STRUCTURAL SYSTEM DESCRIPTION

THE PROPOSED DYER AVENUE OVERBUILD COVERS THE EXISTING DYER AVE ROADWAY FROM 31ST STREET TO 33RD STREET IN ORDER TO CONNECT THE PROPOSED MANHATTAN WEST PROJECT WITH THE EXISTING 450 W 33RD BUILDING. THE OVERBUILD WILL CONSIST OF OUTDOOR PLAZA SPACE ALONG WITH LARGE PLANTERS THROUGHOUT. THE EAST-WEST WIDTH OF THE OVERBUILD IS APPROXIMATELY 63' AND THE NORTH-SOUTH LENGTH IS APPROXIMATELY 455'.

THE GRAVITY LOADS FROM THE OVERBUILD WILL BE TRANSFERRED TO 450 WEST 33RD STREET TO THE WEST AND TO MANHATTAN WEST STRUCTURES TO THE EAST WITHOUT ANY SUPPORTS ON THE DYER AVENUE EXPRESSWAY BRIDGE. THERMAL EXPANSION JOINTS WILL BE REQUIRED DUE TO THE NORTH-SOUTH LENGTH OF THE OVERBUILD AND TO ALLOW FOR INDEPENDENT SEISMIC MOVEMENT OF THE MANHATTAN WEST AND 450 W 33RD PROJECTS.

THE OVERBUILD IS CURRENTLY CONCEIVED AS THREE SEPARATE SECTIONS TO ALLOW FOR THE THERMAL AND SEISMIC MOVEMENTS NOTED ABOVE. EXPANSION JOINTS WILL BE UTILIZED BETWEEN EACH OF THESE SECTIONS. THE TYPICAL OVERBUILD STRUCTURE WILL CONSIST OF STRUCTURAL STEEL BEAMS SUPPORTING CONCRETE ON METAL DECK SLABS.

- THE NORTHERN SECTION WILL EXTEND FROM 33RD STREET TO JUST NORTH OF THE RAILROAD TRACKS. THE OVERBUILD FRAMING HERE WILL BE SUPPORTED ON THE EAST SIDE BY A FOUNDATION WALL ON THE NW CORNER OF THE PROPOSED MANHATTAN WEST DEVELOPMENT AND ON THE WEST SIDE BY THE EXISTING 450 W 33RD STREET STRUCTURE WHICH IS CURRENTLY SUPPORTED BY COLUMNS THROUGH THE MEDIAN OF DYER AVENUE. THE LATERAL LOADS OF THE OVERBUILD FRAMING HERE WILL BE SUPPORTED ON THE EXISTING 450 W 33RD STRUCTURE.
- THE MIDDLE SECTION WILL EXTEND OVER THE RAILROAD TRACKS. THIS OVERBUILD FRAMING WILL BE SUPPORTED ON THE EAST SIDE BY A LONG-SPAN STRUCTURAL STEEL TRUSS ON THE WEST EDGE OF THE MANHATTAN WEST DEVELOPMENT AND WILL BE SUPPORTED ON THE WEST SIDE BY COLUMNS BEARING ON THE EXISTING 450 W 33RD STREET STRUCTURE. THE LATERAL LOADS OF THE MIDDLE SECTION OF THE OVERBUILD FRAMING HERE WILL BE SUPPORTED ON THE NORTH BY CONCRETE ABUTMENT AND ON THE SOUTH BY A CONCRETE FOUNDATION WALL OF THE MANHATTAN WEST DEVELOPMENT SW TOWER.
- THE SOUTHERN SECTION WILL EXTEND FROM 31ST STREET TO JUST SOUTH OF THE RAILROAD TRACKS. THIS SECTION OF THE OVERBUILD FRAMING WILL BE SUPPORTED ON THE EAST SIDE BY THE MANHATTAN WEST DEVELOPMENT SW TOWER AND ON THE WEST BY A FOUNDATION WALL OF THE EXISTING 450 W 33RD STREET STRUCTURE, SIMILAR TO THE EXISTING CONDITION ON THE NORTH END. THE LATERAL LOADS OF THE SOUTHERN SECTION OF THE OVERBUILD FRAMING WILL BE SUPPORTED ON THE EAST SIDE BY THE MANHATTAN WEST DEVELOPMENT SW TOWER.

TO PREVENT LOADING OF THE EXISTING 450 W 33RD STREET STRUCTURE, AND EXPANSION JOINT WILL BE PROVIDED ALONG THE WEST FACE OF THE OVERBUILD AND ALL LATERAL WIND AND SEISMIC LOADS WILL THUS BE RESISTED ON THE EAST SIDE OF THE OVERBUILD ONLY.

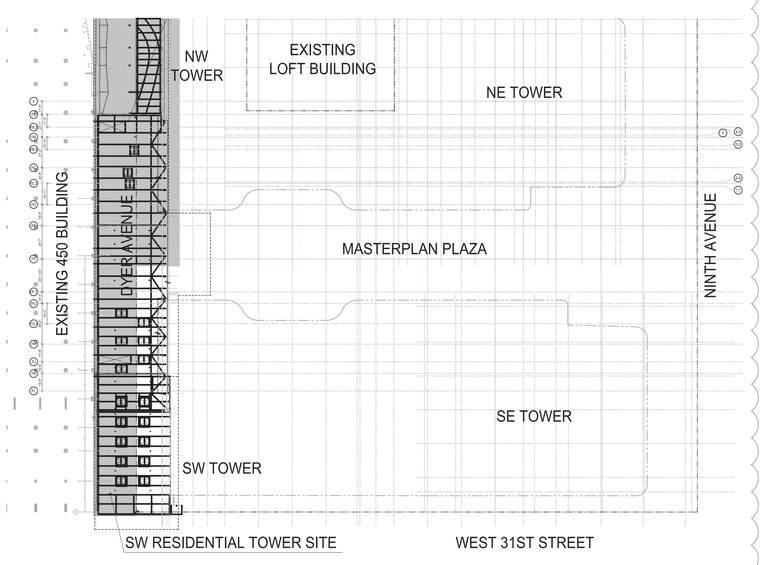
STEEL STRUCTURE AND METAL DECK SHALL RECEIVE APPLIED (SPRAY-ON) FIREPROOFING TO COMPLY WITH REQUIREMENTS OF NFPA 502.

THE NYC BUILDING CODE IS UTILIZED AS THE BASIS FOR ALL STRUCTURAL DESIGN. SEISMIC LOADING IS BASED UPON THE PARAMETERS CONTAINED WITHIN THE CODE. REFER TO S-011 FLOOR LOADING DIAGRAMS FOR SEISMIC LOADS. THE OVERBUILD FLOOR FRAMING IS DESIGNED FOR THE FOLLOWING LOADS (EXCLUDING THE WEIGHT OF THE PLENUM BELOW), SEE S-011 FLOOR LOADING DIAGRAMS FOR DETAIL:

TYPICAL PLAZA AREAS:
- SELF-WEIGHT
- SUPERIMPOSED DEAD LOAD = 110PSF
- LIVE LOAD = 100PSF

PLANTER AREAS:
- SELF-WEIGHT
- SUPERIMPOSED DEAD LOAD = 660PSF + TREE WEIGHT
- LIVE LOAD = 50PSF
- STRUCTURAL OCCUPANCY: CATEGORY IV
- SNOW LOADS INCLUDED WITHIN PLAZA DESIGN LOADS

CONSTRUCTION PHASING IS CONSIDERED. REFER TO G-004 FOR THE PORTION OF PHASE 1.



OVERALL SITE DIAGRAM

STRUCTURAL DRAWINGS:			
GENERAL			
	Dwg. No.	**Title**	**Scale**
	S-001.01	STRUCTURAL SYSTEM DESCRIPTION, SYMBOLS AND ABBREVIATIONS	NTS
	S-004.01	STRUCTURAL CONCRETE NOTES	NTS
	S-005.01	STRUCTURAL STEEL NOTES	NTS
FRAMING PLANS			
	Dwg. No.	**Title**	**Scale**
	S-011.01	FLOOR LOADING DIAGRAMS	NTS
	S-100.00	STORAGE SHED LOADING DIAGRAM AND FRAMING PLAN	NTS
	S-101.00	DYER AVENUE OVERBUILD FOUNDATION PLAN	NTS
	S-102.02	DYER AVENUE OVERBUILD FRAMING PLAN	NTS
TYPICAL STRUCTURAL DETAILS			
	Dwg. No.	**Title**	**Scale**
	S-401.00	DYER AVENUE OVERBUILD SECTIONS	As Noted
	S-501.01	STRUCTURAL METAL DECK SLAB SCHEDULES AND TYPICAL DETAILS	As Noted
	S-502.01	TYPICAL STRUCTURAL STEEL SECTIONS AND DETAILS	As Noted
	S-503.01	TYPICAL STRUCTURAL STEEL SECTIONS AND DETAILS	As Noted
	S-554.00	IN-PLANE STEEL BRACING SCHEDULE AND DETAILS	As Noted

SYMBOL SCHEDULE

LINES

CENTER LINE

HIDDEN OUTLINE

NOTES

DIMENSION LINE

COLUMN REFERENCE SYMBOL

A — GRIDLINE DESIGNATION (NUMBER OR LETTER)

SECTION REFERENCE SYMBOLS

S-101 — SECTION DESIGNATION (NUMBER OR LETTER); SHEET NUMBER (i.e. S-101)

A — SECTION DESIGNATION ON SAME SHEET (NUMBER OR LETTER)

DETAIL REFERENCE SYMBOLS

B / S-101 — DETAIL DESIGNATION (NUMBER OR LETTER); SHEET NUMBER (i.e. S-101)

