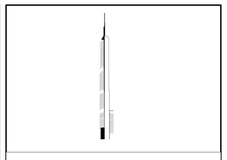
NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.



4 S-671 **6TH FLOOR LOADING DIAGRAM**
SCALE: 1/16" = 1'-0"

6TH FLOOR LOADING SCHEDULE							
AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL [lbs/ft^2]	BUILT UP [lbs/ft^2]	MISC. [lbs/ft^2]	MEP + CEILING [lbs/ft^2]	PARTITION (PSF)	[lbs/ft^2]	
			5	40		150	MEP FLOOR
			5	40		300	MEP FLOOR

NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.



KEY PLAN:

PROJECT NORTH

TRUE NORTH

DEVELOPER:
EXTELL DEVELOPMENT COMPANY
805 THIRD AVENUE, 7TH FLOOR
New York, NY 10022 USA
TEL: 212 712 6000 FAX: 212 712 6100

DESIGN ARCHITECT: Base Building Shell & Core
ADRIAN SMITH + GORDON GILL ARCHITECTURE
111 WEST MONROE STREET SUITE 2300
CHICAGO IL 60603
TEL: 312 920 1888 FAX: 312 920 1775

INTERIOR DESIGNER: Residential
Rottet Architecture and Design Studio, PLLC
298 Fifth Ave. 7th Floor
New York, NY 10001
TEL: 646 998 7000 FAX:

ARCHITECT OF RECORD: Base Building Shell, Core, & Residential
AAI ARCHITECTS, P.C.
401 Wellington St. W., 3rd Floor
Toronto, ON M5V 1E7 Canada
TEL: 416 967 1500 FAX: 416 967 7150

STRUCTURAL ENGINEERS:
WSP
228 EAST 45th Street
New York, NY 10017 USA
TEL: 212 687 9888 FAX: 646 487 5501

MEP ENGINEERS:
AKF GROUP
1501 Broadway
New York, NY 10036 USA
TEL: 212 354 5656 FAX: 212 354 5668

GEOTECHNICAL ENGINEERS:
Langan Engineering & Environmental Services
21 Penn Plaza - 360 West 31st Street, 8th Floor
New York, NY 10001-2727
TEL: 212 479 5400 FAX: 212 479 5444

CODE CONSULTANTS:
Construction Consulting Associates
100 Church Street
New York, NY 10007
TEL: 212 385 1818 FAX: 212 385 1911

CURTAINWALL CONSULTANT:
AJLP Consulting
40 Worth Street. Suite 826
New York, NY 10013
TEL: 212 757 5659 FAX: 646 219 8508

LANDMARK/PRESERVATION CONSULTANT:
Jan Hird Pokorny Associates, Inc.
39 West 37th Street, 12A
New York, NY 10018
TEL: 212 759-6462 FAX: 212 759 6540

No.	DESCRIPTION	DATE
1	DOB FILING SET	06-17-2014
2	DESIGN DEVELOPMENT	07-01-2014
3	ISSUED FOR DESIGN DEVELOPMENT	07-31-2014
4	STRUCTURAL STEEL BID	09-15-2014
5	STRUCTURAL STEEL BID-ADDENDUM	10-01-2014
6	CD PROGRESS ISSUE 1	10-15-2014
7	ISSUED FOR CONSTRUCTION UP TO GROUND FLOOR ONLY	10-17-2014
8	ISSUED FOR CONSTRUCTION UP TO 5TH FLOOR ONLY	11-07-2014
9	DOB SUBMISSION	12-19-2014

DOB SUBMISION

CONSULTANT:
WSP
228 East 45th Street
New York, NY 10017
(212) 687-8888
www.wspgroup.com/usa