2 — DETAIL DESIGNATION ON SAME SHEET (NUMBER OR LETTER)

GENERAL ELEVATION SYMBOLS

T/STEEL EL: 80'-2" — DEFINITION; ABSOLUTE ELEVATION (IN FEET) AS PER NYC DATUM

ELEV 80'-2" — ABSOLUTE SPOT ELEVATION (IN FEET) AS PER NYC DATUM

W.P. — WORK POINT

MISCELLANEOUS SYMBOLS

REINFORCING BAR MECHANICAL COUPLER WELDED TO STRUCTURAL STEEL

METAL DECK

WIRE MESH REINFORCEMENT

CHANGE IN ELEVATION

EPOXY ANCHORED DOWEL

EPOXY ANCHOR BOLT

WELDED JOINT STANDARD SYMBOLS

BASIC WELDED SYMBOLS					
BACK	FILLET	PLUG OR SLOT	GROOVE OR BUTT		
			SQUARE	V	BEVEL
SUPPLEMENTARY WELD SYMBOLS					
BACKING	WELD ALL AROUND	FIELD WELD	CONTOUR		
			FLUSH	CONVEX	

FINISH SYMBOL — F; GROOVE ANGLE OR INCLUDED ANGLE OF COUNTERSINK FOR PLUG WELD — A; CONTOUR SYMBOL

EFFECTIVE THROAT (in.); DEPTH OF PREPARATION OR LEG LENGTH FOR FILLET WELDS (in.); SPECIFICATION, PROCESS OR OTHER REFERENCE — T; BASIC WELD SYMBOL OR DETAIL REFERENCE — S(E); (ARROW SIDE); (OTHER SIDE); L @ P — LENGTH OF WELD (in.); PITCH C-C SPACING OF WELDS (in.); FIELD WELD SYMBOL; WELD ALL AROUND SYMBOL

STEEL FRAMING SYMBOLS

COLUMN MARKS:

STEEL WIDE FLANGE COLUMN

STEEL TUBE COLUMN

STEEL HSS ROUND COLUMN

TR — COLUMN TRANSFER (AT LEVEL SHOWN)

SC — STUB COLUMN (DOWN TO FRAMING BELOW)

HANGER MARKS:

STEEL CHANNEL HANGER

STEEL ANGLE HANGER

STEEL DOUBLE ANGLE HANGER

STEEL CIRCULAR HOLLOW SECTION HANGER

COMPOSITE BEAM MARKS:

WIDE FLANGE BEAM SIZE (DEPTH IN INCHES X WEIGHT IN PLF) — W24 x 55; NUMBER OF SHEAR STUDS — (22); FACTORED AXIAL FORCE IN KIPS — 45; FACTORED MEMBER END REACTION IN KIPS (IF DIFFERENT THAN SCHEDULED REACTION) — 45; CAMBER (IN INCHES) — <3/4>; TOP OF STEEL ELEVATION VARIATION FROM THE BASE TOP OF STEEL ELEVATION (IN) — [-14]

CANTILEVER FRAMING MARKS:

CANTILEVER BEAM — MOMENT CONNECTION TYPICAL; COLUMN OR GIRDER MEMBER

BRACING MARKS:

STRUCTURAL STEEL BRACING TO LEVEL ABOVE

BEAM AND GIRDER CONNECTIONS:

SIMPLE SHEAR CONNECTION

MOMENT CONNECTION

2 — AXIAL CONNECTION

CONTINUOUS BEAM/GIRDER (OVER TOP OF COLUMN)

BEAM PENETRATION MARKS:

BEAM PENETRATION MARK NUMBER — A: RECTANGULAR BEAM PENETRATION (SEE SCHEDULE); A: CIRCULAR BEAM PENETRATION (SEE SCHEDULE)

STEEL FRAMING NOTATION

MEMBER NOTATION

WIDE FLANGE BEAM SECTIONS — W 14 x 455; WIDE FLANGE; NOMINAL DEPTH IN INCHES; SECTION WEIGHT IN POUNDS PER LINEAR FOOT

ANGLE SECTIONS — L 6 x 4 x ½; SECTION TYPE; LENGTH OF LONG LEG IN INCHES; THICKNESS IN INCHES; LENGTH OF SHORT LEG IN INCHES

BACK TO BACK ANGLES FOR EQUAL LEG ANGLES — 2L 6 x 6 x 1/2; SECTION TYPE; THICKNESS IN INCHES; LENGTH OF LEG IN INCHES

BACK TO BACK TEES — 2 WT 6 x 60; SECTION TYPE, STRUCTURAL TEE CUT FROM WIDE FLANGE SHAPE; SECTION WEIGHT IN POUNDS PER LINEAR FOOT; NOMINAL DEPTH IN INCHES

STRUCTURAL HOLLOW SECTIONS (CIRCULAR)

HSS 20 x 3.2 — STRUCTURAL HOLLOW SECTION; THICKNESS IN INCHES; NOMINAL DIAMETER IN INCHES

STRUCTURAL HOLLOW SECTIONS (SQUARE)

HSS 10 x 10 x 1/2 — STRUCTURAL HOLLOW SECTION; THICKNESS IN INCHES; WIDTH IN INCHES

STRUCTURAL HOLLOW SECTIONS (RECTANGULAR)

HSS 40 x 4 x 1/2 — STRUCTURAL HOLLOW SECTION; THICKNESS IN INCHES; WIDTH IN INCHES; DEPTH IN INCHES

BUILT-UP GIRDERS, BEAMS AND COLUMNS:

BU - XXX - XXX - XXX - XXX — OUT-TO-OUT DEPTH (IN.); FLANGE WIDTH (IN.); WEB THICKNESS (IN.); FLANGE THICKNESS (IN.)

METAL DECK SLAB MARKS

MS1 — COMPOSITE METAL DECK SLAB (SEE SCHEDULE)

RS1 — REINFORCED METAL DECK SLAB (SEE SCHEDULE)

CONCRETE SLAB MARKS

S1 — REINFORCED CONCRETE ONE-WAY SLAB (SEE SCHEDULE); TWO-WAY REINFORCED CONCRETE SLAB (FLAT PLATE OR FLAT SLAB)

ABBREVIATION SCHEDULE

ABS	ABSOLUTE
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
ADJ	ADJACENT
ADJST	ADJUSTABLE
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
&	AND
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASSN	ASSOCIATION
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
AUX	AUXILIARY
AVG	AVERAGE
B	BOX
B/	BOTTOM OF
BLDG	BUILDING
BM	BEAM
B/S	BOTTOM OF STEEL
B.S.	BOTH SIDES
B.W.	BOTH WAYS
C	CHANNEL
ø/C	DEGREE CELSIUS
C-C	CENTRE TO CENTRE
C-F	CENTRE TO FACE
CALC	CALCULATIONS
CEM	CEMENT
CHAN	CHANNEL
CHRD	CHORD
CIR	CIRCULAR
CJP	COMPLETE JOINT PENETRATION (WELD)
CL, ℄	CENTERLINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMP	COMPOSITE
CONC	CONCRETE
CONST	CONSTRUCTION
C.J.	CONSTRUCTION JOINT
CONFIG	CONFIGURATION
CONT	CONTINUOUS
CORP	CORPORATION
C.R.	COLD ROLLED
CS	COLUMN STRIP
CU	CUBIC
CYL	CYLINDER
D	DEPTH
DBL	DOUBLE
DEG	DEGREE
DIA, Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTANCE
DL	DEAD LOAD
DN	DOWN
DP	DROP PANEL
DWG	DRAWING
DWL	DOWEL, STARTER BAR
(E)	EXISTING
EA	EACH
E.F.	EACH FACE
ELEC	ELECTRICAL
EL	ELEVATION
EQ	EQUAL
EQMT	EQUIPMENT
ESS	EXPOSED STRUCTURAL STEEL
EOS	EDGE OF SLAB
E-W	EAST-WEST
E.W.	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
F-F	FACE TO FACE
FAB	FABRICATION
FFL	FINISHED FLOOR LEVEL
F.F.	FAR FACE
FIG	FIGURE
FIN	FINISH
FIN DIM	FINISH DIMENSION
FIN FLR	FINISH FLOOR
FIN GR	FINISH GRADE
FLR	FLOOR
FLNG	FLANGE
FND	FOUNDATION
FT	FOOT
FTG	FOOTING
>	GREATER THAN
GA	GAUGE
GALV	GALVANIZED
GEN	GENERAL
GR	GRADE
GRND	GROUND
HGR	HANGER
HT	HEIGHT
HORIZ	HORIZONTAL
HP	HIGH POINT
HSFG	HIGH STRENGTH FRICTION GRIP BOLT
HSS	HOLLOW STRUCTURAL SECTION
ID	INSIDE DIAMETER
IN	INCH, INCHES
INC	INCORPORATED
INSUL	INSULATION
INT	INTERIOR
ISO	ISOMETRIC
JT	JOINT
JST	JOIST
KIPS	KIPS
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
<	LESS THAN
LB	POUND
LENG	LENGTH
LH	LEFT HAND
LL	LIVE LOAD
LLBB	LONG LEG BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LP	LOW POINT
LRFD	LOAD RESISTANCE FACTOR DESIGN
LTWT	LIGHTWEIGHT
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MS	COMPOSITE METAL DECK SLAB, MIDDLE STRIP
N/A	NOT APPLICABLE
NET WT	NET WEIGHT
N.F.	NEAR FACE
NIC	NOT IN CONTRACT
NMWT	NORMAL WEIGHT
NO.	NUMBER
NOM	NOMINAL
N-S	NORTH-SOUTH
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPNG	OPENING
OPP	OPPOSITE
OPPH	OPPOSITE HAND
P, PIP	PIPE
PART	PARTITION
PCT, %	PERCENT
PCC	PRECAST CONCRETE
PERP	PERPENDICULAR
PL, P L	PLATE
PLBG	PLUMBING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
R, RAD	RADIUS
R/C	REINFORCED CONCRETE
RD	NON-COMPOSITE METAL ROOF DECK
REF	REFERENCE
REG	REGULAR
REQD	REQUIRED
REV	REVISED, REVISION
RH	RIGHT HAND
RS	REINFORCED METAL DECK SLAB
RSA	ROLLED STEEL ANGLE
RSC	ROLLED STEEL CHANNEL
S.C.	SLIP CRITICAL
SCHD	SCHEDULE
SDI	STEEL DECK INSTITUTE
SECT	SECTION
SHT	SHEET
SDL	SUPERIMPOSED DEAD LOAD
SPECS	SPECIFICATIONS
S.S.	STAINLESS STEEL
ST	STUB COLUMN
STD	STANDARD
STL	STEEL
STL PL	STEEL PLATE
STRUC	STRUCTURE, STRUCTURAL
SIM	SIMILAR
SYS	SYSTEM
T/	TOP OF
T/S	TOP OF STEEL
TDL	TENSION DEVELOPMENT LENGTH
TECH	TECHNICAL
TEMP	TEMPERATURE
THK	THICK
THRD	THREAD, THREADED
TR	COLUMN TRANSFER
TS	TUBE STEEL
TUB	TUBE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/O	WITHOUT
W.P.	WORK POINT
WF	WIDE FLANGE
WGT	WEIGHT
WL	WIND LOAD
WT	STRUCTURAL TEE CUT FROM WIDE FLANGE SHAPE
WWF, WWR	WELDED WIRE FABRIC / REINFORCEMENT