PROJECT:
217 WEST 57TH STREET
NEW YORK, NY

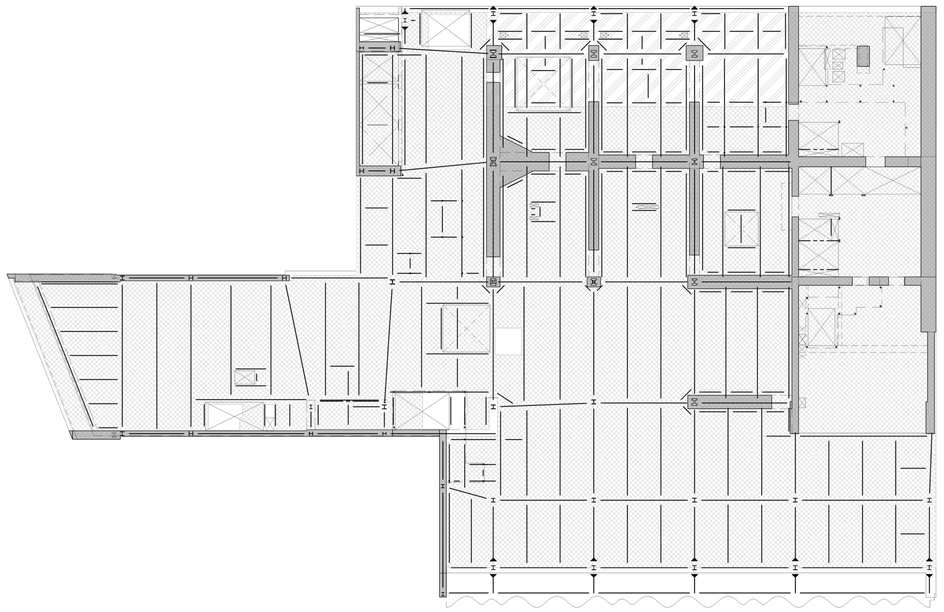
DRAWING TITLE:
LOADING DIAGRAMS 2

SEAL & SIGNATURE:

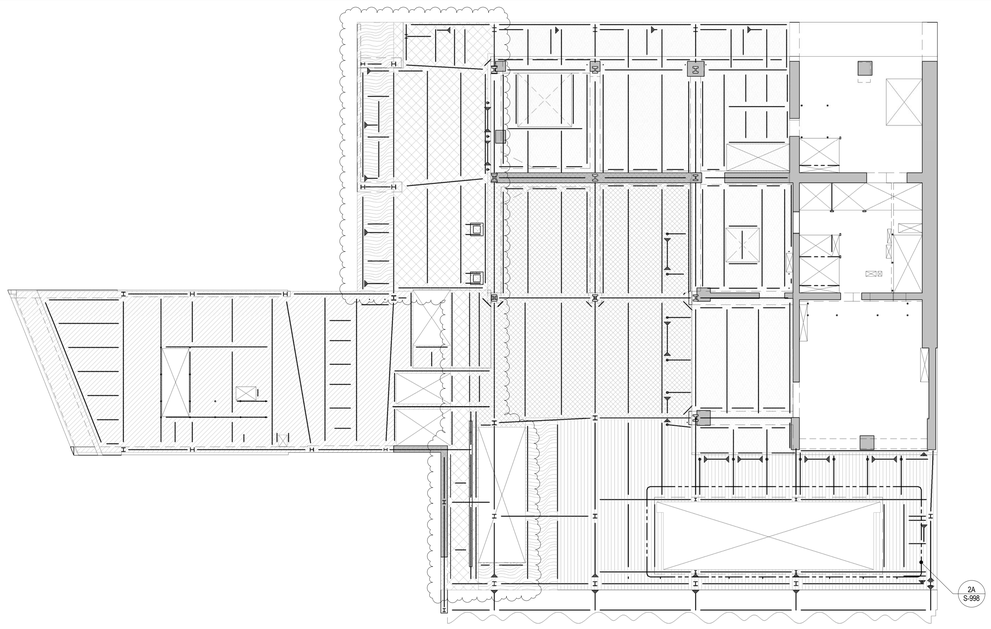
DATE:	06-17-2014
PROJECT No:	20121185
DRAWN: CADD	REV:
CHK: YE	9
SCALE: 1/16" = 1'-0"	
DWG No:	S-671.00
DOB PAGE No:	74 of XXX

DOB EMPLOYEE STAMP: DOB B-SCAN:

36" x 48" ANSI E (SHEET SIZE)
FILE NAME: C:\Users\cf2\Dropbox\20121750\Documents\WSP\STR_20121185_217 W57_S571015_cat#0t2175.rvt
PLOT DATE: 12/18/2014 7:13:06 PM



1 S-672 — 7TH FLOOR LOADING DIAGRAM
SCALE: 1/16" = 1'-0"



2 S-672 — 8TH FLOOR LOADING DIAGRAM
SCALE: 1/16" = 1'-0"

7TH FLOOR LOADING SCHEDULE

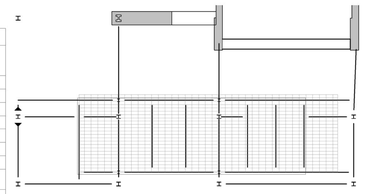
AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL	BUILT UP	MISC.	MEP + CEILING	PARTITION		
	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	(PSF)	[lbs/ft^2]	
			5	40		150	MEP FLOOR
			5	40		600	SEE TYP. DETAILS FOR ADD'L REINFORCEMENT

NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.

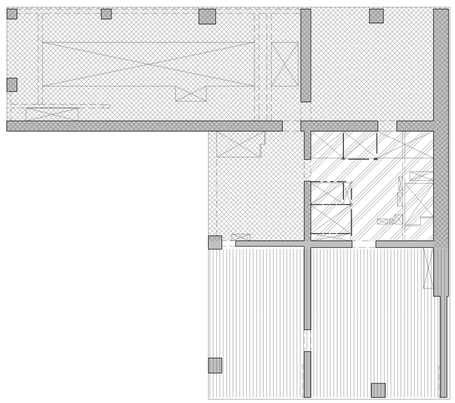
8th FLOOR POOL FLOOR LOADING SCHEDULE

AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL [e]	BUILT UP	MISC.	MEP + CEILING	PARTITION		
	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	(PSF)	[lbs/ft^2]	
	300	(65)	5	(50)		100	SEE TYPICAL DETAILS FOR ADD'L REINFORCEMENT
			5	(50)		600	SEE TYPICAL DETAILS FOR ADD'L REINFORCEMENT
	75		5	(50)		(350)	SEE TYPICAL DETAILS FOR ADD'L REINFORCEMENT
	50	(65)	5	(50)		150	
	400	(65)	5	(50)		100	SEE TYPICAL DETAILS FOR ADD'L REINFORCEMENT
	90		5	(50)		150	
	(c)	(65)	5	(50)		300 [d]	CONSTRUCTION LOADING. SEE TYPICAL DETAILS FOR ADD'L REINFORCEMENT
	250	(65)	5	(50)		100	SEE TYPICAL DETAILS FOR ADD'L REINFORCEMENT

NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.
d. 300PSF IN TABLE IS CONSTRUCTION LIVE LOAD. PERMANENT SUPERIMPOSED DEAD LOAD (100PSF) + LIVE LOAD (100PSF) ARE LESS THAN THIS CONSTRUCTION LOAD
e. ELEVATED GARDEN LOADING IS NOT REFLESTED IN TABLE. LOADING IS BASED ON DWG. LA.001 DATED 10/15/2014.



2A S-672 — POOL FLOOR LOADING DIAGRAM
SCALE: 1/16" = 1'-0"

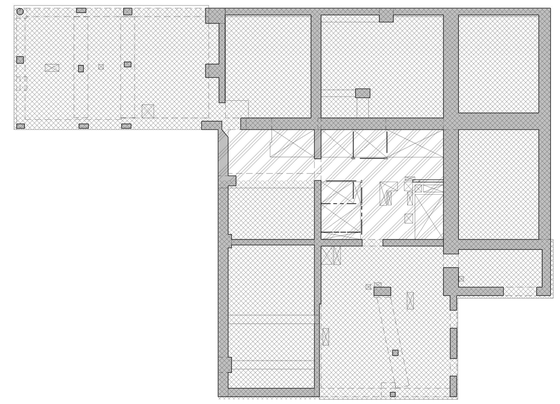


3 S-672 — 10TH FLOOR FRAMING PLAN
SCALE: 1/16" = 1'-0"

10TH FLOOR LOADING SCHEDULE

AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL	BUILT UP	MISC.	MEP + CEILING	PARTITION		
	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	(PSF)	[lbs/ft^2]	
	50					100	RESIDENTIAL AMENITIES
	38			32	12	40	RESIDENTIAL ELEVATOR LOBBY
	50	50				100	GYM EQUIPMENT

NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.