MANHATTAN WEST:

SOUTHWEST RESIDENTIAL TOWER SITE

West 31st Street
New York, NY

Client

Brookfield

250 Vesey Street, 15th Floor, New York, NY 10281-1023

Architecture/Structural Engineering

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Landscape

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MEP Engineering

Jaros Baum & Bolles
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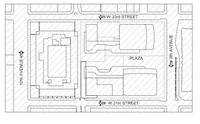
MEP Engineering

Parsons Brinckerhoff
1 Penn Plaza, 2nd Floor, New York, NY 10119

Electrical Engineering

Cosentini Associates
Two Pennsylvania Plaza, 3rd Floor, New York, NY 10121



KEYPLAN

No.	Date	Description
2	02 SEP 2016	ISSUED FOR PERMIT FILING
1	02 MAY 2014	ISSUED FOR PERMIT FILING

Damian Titus
BuildingNYC
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date: 10/03/2016
NYC Development Hub

Sheet Name:

STRUCTURAL SYSTEM DESCRIPTION, SYMBOLS AND ABBREVIATIONS

Seal & Signature:

Date:	02 SEP 2016
NYC DOB Number:	
Project No:	207120
Scale:	NTS
DWG No.	S-001.01
CAD FILE Name:	S-001.DWG

DEPT OF BLDGS 121185760 Job Number
ES318290807 Scan Code

STRUCTURAL CONCRETE NOTES

A. CONCRETE

1. ALL CAST-IN-PLACE CONCRETE SHALL BE OF THE TYPES AND HAVING THE MINIMUM COMPRESSIVE CYLINDER STRENGTHS AS SHOWN ON THE CONCRETE MATERIALS SCHEDULE.

2. ALL CONCRETE SHALL CONTAIN AN APPROVED WATER REDUCING, PLASTICIZING ADMIXTURE. APPROVED, HIGH-RANGE, WATER REDUCING ADMIXTURES MAY BE UTILIZED. FOR ALL THE CONCRETE PERMANENTLY EXPOSED TO WEATHER PROVIDE MAXIMUM 0.40 WATER-CEMENT RATIO, INCLUDING WATER CONTENT OF ADMIXTURE AND MINIMUM 4000PSI COMPRESSIVE STRENGTH AT 28 DAYS WITH USE ONLY IN COMBINATION WITH HIGH RANGE WATER REDUCING ADMIXTURE. ALL CONCRETE PERMANENTLY EXPOSED TO THE WEATHER SHALL ALSO CONTAIN SPECIFIED AND APPROVED AIR-ENTRAINING ADMIXTURE. CORROSION INHIBITING ADMIXTURE SHALL BE UTILIZED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, BUT IN DOSAGE RATE NOT LESS THAN 2.0 GAL/YARD^3 (2)

3. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.

4. SEE TECHNICAL SPECIFICATION SECTION 033000 "CAST IN PLACE CONCRETE" FOR ADDITIONAL REQUIREMENTS.

B. REINFORCING

1. ALL REINFORCING BARS SHALL CONFORM TO THE STANDARDS OF ASTM A615, GRADE 60.
2. ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, SPACED IN FORMS, AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN IBC 2006 AND 2008 NEW YORK BUILDING CODE. FOLLOW THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315 AND ACI 318-08.
3. THE CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE ARCHITECT / STRUCTURAL ENGINEER FOR APPROVAL, CHECKED SHOP DRAWINGS INDICATING PLACEMENT AND SUPPORT DETAILS INCLUDING THE ADDITIONAL REBAR PROVIDED BY THE CONTRACTOR FOR MAIN REINFORCEMENT SUPPORT FOR REVIEW PRIOR TO INSTALLATION.
4. ALL REINFORCING SPLICES SHALL DEVELOP 100% OF THE TENSILE CAPACITY OF THE REINFORCEMENT. (U.N.O.) ALTERNATIVE MECHANICAL SPLICES MAY BE CONSIDERED, PROVIDED THAT THEY DEVELOP FULL TENSILE STRENGTH.
5. ALL WIRE MESH REINFORCEMENT SHALL CONFORM TO THE STANDARDS OF ASTM A185 AND SHALL BE GALVANIZED.
6. ALL WIRE MESH REINFORCEMENT SHALL BE LAPPED TWO (2) FULL MESH PANELS AND TIED SECURELY.
7. WHERE REQUIRED, DOWELS SHALL MATCH THE SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE.
8. ADDITIONAL BARS SHALL BE PROVIDED AROUND ALL FLOOR AND WALL OPENINGS, AS SHOWN ON DETAILS.
9. ALL BAR SUPPORTS SHALL BE GALVANIZED. BAR SUPPORTS IN CONTACT WITH EXPOSED SURFACES SHALL ALSO BE PLASTIC TIPPED.
10. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT, UNLESS LARGER COVER IS NOTED ELSEWHERE:

CONCRETE SURFACE EXPOSURE		MINIMUM CONCRETE CLEAR COVER (IN)
COLUMNS	SURFACES NOT EXPOSED TO EARTH OR WEATHER	1- 1/2"
	SURFACES EXPOSED TO EARTH OR WEATHER	2"
BEAMS		1- 1/2"
SLABS (INCLUDING METAL DECK SLABS)	SURFACES NOT EXPOSED TO EARTH OR WEATHER	3/4"
	SURFACES EXPOSED TO EARTH OR WEATHER	2"
FOUNDATION ELEMENTS (ALL FACES) - CONCRETE CAST AGAINST EARTH		3"
BASEMENT WALLS / SHEAR WALLS / FOUNDATION WALLS	SURFACES NOT EXPOSED TO EARTH OR WEATHER	3/4"
	SURFACES EXPOSED TO EARTH OR WEATHER	2"
SLAB-ON-GRADE	TOP FACE	1"
	BOTTOM FACE	2"

C. CONSTRUCTION JOINTS

1. CONSTRUCTION JOINTS IN ALL WALLS, SLABS AND BEAMS SHALL NOT BE FURTHER APART THAN 60'-0" IN ANY DIRECTION. VERTICAL CONSTRUCTION JOINTS IN WALLS SHALL BE LOCATED AT LEAST 5'-0" FROM ANY PILASTERS, CORNERS, OR WALL OPENINGS.
2. ALL CONSTRUCTION JOINTS SHALL BE WIRE BRUSHED, CLEANED AND MOISTENED IMMEDIATELY PRIOR TO PLACING NEW CONCRETE.
3. ALLOW A MINIMUM OF THREE (3) HOURS BETWEEN PLACEMENT OF CONCRETE FOR COLUMNS, WALLS OR PIERS AND PLACEMENT OF CONCRETE ON THE ADJACENT FLOOR.

D. CURING AND SEALING

1. PROVIDE APPROVED CURING COMPOUND AND SEALER FOR THE TOP SURFACE OF ALL SLAB WORK, UNLESS NOTED OTHERWISE.
2. PROVIDE APPROVED CURING COMPOUND, SEALER, AND HARDENER FOR ALL SLABS IN MEP AND STORAGE AREAS, UNLESS NOTED OTHERWISE.

E. GENERAL

1. MINIMUM SLAB-ON-GRADE THICKNESS SHALL BE 8 INCHES, UNLESS NOTED OTHERWISE.
2. CONCRETE BEAMS AND SLABS SHALL NOT BE SLEEVED OR BOXED-OUT OR HAVE THE REINFORCING INTERRUPTED, EXCEPT AS SHOWN ON THE STRUCTURAL DRAWINGS.
3. SEE ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES, FLOOR DEPRESSIONS AND CURBS.
4. SEE ARCHITECTURAL DRAWINGS FOR GENERAL WATERPROOFING REQUIREMENTS. SPECIFIC DETAILS SHALL BE SUPPLIED BY THE WATERPROOFING CONTRACTOR/MANUFACTURER.
5. SEE ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR ADDITIONAL WALL/SLAB OPENINGS NOT SHOWN ON STRUCTURAL DRAWINGS.
6. THE CONTRACTOR SHALL PERFORM AND SUBMIT INSTRUMENT SURVEYS, DAILY, OF ALL FINISHED REINFORCED CONCRETE AND METAL DECK CONCRETE SLAB SURFACES, BOTH BEFORE AND AFTER REMOVAL OF FORMWORK AND/OR SHORING SYSTEMS.
7. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED, EXCEPT SELF CONSOLIDATING CONCRETE AND TREMIE CONCRETE.
8. THE CONTRACTOR SHALL MEET ALL ADDITIONAL REQUIREMENTS OF LOCAL AND GOVERNMENTAL CODES AND REGULATIONS FOR ALL WORK.
9. ALL ELEVATIONS ARE REFERENCED TO NAVD 1988.