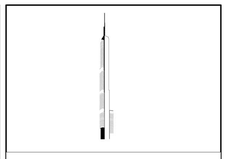


7 S-672 — 12TH FLOOR LOADING PLAN
SCALE: 1/16" = 1'-0"

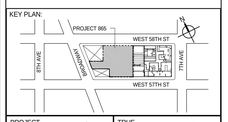
12TH FLOOR LOADING SCHEDULE

AREA	SUPERIMPOSED DEAD LOAD [a]					LIVE LOAD [b,c]	REMARKS
	FINISH/FILL	BUILT UP	MISC.	MEP + CEILING	PARTITION		
	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	[lbs/ft^2]	(PSF)	[lbs/ft^2]	
	6			50	12	40	RESIDENTIAL
	38			50	12	40	RESIDENTIAL ELEVATOR LOBBY

NOTES:
a. DEAD LOAD IS BASED ON SLAB CONSTRUCTION AND FRAMING SELF-WEIGHT AS INDICATED ON THE CORRESPONDING FLOOR FRAMING.
b. LIVE LOAD REDUCTION IS CONSIDERED BASED ON NYC BUILDING CODE.
c. THE MAX. OF THE SPECIFIED LOAD IN THIS SCHEDULE OR SPECIFIED MECH. LOADS AS SHOWN ON DRAWINGS.



KEY PLAN:



PROJECT NORTH

TRUE NORTH

DEVELOPER:
EXTELL DEVELOPMENT COMPANY
805 THIRD AVENUE, 7TH FLOOR
New York, NY 10022 USA
TEL: 212 712 6000 FAX: 212 712 6100

DESIGN ARCHITECT: Base Building Shell & Core
ADRIAN SMITH + GORDON GILL ARCHITECTURE
111 WEST MONROE STREET SUITE 2300
CHICAGO IL 60603
TEL: 312 920 1888 FAX: 312 920 1775

INTERIOR DESIGNER: Residential
Rottet Architecture and Design Studio, PLLC
298 Fifth Ave. 7th Floor
New York, NY 10001
TEL: 646 998 7000 FAX:

ARCHITECT OF RECORD: Base Building Shell, Core, & Residential
AAI ARCHITECTS, P.C.
401 Wellington St. W., 3rd Floor
Toronto, ON M5V 1E7 Canada
TEL: 416 967 1500 FAX: 416 967 7150

STRUCTURAL ENGINEERS:
WSP
228 EAST 45th Street
New York, NY 10017 USA
TEL: 212 687 9888 FAX: 646 487 5501

MEP ENGINEERS:
AKF GROUP
1501 Broadway
New York, NY 10036 USA
TEL: 212 354 5656 FAX: 212 354 5668

GEOTECHNICAL ENGINEERS:
Langan Engineering & Environmental Services
21 Penn Plaza - 360 West 31st Street, 8th Floor
New York, NY 10001-2727
TEL: 212 479 5400 FAX: 212 479 5444

CODE CONSULTANTS:
Construction Consulting Associates
100 Church Street
New York, NY 10007
TEL: 212 385 1818 FAX: 212 385 1911

CURTAINWALL CONSULTANT:
AJLP Consulting
40 Worth Street. Suite 826
New York, NY 10013
TEL: 212 757 5659 FAX: 646 219 8508

LANDMARK/PRESERVATION CONSULTANT:
Jan Hird Pokorny Associates, Inc.
39 West 37th Street, 12A
New York, NY 10018
TEL: 212 759-6462 FAX: 212 759-6540

No.	DESCRIPTION	DATE
1	DOB FILING SET	06-17-2014
2	DESIGN DEVELOPMENT	07-01-2014
3	ISSUED FOR DESIGN DEVELOPMENT	07-31-2014
4	STRUCTURAL STEEL BID	09-15-2014
5	STRUCTURAL STEEL BID-ADDENDUM	10-01-2014
6	CD PROGRESS ISSUE 1	10-15-2014
7	ISSUED FOR CONSTRUCTION UP TO GROUND FLOOR ONLY	10-17-2014
8	ISSUED FOR CONSTRUCTION UP TO 5TH FLOOR ONLY	11-07-2014
9	DOB SUBMISSION	12-19-2014
10	CD PROGRESS ISSUE-2	12-19-2014
11	ISSUED FOR 8TH FLOOR MILL ORDER- PHASE 1	01-14-2015

CONSULTANT:
WSP
228 East 45th Street
New York, NY 10017
(212) 687-9888
www.wspgroup.com/usa

PROJECT:
217 WEST 57TH STREET
NEW YORK, NY

DRAWING TITLE:
LOADING DIAGRAMS 3

SEAL & SIGNATURE:

DATE: 06-17-2014
PROJECT No: 2012185
DRAWN: CADD
CHK: YE
SCALE: 1/16" = 1'-0"
REV: **11**
DWG No:
S-672.00
DOB PAGE No: 75 of XXX

DOB EMPLOYEE STAMP:

DOB E-SCAN:

APPENDIX C

217 WEST 57TH STREET

Superstructure Peer Review

Wind Tunnel Report

Preliminary Results of April 2014 Testing - Wind-Induced Structural Responses
EXTELL Project 865 - New York, New York, RWDI Project #1300272
January 29, 2015

The wind loads provided in this report include the effects of directionality in the local wind climate. These loads do not contain safety or load factors and are to be applied to the building's structural system in the same manner as would wind loads calculated by code analytical methods.

Table 2: **Summary of Peak Overall Structural Wind Loads**
Testing the 1521ft Height Plus Spire - Properties from 2014-12-23_217W57th_v11-48.xlsx

Configuration	Period Case	Damping	My (lb-ft)	Mx (lb-ft)	Mz (lb-ft)	Fx (lb)	Fy (lb)
w/c C1, C2	Base	1.5%	5.09E+09	5.70E+09	6.96E+07	5.15E+06	6.15E+06
		3.0%	4.41E+09	4.99E+09	6.26E+07	4.58E+06	5.56E+06

Notes:

(1) The above results correspond to the testing of
- The initial geometry defined in 2014.03.10_3D Model.3dm, issued by AS+GG on March 10, 2014.
- The extension of the heights of the top floors as detailed in 2014.04.09_865 Stack.xls

(2) The test configurations are defined as follows:
Surroundings Configuration 1 - Existing
Surroundings Configuration 2 - Future, with Tower at 220 Central Park

(3) The above loads are the cumulative summation of the wind-induced loads at the structural level '1' (ie grade), exclusive of load combination factors. The loads are centered about a reference axis located at (210.0 ft, 120.0 ft), for B-1 Gridline Intersection at (238.17 ft, 195.08 ft).

(4) Total damping ratios of 1.5% and 3.0% of critical were used for structural load calculations, as requested.

(5) The above loads are based on the structural properties as provided by WSP in 2014-12-23_217W57th_v11-48.xlsx on December 23, 2014. The natural building periods were as follows:

Mode 1: 12.67 sec (primarily Y coupled X)
Mode 2: 11.60 sec (primarily X coupled with Y)
Mode 3: 3.50 sec (primarily torsion).

(6) The above loads correspond to a 50-year return period basic wind speed (3-second gust) of 98 mph.

Table 3a: **Effective Static Floor-by-Floor Wind Loads**
Properties from 2014-12-23_217W57th_v11-48.xlsx, 1.5% Damping

Ref. Axis (210.0 ft, 120.0 ft) for B-1 Gridline Intersection (238.17 ft, 195.08 ft)

Table 3b: **Effective Static Floor-by-Floor Wind Loads**
Properties from 2014-12-23_217W57th_v11-48.xlsx, 3.0% Damping

Ref. Axis (210.0 ft, 120.0 ft) for B-1 Gridline Intersection (238.17 ft, 195.08 ft)

Floor	Height (ft) Above Level '1'	Fx (lb)	Fy (lb)	Mz (lb-ft)
1	0.00	25100	33000	141000
2	25.00	42700	59400	459000
3	42.50	35200	49200	574000
4	60.00	35200	50300	610000
5	77.50	36500	54000	672000
6-MEP	97.00	37000	61400	758000
7-MEP	118.00	38300	65900	837000
8-AMENITY	138.83	37900	76800	908000
9-MEP	162.75	27100	40100	532000
10-AMENITY	178.75	44700	61400	818000
10.5	235.75	71000	100600	1388000
11-MEP	292.75	61800	89900	1128000
12	316.42	32600	49300	634000
13	328.25	19900	30900	463000
14	340.08	18600	29700	475000
15	351.92	19000	30200	494000
16	363.75	19400	30700	513000
17	375.58	20000	31300	538000
18	387.42	20600	32000	566000
19	399.25	24400	37800	677000
20	415.25	27600	43500	777000
21	431.25	20800	38200	603000
22	443.08	18800	33700	563000
23	454.92	19400	34400	588000
24	466.75	20000	35100	613000
25	478.58	20700	35900	642000
26	490.42	24300	42300	754000
27-MEP	506.42	36600	62300	1265000
28	530.42	49700	74200	1128000
29	546.42	24600	31900	448000
30	558.25	22300	28500	416000
31	570.08	22900	29100	426000
32	581.92	23500	29700	436000
33	593.75	24100	30400	446000
34	605.58	24800	31100	457000
35	617.42	25500	31800	469000
36	629.25	26200	32500	481000
37	641.08	27000	33200	493000
38	652.92	27600	34000	504000
39	664.75	28400	34700	515000
40	676.58	29100	35500	527000
41	688.42	29900	36400	538000
42	700.25	30700	37100	549000
43	712.08	31500	37900	559000