F. EMBEDDED/ATTACHED INSERTS FOR OTHER TRADES

1. ALL EMBEDDED OR ATTACHED INSERTS OR CONNECTORS, FOR THE WORK OF OTHER TRADES, ATTACHED TO ANY STRUCTURAL CONCRETE ELEMENT BEFORE OR AFTER THE PLACEMENT OF CONCRETE, SHALL NOT CUT, MOVE, OR RELOCATE ANY REINFORCING BAR OR REINFORCING BAR SUPPORT. THE LOCATIONS OF ALL SUCH INSERTS AND THE TYPE AND INTENDED LOAD APPLICATION OF EACH SUCH ITEM SHALL BE INDICATED BY THE CONTRACTOR ON A COORDINATED, MULTI-TRADE SHOP DRAWINGS, AND SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF THE INSERTS/CONNECTORS. ANY SUCH EMBEDDED AND/OR ATTACHED ITEM SHALL NOT RESULT IN DAMAGE TO THE CONCRETE FINISH, AND SHALL BE OF A MATERIAL TYPE COMPATIBLE WITH THE CONCRETE MATERIALS, AND ALSO BE NON-CORROSIVE IN MATERIAL TYPE.
2. CONDUIT AND PIPE SHALL NOT BE PLACED IN STRUCTURAL SLABS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL SUBMIT CONDUIT PLACEMENT DRAWINGS INDICATING LOCATIONS OF CAST-IN-CONDUITS AND PIPES. ALL CONDUITS SHALL BE PLACED IN THE MIDDLE THIRD OF THE SLAB THICKNESS AND SHALL BE SPACED NO CLOSER THAN 3 DIAMETERS OR WIDTHS ON CENTER. NO CONDUIT GREATER THAN 2" MAY BE PLACED IN THE STRUCTURAL SLABS.

G. DRILLED IN ANCHORS AND REINFORCING BARS

1. DRILLED IN EXPANSION ANCHORS, ADHESIVE ANCHORS AND GROUTED BARS MAY BE USED ONLY WHERE SHOWN ON THE DRAWINGS.
2. DRILLED IN BARS SHALL BE ADHESIVE ANCHORED UNLESS NOTED OTHERWISE.
3. CONDUCT A PRECONSTRUCTION CONFERENCE AT LEAST 14 DAYS PRIOR TO INSTALLATION OF ANCHORS TO VERIFY MATERIALS AND PROCEDURES. CONFERENCE SHALL BE ATTENDED BY INSTALLER, CONTRACTOR AND ARCHITECT. (2)
4. ADHESIVE ANCHORED BARS SHALL BE INSTALLED BY TRAINED PERSONNEL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
5. PROVIDE PERIODIC SPECIAL INSPECTIONS FOR ADHESIVE ANCHORS AS PER IBC 2006 SECTION 1704.13/NYCBC 2008.

SPECIAL ADDITIONAL STRUCTURAL CONCRETE REQUIREMENTS

A. SPECIAL CONCRETE MATERIAL NOTES

1. SEE SPECIFICATIONS FOR SPECIFIC DEFINITIONS AND ADDITIONAL REQUIREMENTS.
2. ALL CONCRETE SHALL BE SPECIFICALLY DESIGNED FOR THE HORIZONTAL AND VERTICAL PUMPING DISTANCES AS REQUIRED BY THE CONSTRUCTION SEQUENCING.
3. ALL CONCRETE SHALL BE SPECIFICALLY DESIGNED FOR THE VIRGINIA REGIONAL ENVIRONMENTAL CONDITIONS, INCLUDING SEASONAL VARIATIONS, THAT WILL SPECIFICALLY OCCUR DURING THE DIFFERENT CONSTRUCTION PHASES.
4. ALL CONCRETE MIXES SHALL CONTAIN APPROVED WATER REDUCING PLASTICIZING ADMIXTURES IN THE APPROPRIATE RANGES FOR PLACEMENT.
5. ALL CONCRETE MAY INCLUDE THE FOLLOWING SUPPLEMENTAL CEMENTITIOUS MATERIALS IN ADDITION TO THE APPROPRIATE TYPE OF PORTLAND CEMENT:
   a. GROUND GRANULATED BLAST FURNACE SLAG (GGBFS): MAXIMUM 70%
   b. FLY ASH (FA): MAXIMUM 30%
   c. COMBINATION GGBFS + FA: MAXIMUM GGBFS = 50%, MAXIMUM FA = 20%
6. ALL CONCRETE SHALL HAVE WATER-TO-CEMENTITIOUS MATERIAL RATIO (W/C) BETWEEN 0.30 MINIMUM AND 0.50 MAXIMUM, UNLESS NOTED OTHERWISE. PORTLAND CEMENT / GRANULATED BLAST FURNACE SLAG / FLY ASH SHALL BE CONSIDERED AS CEMENTITIOUS MATERIALS; MICROSILICA SHALL NOT BE CONSIDERED AS A CEMENTITIOUS MATERIAL IN THE W/C RATIO.

B. SPECIAL FLOOR SLAB LEVELING

1. AFTER THE REQUIRED POWER, HARD TROWELING AND CURING OF ALL FLOOR SLAB SURFACES, AND IN ORDER TO ACHIEVE THE APPROPRIATE FLOOR LEVELNESS, THE CONTRACTOR SHALL INSTALL AN ACCEPTABLE LATEX BASED, CEMENTITIOUS FLOWABLE FILL MATERIAL SYSTEM IN ALL INTERIOR FLOOR SLAB AREAS WHICH WILL RECEIVE APPLIED, NON-CEMENTITIOUS, ARCHITECTURAL FLOOR FINISH INTERIOR SYSTEMS (CARPET, WOOD, THIN SET STONE) AS THE FINAL FINISH SYSTEM. THE LOCATIONS, EXTENT, AND THICKNESS OF THE FLOWABLE FILL WILL BE ESTABLISHED FROM THE REVIEW OF THE CONTRACTOR'S UNSHORED HARDENED CONCRETE FLOOR SLAB SURVEYS. THESE THIN FLOWABLE CONCRETE FILL MATERIALS SHALL BE PROTECTED FROM DETERIORATION PRIOR TO THE PLACEMENT OF THE FINAL ARCHITECTURAL FLOOR FINISH SYSTEMS.

C. PROGRESSIVE COLLAPSE SPECIAL INSPECTION

1. TO SATISFY PROGRESSIVE COLLAPSE REQUIREMENTS ACCORDING TO SECTION 1717.4 OF UFC 4-023-03 (JULY 2009), CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR REINFORCING STEEL PLACEMENT IN THE BASEMENT WALL ALONG GRID L, BETWEEN GRID 3.7 AND 6, WITH PARTICULAR EMPHASIS ON REINFORCING STEEL ANCHORAGES AND LAPS.

CONCRETE MATERIALS SCHEDULE

LOCATION	COMPRESSIVE STRENGTH (28-DAY CYLINDER STRENGTH)	CONCRETE DENSITY (PCF)	MAX. SIZE AGGREGATE	MAXIMUM W/C RATIO
FOOTINGS	8,000 PSI	145	1"	0.40
SHEAR WALLS	6,000 PSI	145	3/4"	0.45
PIT WALLS	4,000 PSI	145	3/4"	0.40
SLABS ON STEEL DECK	4,000 PSI	145	3/4"	0.40
TOPPING/FILL SLABS	3,000 PSI	115	3/4"	0.40

COMPRESSION LAP SPLICE LENGTH AND COMPRESSION DEVELOPMENT LENGTH

BAR SIZE	COMPRESSION LAP SPLICE	COMPRESSION DEVELOPMENT LENGTH				
		f'c = 4000 psi	f'c = 5000 psi	f'c = 6000 psi	f'c = 7000 psi	f'c = 7000 psi
#3	12	8	8	8	8	8
#4	15	10	9	9	9	9
#5	19	12	12	12	12	12
#6	23	15	14	14	14	14
#7	27	17	16	16	16	16
#8	30	19	18	18	18	18
#9	34	22	21	21	21	21
#10	38	25	23	23	23	23
#11	43	27	26	26	26	26
#14	-	33	31	31	31	31
#18	-	43	41	41	41	41

NOTE:
1. TABULATED COMPRESSION DEVELOPMENT LENGTHS AND COMPRESSION LAP SPLICES ARE GIVEN IN INCHES, AND ARE CALCULATED FOR REINFORCEMENT CONFORMING TO ASTM A615 GRADE 60 AS PER THE REQUIREMENTS OF ACI 318 (2005).