Floor	Height (ft) Above Level '1'	Fx (lb)	Fy (lb)	Mz (lb-ft)
1	0.00	25100	34400	194000
2	25.00	42700	62100	625000
3	42.50	35100	52600	770000
4	60.00	35100	53900	796000
5	77.50	36500	57700	854000
6-MEP	97.00	37000	65300	918000
7-MEP	118.00	38300	69600	987000
8-AMENITY	138.83	38400	80400	1045000
9-MEP	162.75	27900	41200	619000
10-AMENITY	178.75	47300	63800	968000
10.5	235.75	76100	104200	1594000
11-MEP	292.75	63000	90000	1266000
12	316.42	31900	48300	682000
13	328.25	19900	30800	484000
14	340.08	18900	29900	492000
15	351.92	19300	30400	505000
16	363.75	19700	30800	519000
17	375.58	20200	31400	537000
18	387.42	20700	31900	557000
19	399.25	24400	37700	664000
20	415.25	27700	43500	758000
21	431.25	20400	38200	575000
22	443.08	18200	33500	525000
23	454.92	18600	34000	542000
24	466.75	19200	34600	560000
25	478.58	19700	35300	581000
26	490.42	23100	41600	682000
27-MEP	506.42	34500	60900	1106000
28	530.42	44400	69600	1003000
29	546.42	23600	30400	403000
30	558.25	21100	26800	368000
31	570.08	21500	27400	375000
32	581.92	22000	27900	382000
33	593.75	22500	28400	389000
34	605.58	23000	29000	397000
35	617.42	23600	29600	405000
36	629.25	24100	30100	414000
37	641.08	24700	30700	422000
38	652.92	25200	31300	431000
39	664.75	25800	31900	438000
40	676.58	26400	32500	446000
41	688.42	27000	33100	454000
42	700.25	27600	33800	462000
43	712.08	28200	34400	470000

44	723.92	32300	38800	573000
45	735.75	37400	45100	659000
46-MEP	751.75	53900	64700	1009000
47	775.75	74600	82800	864000
48	788.58	35000	42500	563000
49	801.42	35900	43300	571000
50	814.25	36700	44100	577000
51	827.08	37500	45000	583000
52	839.92	38300	45900	591000
53	852.75	39200	46800	598000
54	865.58	40100	47700	606000
55	878.42	41000	48600	614000
56	891.25	41900	49600	623000
57	904.08	42800	50500	631000
58	916.92	43700	51500	638000
59	929.75	44700	52500	646000
60	942.58	45700	53500	653000
61	955.42	46800	54600	663000
62	968.25	47600	55500	668000
63	981.08	48600	56500	675000
64	993.92	49600	57500	682000
65	1006.75	50800	58800	695000
66	1019.58	56500	65400	773000
67-MEP	1035.58	91600	106300	1369000
68	1067.58	138000	150700	1259000
69	1083.58	55800	66500	702000
70	1099.58	58500	68200	736000
71	1112.42	55600	63900	672000
72	1125.25	56500	64900	675000
73	1138.08	57400	65900	682000
74	1150.92	58500	67000	688000
75	1163.75	59500	68000	694000
76	1176.58	60500	69000	700000
77	1189.42	61500	70000	707000
78	1202.25	62500	71100	713000
79	1215.08	63600	72200	719000
80	1227.92	64700	73300	725000
81	1240.75	65900	74500	731000
82	1253.58	66700	75300	735000
83	1266.42	67100	75900	735000
84	1279.25	67900	76700	737000
85	1292.08	68900	77700	741000
86	1304.92	70000	78800	747000
87	1317.75	71200	80000	753000
88	1330.58	77300	87400	824000
89	1346.67	82300	93800	880000
90	1362.67	76500	88300	803000