TENSION DEVELOPMENT LENGTH

BAR SIZE	f'c = 4000 psi				f'c = 5000 psi				f'c = 6000 psi				f'c = 7000 psi				f'c = 8000 psi			
	TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS	
	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2
#3	19	28	15	22	17	25	13	19	15	23	12	18	14	21	12	16	13	20	12	15
#4	25	37	19	29	22	33	17	26	20	31	16	24	19	28	15	22	18	26	14	20
#5	31	47	24	36	28	42	22	32	25	38	20	29	24	35	18	27	22	33	17	25
#6	37	56	29	43	33	50	26	38	31	46	24	35	28	42	22	33	26	40	20	30
#7	54	81	42	63	49	73	37	56	44	66	34	51	41	61	32	47	38	58	30	44
#8	62	93	48	71	55	83	43	64	51	76	39	58	47	70	36	54	44	66	34	51
#9	70	105	54	81	63	94	48	72	57	85	44	66	53	79	41	61	49	74	38	57
#10	79	118	61	91	70	105	54	81	64	96	49	74	59	89	46	69	56	83	43	64
#11	87	131	67	101	78	117	60	90	71	107	55	82	66	99	51	76	62	93	48	71
#14	105	157	81	121	94	140	72	108	86	128	66	99	79	119	61	91	74	111	57	85
#18	139	209	107	161	125	187	96	144	114	171	88	131	106	158	81	122	98	148	76	114

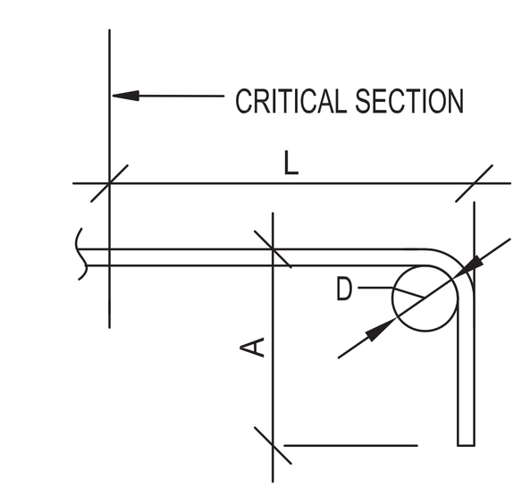
NOTES : 1. TABULATED TENSION DEVELOPMENT LENGTHS ARE GIVEN IN INCHES, AND ARE CALCULATED FOR REINFORCEMENT CONFORMING TO ASTM A615 GRADE 60 AS PER THE
2. REQUIREMENTS OF ACI 318 (2005).
CASES 1 AND 2 DEPEND UPON CONCRETE COVER AND THE CENTER-TO-CENTER SPACING OF THE BARS, DEFINED AS FOLLOWS:
CASE 1: CLEAR SPACING AT LEAST ONE (1) BAR DIAMETER
CLEAR COVER AT LEAST ONE (1) BAR DIAMETER
STIRRUPS OR TIES THROUGHOUT THE DEVELOPMENT LENGTH NOT LESS THAN THE CODE MINIMUM
OR
CLEAR SPACING AT LEAST TWO (2) BAR DIAMETERS
CLEAR COVER AT LEAST ONE (1) BAR DIAMETER
CASE 2: ALL OTHER CASES
3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
4. TABULATED TENSION DEVELOPMENT LENGTHS HAVE BEEN CALCULATED WITH RESPECT TO NORMALWEIGHT CONCRETE. FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.
5. FOR EPOXY COATED BARS, MULTIPLY THE TABULATED VALUES BY ONE OF THE FOLLOWING FACTORS:
1.5 FOR EPOXY COATED BARS WITH COVER LESS THAN 3 BAR DIAMETERS, OR CLEAR SPACING LESS THAN 6 BAR DIAMETERS
1.2 FOR ALL OTHER EPOXY COATED BARS

TENSION LAP SPLICE LENGTH

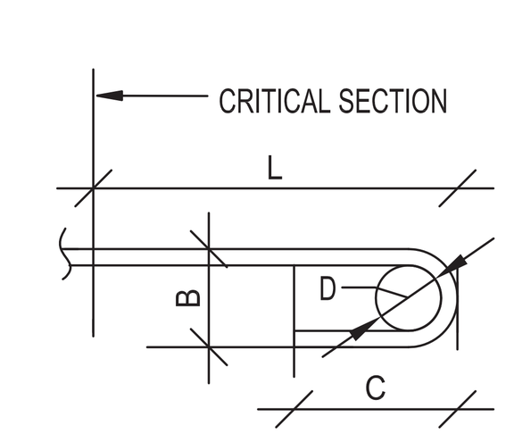
BAR SIZE	LAP CLASS	f'c = 4000 psi				f'c = 5000 psi				f'c = 6000 psi				f'c = 7000 psi				f'c = 8000 psi			
		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS	
		CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2
#3	A	19	28	15	22	17	25	13	19	15	23	12	18	14	21	12	16	13	20	12	15
	B	24	36	19	28	22	33	17	25	20	30	15	23	18	28	14	21	17	26	16	20
#4	A	25	37	19	29	22	33	17	25	20	31	16	24	19	28	15	22	18	26	14	20
	B	32	48	25	37	29	43	22	33	26	40	20	31	25	37	19	28	23	34	18	26
#5	A	31	47	24	36	28	42	22	32	25	38	20	29	24	35	18	27	22	33	17	25
	B	40	60	31	47	36	54	28	41	33	49	25	38	30	46	24	35	29	43	22	33
#6	A	37	56	29	43	33	50	26	38	31	46	24	35	28	42	22	33	26	40	20	30
	B	48	72	37	56	43	65	33	50	40	59	31	46	37	55	28	42	34	51	26	40
#7	A	54	81	42	63	48	72	37	56	44	66	34	51	41	61	32	47	38	58	30	44
	B	70	106	54	81	63	94	49	72	58	86	44	66	53	80	41	61	50	75	38	58
#8	A	62	93	48	71	55	83	43	64	51	76	39	58	47	70	36	54	44	66	34	51
	B	80	121	62	93	72	108	55	83	66	98	51	76	61	91	47	70	57	85	44	66
#9	A	70	105	54	81	63	94	48	72	57	85	44	66	53	79	41	61	49	74	38	57
	B	91	136	70	105	81	122	63	94	74	111	57	85	69	103	53	79	64	96	49	74
#10	A	79	118	61	91	70	105	54	81	64	96	49	74	59	89	46	69	56	83	43	64
	B	102	153	79	118	91	137	70	105	83	125	64	96	77	116	59	89	72	108	56	83
#11	A	87	131	67	101	78	117	60	90	71	107	55	82	66	99	51	76	62	93	48	71
	B	113	170	87	130	101	152	78	117	93	139	71	107	86	128	66	99	80	120	62	93

NOTES : 1. TABULATED TENSION LAP SPLICE LENGTHS ARE GIVEN IN INCHES, AND ARE CALCULATED FOR REINFORCEMENT CONFORMING TO ASTM A615 GRADE 60 AS PER THE REQUIREMENTS OF ACI 318 (2005).
2. CASES 1 AND 2 DEPEND UPON CONCRETE COVER AND THE CENTER-T0-CENTER SPACING OF THE BARS, DEFINED AS FOLLOWS:
CASE 1: CLEAR SPACING AT LEAST ONE (1) BAR DIAMETER
CLEAR COVER AT LEAST ONE (1) BAR DIAMETER
STIRRUPS OR TIES THROUGHOUT THE DEVELOPMENT LENGTH NOT LESS THAN THE CODE MINIMUM
OR
CLEAR SPACING AT LEAST TWO (2) BAR DIAMETERS
CLEAR COVER AT LEAST ONE (1) BAR DIAMETER
CASE 2: ALL OTHER CASES
3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
4. TABULATED TENSION DEVELOPMENT LENGTHS HAVE BEEN CALCULATED WITH RESPECT TO NORMALWEIGHT CONCRETE. FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.
5. FOR EPOXY COATED BARS, MULTIPLY THE TABULATED VALUES BY ONE OF THE FOLLOWING FACTORS:
1.5 FOR EPOXY COATED BARS WITH COVER LESS THAN 3 BAR DIAMETERS, OR CLEAR SPACING LESS THAN 6 BAR DIAMETERS
1.2 FOR ALL OTHER EPOXY COATED BARS
6. PROVIDE CLASS"B" SPLICE UNLESS NOTED OTHERWISE.

As PROVIDED / As REQUIRED	MAXIMUM PERCENT OF As SPLICED WITHIN S REQUIRED LAP LENGTH	
	50	100
EQUAL TO OR GREATER THAN 2	CLASS A	CLASS B
LESS THAN 2	CLASS B	CLASS B



90° STANDARD HOOKS



180° STANDARD HOOKS

STANDARD HOOK DETAILING GEOMETRY AND TENSION DEVELOPMENT LENGTH

BAR SIZE	D	90° HOOKS	180° HOOKS		TENSION DEVELOPMENT LENGTH				
		A	B	C	f'c = 4000 psi	f'c = 5000 psi	f'c = 6000 psi	f'c = 7000 psi	f'c = 8000 psi
#3	2-1/4	6	3	5	7	7	6	6	5
#4	3	8	4	6	10	9	8	7	6
#5	3-3/4	10	5	7	12	11	10	9	8
#6	4-1/2	12	6	8	15	13	12	11	9
#7	5-1/4	14	7	10	17	15	14	13	11
#8	6	16	8	11	19	17	16	15	12
#9	9-1/2	19	11-3/4	15	22	19	18	16	16
#10	10-3/4	22	13-1/4	17	24	22	20	19	18
#11	12	24	14-3/4	19	27	24	22	21	20
#14	18 1/4"	31	21-3/4	27	32	29	27	25	23
#18	24	41	28-1/2	36	43	39	35	33	31

NOTE : 1. TABULATED TENSION DEVELOPMENT LENGTHS AND STANDARD HOOK DETAILING GEOMETRY DIMENSIONS ARE GIVEN IN INCH, AND ARE CALCULATED FOR ASTM A615 GRADE 60 AS
2. PER THE REQUIREMENTS OF ACI 318 (2005).
'D' REPRESENTS THE STANDARD HOOK FINISHED INSIDE BEND DIAMETER. 'A', 'B', AND 'C' REPRESENT DETAILING DIMENSIONS AS DEFINED IN THE KEY DETAILS
TABULATED TENSION DEVELOPMENT LENGTHS HAVE BEEN CALCULATED WITH RESPECT TO NORMAL WEIGHT CONCRETE.
FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3
FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED VALUES BY 1.2

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Landscape
James Corner Field Operations
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MEP Engineering
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MEP Engineering
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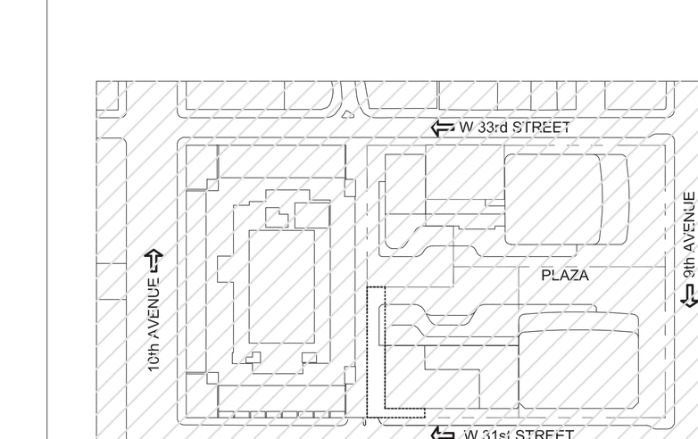
1 Penn Plaza, 2nd Floor, New York, NY 10119

Electrical Engineering
Cosentini Associates
Two Pennsylvania Plaza, 3rd Floor, New York, NY 10121



KEYPLAN

No.	Date	Description
2	02 SEP 2016	ISSUED FOR PERMIT FILING
1	02 MAY 2014	ISSUED FOR PERMIT FILING

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date: 10/03/2016
NYC Development Hub

Sheet Name:
STRUCTURAL CONCRETE NOTES

Seal & Signature:
Date: 02 SEP 2016
NYC DOB Number:
Project No: 207120
Scale: NTS
DWG No:
S-004.01
CAD FILE Name: S-004.DWG

STRUCTURAL STEEL NOTES

A. GENERAL

1. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO AISC (LRFD), 2005, SPECIFICATIONS AND 2008 NEW YORK CITY BUILDING CODE.

2. ALL WELDING WORK SHALL CONFORM TO THE AWS D1.1 "STRUCTURAL WELDING CODE - STEEL," LATEST EDITION, AND SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.

3. ALL STEEL BEAM SIZES FOLLOWED BY A NUMBER IN PARENTHESES, (XX), ARE COMPOSITE BEAMS WITH SHEAR STUDS. SEE "STRUCTURAL METAL DECK NOTES" FOR ADDITIONAL INFORMATION.

4. COMPOSITE BEAMS ARE NOT REQUIRED TO BE SHORED, UNLESS NOTED OTHERWISE.

5. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR REVIEW BY THE ARCHITECT.

6. ALL STRUCTURAL STEEL AND METAL DECK SLAB SHALL BE FIREPROOFED TO ATTAIN THE APPLICABLE FIRE RATING REQUIRED BY CODE WITH UL APPROVED SPRAYED-ON CEMENTIOUS FIREPROOFING MATERIALS. SEE THE ARCHITECTURAL DRAWINGS FOR SPECIFIC FIREPROOFING REQUIREMENTS. STEEL SURFACES ENCASED IN CONCRETE DOES NOT REQUIRE SPRAY FIREPROOFING.

7. AFTER FABRICATION AND JUST PRIOR TO SITE APPLICATION OF SPRAY-ON FIREPROOFING, ALL STEEL AND METAL DECK SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIALS. PRIMING AND PAINTING OF THE STRUCTURAL STEEL WILL NOT BE REQUIRED EXCEPT FOR STEEL WHICH IS PERMANENTLY EXPOSED.

8. ALL ELEVATIONS ARE REFERENCED TO A LOCAL SITE DATUM.

9. SEE SPECIFICATION SECTION 05120, "STRUCTURAL STEEL FRAMING," FOR ADDITIONAL REQUIREMENTS NOT NOTED HEREIN.

B. MATERIALS

1. STRUCTURAL STEEL GRADES SHALL BE AS FOLLOWS:

STEEL COLUMNS, FLOOR BEAMS: ASTM A992 - GRADE 50
CONNECTIONS, PLATES: ASTM A572 - GRADE 50
ANGLES: ASTM A36 GRADE 36 - OR A-572 GRADE 50
BOLTS: ASTM A325, A490, AS INDICATED

2. ALL BOLTS, NUT AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 OR A490.

3. ALL WELDING ELECTRODES SHALL BE E70XX.

C. CONNECTIONS

1. ALL CONNECTIONS, EXCEPT FOR THOSE CONNECTIONS COMPLETELY DESIGNED ON THE DRAWINGS, SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR. DETAILING SHALL BE PERFORMED USING RATIONAL ENGINEERING DESIGN AND STANDARD PRACTICE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE GENERAL DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL ONLY AND DO NOT INDICATE THE REQUIRED NUMBER OF BOLTS OR WELD SIZES, UNLESS SPECIFICALLY NOTED. THE CONTRACTOR SHALL SUBMIT ENGINEERING CALCULATIONS AND CONNECTION DETAIL DRAWINGS FOR EACH CONNECTION TYPE, MEMBER SIZE, AND REACTION INDICATED ON THE DRAWINGS FOR REVIEW BY THE ARCHITECT PRIOR TO THE SUBMITTAL OF THE STRUCTURAL STEEL SHOP DRAWINGS. AFTER REVIEW BY THE ARCHITECT AND ENGINEER, THESE DETAIL DRAWINGS SHALL BE UTILIZED AS THE STANDARD FOR FABRICATION AND SHOP DRAWING DETAILING. THE DESIGN CALCULATIONS SHALL BE PREPARED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK.

2. ALL CONNECTIONS, UNLESS NOTED OTHERWISE, SHALL BE SIMPLE SHEAR CONNECTIONS UTILIZING "SHORT-SLOTTED" HORIZONTAL HOLES AND HIGH-STRENGTH BOLTS IN BEARING-TYPE CONNECTIONS WITH THREADS EXCLUDED FROM THE SHEAR PLANE. THE CONNECTION CAPACITIES SHALL BE AS SHOWN IN NOTE C5 BELOW, OR AS NOTED ON THE STRUCTURAL FRAMING PLANS.

3. BEAM-TO-COLUMN CONNECTIONS SHALL BE MOMENT CONNECTED WHERE SHOWN ON THE DRAWINGS. ALL BOLTED MOMENT CONNECTIONS SHALL UTILIZE "SLIP-CRITICAL" BOLTS. THE WEB SHEAR CONNECTION FOR THESE MEMBERS SHALL UTILIZE SINGLE SHEAR PLATE SLIP-CRITICAL TYPE CONNECTIONS WITH HIGH-STRENGTH BOLTS. REFER TO THE REQUIRED SHEAR CAPACITIES SHOWN IN NOTE C5 BELOW.

4. ALL BOLTS SHALL BE FULLY TORQUED FOR BOTH SLIP CRITICAL AND BEARING TYPE CONNECTIONS.

5. ULTIMATE END REACTION CAPACITIES (AISC FACTORED LOADS) FOR STANDARD ROLLED SHAPES:

W36	200 kips	W16	55 kips	HSS 16	55 kips
W30	180 kips	W14	45 kips	HSS 14	45 kips
W27	100 kips	W12	40 kips	HSS 12	30 kips
W24	95 kips	W10	35 kips	HSS 10	20 kips
W21	85 kips	W8	35 kips	HSS 8	15 kips
W18	70 kips	W6	15 kips	HSS 6	15 kips

ANY MEMBERS WITH END REACTIONS EXCEEDING THE VALUES LISTED ABOVE ARE INDICATED ON THE PLANS, EITHER WITH BOXED END REACTIONS OR IN TABULAR FORM.

6. THE MINIMUM NUMBER OF BOLTS PER CONNECTION SHALL BE TWO (2) -$\frac{3}{4}$ INCH DIAMETER, A325 BOLTS AND (2) - $\frac{5}{8}$ INCH DIAMETER FOR W6 AND W8 BEAMS.

7. MINIMUM FILLET WELD SIZES SHALL COMPLY WITH THE AISC SPECIFICATION REQUIREMENTS, BUT SHALL NOT BE LESS THAN $\frac{1}{4}$ INCH, UNLESS NOTED OTHERWISE.

D. DETAILING AND FABRICATION

1. THE CONTRACTOR SHALL SUBMIT DETAILED, ENGINEERED, COORDINATED AND CHECKED SHOP DRAWINGS FOR ALL STRUCTURAL STEEL TO THE ARCHITECT FOR REVIEW PRIOR TO THE START OF FABRICATION AND/OR ERECTION.

2. ALL BEAMS SHALL BE FABRICATED WITH THE NATURAL CAMBER UP. PROVIDE ADDITIONAL CAMBERS AS INDICTED IN BRACKETS <XX> ON THE STRUCTURAL DRAWINGS. FOR CANTILEVERS, CAMBER SHALL BE MEASURED AT THE FREE END.

3. ALL SIMPLE SHEAR CONNECTIONS SHALL BE CAPABLE OF END ROTATION AS PER THE REQUIREMENTS OF AISC SPECIFICATION, CHAPTER J1.2. "SIMPLE CONNECTIONS."