44	723.92	28900	35100	480000
45	735.75	33600	41000	554000
46-MEP	751.75	48500	58700	838000
47	775.75	63300	71300	722000
48	788.58	31500	38600	480000
49	801.42	32200	39300	485000
50	814.25	32800	39900	490000
51	827.08	33500	40600	494000
52	839.92	34100	41300	500000
53	852.75	34800	42000	505000
54	865.58	35400	42700	511000
55	878.42	36100	43400	516000
56	891.25	36900	44200	523000
57	904.08	37600	45000	528000
58	916.92	38300	45800	534000
59	929.75	39100	46500	539000
60	942.58	39800	47300	545000
61	955.42	40700	48200	552000
62	968.25	41400	48900	555000
63	981.08	42100	49700	560000
64	993.92	42900	50500	566000
65	1006.75	43800	51500	574000
66	1019.58	48800	57500	640000
67-MEP	1035.58	79500	93600	1121000
68	1067.58	114000	126900	1044000
69	1083.58	49200	59400	602000
70	1099.58	50400	59800	614000
71	1112.42	47800	55700	560000
72	1125.25	48300	56500	562000
73	1138.08	49100	57300	567000
74	1150.92	49900	58100	571000
75	1163.75	50700	58900	576000
76	1176.58	51500	59700	580000
77	1189.42	52300	60500	584000
78	1202.25	53100	61400	589000
79	1215.08	54000	62300	594000
80	1227.92	54800	63200	598000
81	1240.75	55600	64000	602000
82	1253.58	56200	64700	605000
83	1266.42	56700	65100	605000
84	1279.25	57300	65800	607000
85	1292.08	58100	66600	610000
86	1304.92	58900	67500	614000
87	1317.75	59800	68400	618000
88	1330.58	65300	75100	680000
89	1346.67	69900	81000	730000
90	1362.67	65600	76900	676000

91	1378.67	159800	167800	1541000
92	1394.67	137600	140300	1193000
93-EMR	1412.67	115200	116500	847000
94-DAMP	1428.67	204100	201900	1434000
95	1450.33	103700	107300	837000
95-MEZZ	1472.00	82500	87200	705000
96-ROOF	1493.67	175700	146400	1169000
TOP	1521.83	191000	184800	577000
Total		**5.15E+06**	**6.15E+06**	**6.96E+07**

Notes:

(1) The loads given in this table should be used with the load combination factors given in Table 4.

(2) The loads given in this table are centered about the reference axis defined in the title.

(3) The above loads correspond to a 50-year return period basic wind speed (3-second gust) of 98 mph.

91	1378.67	127700	136600	1196000
92	1394.67	111700	114100	934000
93-EMR	1412.67	95200	95700	684000
94-DAMP	1428.67	162500	160800	1108000
95	1450.33	89300	91400	702000
95-MEZZ	1472.00	73600	76400	610000
96-ROOF	1493.67	144500	117600	932000
TOP	1521.83	198800	178600	540000
Total		**4.58E+06**	**5.56E+06**	**6.26E+07**

Notes:

(1) The loads given in this table should be used with the load combination factors given in Table 4.

(2) The loads given in this table are centered about the reference axis defined in the title.

(3) The above loads correspond to a 50-year return period basic wind speed (3-second gust) of 98 mph.

Table 4: **Recommended Wind Load Combination Factors**
Factor for Simultaneous Application of Loads in Tables 3a and 3b

Load Case	X Forces (Fx)	Y Forces (Fy)	Torsion (Mz)

1	+100%	+45%	+30%
2	+100%	+45%	-35%
3	+100%	-30%	+30%
4	+100%	-30%	-35%
5	-100%	+30%	+60%
6	-100%	+30%	-30%
7	-100%	-50%	+60%
8	-100%	-50%	-30%
9	+60%	+85%	+60%
10	+60%	+85%	-30%
11	+30%	-100%	+30%
12	+30%	-100%	-50%
13	-35%	+85%	+60%
14	-35%	+85%	-30%
15	-45%	-100%	+30%
16	-45%	-100%	-50%
17	+30%	+40%	+95%
18	+35%	+30%	-100%
19	+30%	-55%	+95%
20	+35%	-65%	-100%
21	-65%	+40%	+95%
22	-35%	+30%	-100%
23	-65%	-55%	+95%
24	-35%	-65%	-100%

Note:

(1) Load combination factors have been produced through consideration of the structure's response to various wind directions, modal coupling, correlation of wind gusts and the directionality of strong winds in the local wind climate.