4. ALL BEAMS FRAMING INTO NEW CONCRETE WALLS SHALL BE DETAILED TO SUIT THE HORIZONTAL FIELD TOLERANCES

E. ERECTION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCES, ESPECIALLY WITH RELATION TO TEMPERATURE DIFFERENTIALS, ERECTION TOLERANCES, AND WITH RESPECT TO STRUCTURAL STEEL FRAMING INTO REINFORCED CONCRETE WALLS.

2. PRIOR TO CASTING OF SLABS, SURVEY THE TOPS OF ALL COLUMNS AT LEVEL. RECORD X, Y & Z - COORDINATES MEASURED CONSISTENTLY FROM AN ESTABLISHED BENCHMARK. PROVIDE A COPY OF THE SURVEY DATA TO THE ARCHITECT AND STRUCTURAL ENGINEER WITHIN TWO DAYS OF THE COMPLETION OF EACH SURVEY.

3. ALL ERECTION PROCEDURES, DESIGNS AND CALCULATIONS SHALL BE PERFORMED BY THE CONTRACTOR'S QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK. ANY REVIEW OF SUCH CALCULATIONS AND/OR DRAWINGS BY THE ARCHITECT WILL BE SOLELY LIMITED TO ANY EFFECTS ON THE INTEGRITY OF THE PERMANENT PRIMARY STRUCTURE.

4. ALL ADDITIONAL STEEL REQUIRED BY THE CONTRACTOR FOR ERECTION PURPOSES AND SITE ACCESS OF STOCKPILED MATERIALS SHALL BE PROVIDED AT NO COST TO THE OWNER. ALL SUCH ADDITIONAL STEEL SHALL BE REMOVED BY THE CONTRACTOR UNLESS APPROVED BY THE OWNER IN WRITING.

5. THE CONTRACTOR SHALL SUBMIT A METHODS STATEMENT FOR ALL STRUCTURAL STEEL/METAL DECK ERECTION PROGRAMS.

F. NON-SELF-SUPPORTING STEEL FRAMES

THE STEEL STRUCTURE (COMPRISED OF GRAVITY COLUMNS, FLOOR BEAMS AND MOMENT FRAMES) IS A NON-SELF-SUPPORTING FRAME. THE FLOOR DIAPHRAGM (METAL DECK AND FULLY CURED/HARDENED CONCRETE SLAB TOPPING) AND ADJACENT R/C CONCRETE WALLS ARE REQUIRED TO PROVIDE STABILITY AND STRENGTH TO RESIST THE LOADS FOR WHICH THE FRAME IS DESIGNED. THE CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY SUPPORT AS NECESSARY UNTIL THE COMPLETE STRUCTURE IS ERECTED.

THE STEEL TRUSS AT DYER AVE. OVERBUILD HAS NOT BEEN DESIGNED AS A SELF SUPPORTING STRUCTURE. ALL MEMBERS FRAMING INTO THE STEEL TRUSS ARE REQUIRED TO BE INSTALLED TO PROVIDE STRUCTURAL STABILITY. ANY TEMPORARY SUPPORT SHOULD BE PROVIDED BY CONTRACTOR AS NECESSARY UNTIL THE COMPLETE STRUCTURE IS ERECTED.

G. TESTING AND INSPECTION

TESTING AND INSPECTION OF BOTH SHOP AND FIELD STRUCTURAL STEEL FABRICATION AND ERECTION WORK, INCLUDING WELDED AND BOLTED CONNECTIONS, SHALL BE AS FOLLOWS:

1. ALL STRUCTURAL STEEL FABRICATION AND ERECTION SHALL BE VISUALLY INSPECTED.

2. ALL WELDERS SHALL BE AWS CERTIFIED.

3. ALL WELDS SHALL BE AWS/AISC PREQUALIFIED.

4. ALL WELDS SHALL BE VISUALLY INSPECTED PER AWS D1.1. WELD MEASUREMENTS SHALL BE PERFORMED FOR 15% OF ALL WELDS ON A RANDOM BASIS.

5. MAGNETIC PARTICLE TESTING IN ACCORDANCE WITH ASTM E709 SHALL BE PERFORMED FOR A MINIMUM OF:

   a. 10% OF ALL FILLET WELDS CHOSEN AT RANDOM, FINAL PHASE ONLY.

   b. 100% OF TENSION MEMBER CONNECTION WELDS (I.E., HANGER CONNECTION PLATES, ETC.) FOR ROOT AND FINAL PASSES.

6. ULTRASONIC TESTING IN ACCORDANCE WITH AWS D1.1 SHALL BE PERFORMED FOR A MINIMUM OF:

   a. 100% OF ALL FULL PENETRATION WELDS.

   b. 20% OF ALL COLUMN SPLICE WELDS, CHOSEN AT RANDOM.

7. ULTRASONIC TESTING AND VISUAL INSPECTION IN ACCORDANCE WITH ASTM A435, STRAIGHT BEAM ULTRASONIC EXAMINATION OF STEEL PLATES, OR ASTM A898, STRAIGHT BEAM ULTRASONIC EXAMINATION OF ROLLED STEEL STRUCTURAL SHAPES, AS APPLICABLE SHALL BE UTILIZED TO VERIFY BASE MATERIALS FOR LAMINATIONS, INCLUSIONS, AND OTHER DISCONTINUITIES AS FOLLOWS:

   a. ALL STRUCTURAL STEEL PLATES GREATER THAN 1 1/2" THICK USED FOR THE CAISSON CORE STEEL, FOR THE CAISSON CAP TRANSFER GIRDERS, AND FOR THE DIAGONAL JOINT ASSEMBLIES w/ TIE BEAMS IN THE CONTINUOUS CAISSON CAPS PRIOR TO FABRICATION.

   b. ALL ROLLED COLUMN FLANGES AND WEBS THICKER THAN $1\frac{1}{2}$" LOCATED AT MOMENT CONNECTIONS. TEST AREA IS DEFINED AS 6" ABOVE AND BELOW BEAM FLANGE CONNECTION.

   c. ALL GUSSET PLATES USED IN X-BRACED FRAMES GREATER THAN 1 1/2" THICK.

   d. ALL COLUMN FLANGES IN COLUMNS WITH GUSSET PLATES ATTACHED TO BOTH FLANGES. TEST AREA IS DEFINED AS 6" AT 2'-0" INTERVALS.

8. ALL BOLTED CONNECTIONS SHALL BE VISUALLY INSPECTED AND TESTED WITH A CALIBRATED TORQUE WRENCH TO VERIFY A MINIMUM OF 25% OF BOLTS IN EACH CONNECTION (2 BOLTS PER CONNECTION MINIMUM).

9. THE REQUIRED CONTACT SURFACE CONDITIONS OF ALL SHEAR CONNECTIONS SHALL BE VISUALLY INSPECTED IMMEDIATELY PRIOR TO BEAM ERECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REMEDIAL WORK REQUIRED TO CONTACT SURFACES.

10. THE OWNER'S STRUCTURAL STEEL TESTING SHALL PERFORM ALL FIELD INSPECTION AND TESTING AS OUTLINED ABOVE, AND MONITOR THE CONTRACTOR'S INSPECTION AND TESTING OUTLINED ABOVE FOR ALL SHOP WORK. IF THE CONTRACTOR'S QUALITY CONTROL PROGRAM IS NOT AISC CERTIFIED, THE CONTRACTOR SHALL ENGAGE AN APPROVED STRUCTURAL STEEL TESTING LABORATORY, ACCEPTABLE TO THE OWNER, WHO SHALL PERFORM ALL SHOP TESTING AND INSPECTION.

11. THE STRUCTURAL STEEL FABRICATOR AND ERECTOR SHALL SCHEDULE ALL WORK TO ALLOW THE ABOVE INSPECTION AND TESTING REQUIREMENTS TO BE COMPLETED.

H. GALVANIZED STRUCTURAL STEEL AT DUNNAGE WITHIN FAN ROOMS

1. ALL PRIMARY STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED. PROVIDE HOT-DIP GALVANIZING AND THE CLEANING AND SURFACE PREPARATION OF FABRICATED ASSEMBLAGES AS PER THE SPECIFICATION 051200 AND THE REQUIREMENTS OF ASTM A123.

2. ALL PRIMARY STEEL BOLTED CONNECTIONS SHALL UTILIZE GALVANIZED ASTM A325 SLIP-CRITICAL BOLTS, AS INDICATED IN THE STRUCTURAL DRAWINGS AND DETAILS. ALL BOLTS SHALL BE FULLY TENSIONED AND TESTED AS PER THE SPECIFICATION. ALL PRIMARY STRUCTURAL STEEL FAYING SURFACES SHALL BE "CLASS C" AND SHALL ACHIEVE A MINIMUM SLIP COEFFICIENT OF 0.5

3. THERE SHALL BE NO FIELD-WELDING NOR FIELD CUTTING OF STRUCTURAL STEEL OR ANY OTHER FIELD-MODIFICATIONS THAT COULD DAMAGE THE GALVANIZATION.

4. IF ADDITIONAL FIELD-SPLICES ARE DESIRED (TO ALLOW SMALLER PIECES), CONTACT THE ENGINEER AND ADDITIONAL BOLTED SPLICE CONNECTION DETAILS WILL BE PROVIDED

5. ALL PRIMARY STEEL CONNECTIONS TO THE EXISTING CONCRETE STRUCTURE SHALL UTILIZE HILTI HAS-R SS316 STAINLESS STEEL THREADED RODS AND THE HILTI HIT HY 150 ADHESIVE ANCHOR SYSTEM (OR EQUIVALENT, IF APPROVED IN ADVANCE BY THE ENGINEER). ALL ADHESIVE ANCHOR CONNECTIONS SHALL UTILIZE DOUBLE NUTS TO FACILITATE ALIGNMENT AND ADJUSTMENT. SUBSEQUENT TO FINAL ALIGNMENT OF THE STEEL, ALL BASE PLATE CONNECTION SHALL BE FULLY GROUTED WITH HIGH-STRENGTH, NON-SHRINK GROUT.

6. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ALL REQUIRED TEMPORARY SUPPORTS, GUYS, BRACES, AND OTHER ELEMENTS REQUIRED TO ENSURE THE ERECTION STABILITY OF THE STRUCTURE(S) DURING ERECTION AS PER THE AISC CODE OF STANDARD PRACTICE.

7. THE PRIMARY STRUCTURAL STEEL GEOMETRY FOR THE DUNNAGE WITHIN THE FAN ROOM IS BASED ON ASSUMED EXISTING CONDITIONS AND DIMENSIONS. ALL EXISTING CONDITIONS WHICH MAY AFFECT THE STEEL GEOMETRY AND DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR AND/OR FABRICATOR PRIOR TO DEVELOPING SHOP DRAWINGS. BRING ANY DISCREPANCIES OR POTENTIAL CONFLICTS WITH EXISTING STRUCTURES OR EQUIPMENT TO THE ATTENTION OF THE ENGINEER AT THE EARLIEST POSSIBLE DATE.

STRUCTURAL STEEL PAINTING

1. ALL STRUCTURAL STEEL SHALL BE CLEANED AND PAINTED AS REQUIRED BY THE TECHNICAL SPECIFICATION SECTION 099100.

2. ALL STRUCTURAL STEEL TO RECEIVE SPRAYED-ON FIREPROOFING AND/OR TO BE ENCASED IN CONCRETE DOES NOT REQUIRE PAINTING UNLESS NOTED OTHERWISE.

3. THE FOLLOWING STRUCTURAL STEEL ELEMENTS ARE AESS. PROVIDE FINISH AND PAINT AS PER ARCHITECTURAL SPECIFICATIONS:
   - -STAIRS
   - -ELEVATOR STRUCTURE

STRUCTURAL METAL DECK NOTES

1. ALL METAL DECK SHALL BE FABRICATED FROM STEEL TYPE ASTM A653, GRADE A, HAVING A MINIMUM YIELD STRENGTH OF 50,000 PSI (MINIMUM YIELD STRENGTH OF 40,000 PSI FOR 16 GAGE METAL DECK). ALL FLOOR DECKING SHALL BE HOT-DIPPED GALVANIZED, OR PHOSPHATIZED AND PAINTED. ALL DECKING AT ROOF LEVELS, PARKING/VEHICULAR LEVELS, LOADING DOCK FREIGHT AREAS, AND SIDEWALK AREAS SHALL BE HOT-DIPPED GALVANIZED.

2. ALL METAL DECK SHALL BE DESIGNED FOR THE SPAN AND LOADING CONDITIONS SHOWN ON THE STRUCTURAL DRAWINGS AND IN THE METAL DECK SCHEDULE. NONCELLULAR METAL DECK SHALL BE PROVIDED IN ALL AREAS, UNLESS NOTED OTHERWISE.

3. METAL DECK SECTION PROPERTIES SHALL BE COMPUTED IN ACCORDANCE WITH THE AISI "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION, UNLESS NOTED OTHERWISE.

4. THE MINIMUM GAGE OF ALL METAL DECK SHALL BE 18 GAGE WHEN THE CONCRETE TOPPING SLAB THICKNESS (T_c, SEE DETAILS 6/S-501) IS LESS THAN OR EQUAL TO $4\frac{1}{2}$" AND 16 GAGE WHEN CONCRETE TOPPING SLAB THICKNESS IS GREATER THAN $4\frac{1}{2}$".

5. THE METAL DECK CONTRACTOR SHALL SUBMIT, TO THE ARCHITECT FOR REVIEW, STRUCTURAL ENGINEERING CALCULATIONS, PREPARED AND SEALED BY A QUALIFIED, PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW YORK, PROVIDE PUBLISHED MANUFACTURER'S DATA, AND INDEPENDENTLY CERTIFIED LOAD TEST DATA, VERIFYING THAT THE METAL DECK AND RELATED DECK ACCESSORIES SATISFY THE SPECIFIED LOADING AND DEFLECTION REQUIREMENTS FOR THE SPANS INDICATED ON THE DRAWINGS.

6. THE CONTRACTOR SHALL PROVIDE DETAILED, COORDINATED, AND CHECKED SHOP DRAWINGS INDICATING LOCATION, GAGE AND SIZE OF EACH PIECE OF DECKING AND RELATED ACCESSORIES. THE DRAWINGS SHALL CLEARLY SHOW WELDING DETAILS TO STRUCTURAL FRAMING ELEMENTS, SIDE LAP CONNECTION DETAILS, DECK OPENING/EDGE CLOSURES, AND WHERE REQUIRED, SUPPLEMENTARY DECK AND/OR CLOSURE REINFORCING.

7. ALL NON-CELLULAR COMPOSITE METAL DECK SHALL HAVE WIDE RIBS SUITABLE FOR SHEAR STUD PLACEMENT WHERE STUDS ARE REQUIRED. THE CONFIGURATION OF THE METAL DECK SHALL BE SUCH AS TO DEVELOP THE FULL HORIZONTAL SHEAR VALUE OF THE STUD FOR THE PARTICULAR METAL DECK-SLAB CONFIGURATION PER THE AISC SPECIFICATIONS, LATEST EDITION.

8. ALL DECKING SHALL BE WELDED TO STRUCTURAL STEEL BY QUALIFIED WELDERS USING PRE-QUALIFIED PROCEDURES. THE TECHNICAL SPECIFICATIONS ESTABLISH A PROCEDURE FOR PRE-QUALIFICATION OF THE PLUG WELDING OF THE STEEL DECKING TO THE STRUCTURAL STEEL FOR THE PARTICULAR GAGES USED. PRIOR TO THE START OF ERECTION OF THE STEEL DECK, EACH WELDER SHALL BE QUALIFIED USING THIS PROCEDURE AS WITNESSED BY THE OWNER'S TESTING LABORATORY.

9. ALL METAL DECK SHALL BE WELDED AT 12 INCHES MAXIMUM ON CENTER TO THE SUPPORTING STEEL WITH A $\frac{3}{4}$ INCH DIAMETER PLUG WELD. SIDE LAPS SHALL BE FASTENED WITH #10 TEK SCREWS AT 18 INCHES MAXIMUM ON CENTER.

10. THE METAL DECK SHALL BE DESIGNED TO BE UNSHORED AND CONTINUOUS OVER A MINIMUM OF THREE (3) SPANS IN THE DIRECTION INDICATED. METAL DECKING FOR SINGLE AND DOUBLE SPANS, IF REQUIRED, SHALL ALSO SATISFY THE SPECIFIED LOAD AND DEFLECTION REQUIREMENTS, NOTED HEREIN.

11. THE METAL DECK SHALL BE DESIGNED FOR AN ASSUMED SUITABLE CONSTRUCTION LIVE LOAD TAKING INTO CONSIDERATION THE PARTICULAR METHOD OF CONCRETE PLACEMENT TO BE USED ON THE PROJECT, SPAN AND LOAD CONDITIONS INDICATED BY THE SUPPORTING FRAMEWORK, OPENINGS, AND ACTUAL DECK PIECE SIZES UTILIZED. THE ASSUMED CONSTRUCTION LIVE LOAD SHALL NOT BE LESS THAN 20 PSF. THE CONTRACTOR SHALL NOT EXCEED THE ASSUMED CONSTRUCTION DESIGN LIVE LOAD WITHOUT FIRST TAKING ALL NECESSARY SAFETY PRECAUTIONS SUCH AS SHORING, ETC. ADDITIONALLY, FOLLOW ALL APPLICABLE CITY, LOCAL AND AISI REQUIREMENTS FOR TEMPORARY CONSTRUCTION LOADINGS, IF MORE STRINGENT.

12. COMPOSITE METAL DECK DESIGN CRITERIA: (CELLULAR AND NON-CELLULAR DECKS)

A. METAL DECK: (CONSTRUCTION LOADS ONLY)

   a. MAXIMUM DECK DEFLECTION FOR CONCRETE WET WEIGHT SHALL BE LESS THAN OR EQUAL TO L/240, BUT NOT TO EXCEED $\frac{1}{2}$", COMPUTED EITHER ON A SINGLE SPAN BASIS, OR ON LOADING ONLY ONE (1) SPAN FOR MULTIPLE SPAN CONDITIONS.

   b. MAXIMUM STRESS IN DECK FOR CONCRETE WET WEIGHT AND CONSTRUCTION LOADS SHALL BE LESS THAN OR EQUAL TO 0.6 F_y (F_y = YIELD STRESS) COMPUTED ON A SINGLE SPAN BASIS, OR ON LOADING TWO ADJACENT SPANS FOR MULTIPLE SPAN CONDITIONS.

   c. ALLOW FOR AN AVERAGE OF 5 PSF WET CONCRETE WEIGHT FOR CONCRETE LEVELING (AS PER SPECIFICATIONS) IN ADDITION TO THE SPECIFIED SLAB THICKNESS, FOR STRESS AND DEFLECTION CALCULATIONS.

   d. PROVIDE DECK SHORING, IF REQUIRED, TO MEET THE CONDITIONS OF ITEMS NO. a, b, AND c ABOVE.

   e. ALL FORM DECKS, FOR REINFORCED CONCRETE SLABS, SHALL BE DESIGNED FOR THE SAME CRITERIA STATED IN ITEMS NOS. a, b, c, AND d ABOVE.

B. COMPOSITE METAL DECK SLAB: (FINAL DESIGN LOAD)

   a. THE DECK SHALL DEVELOP FULL COMPOSITE ACTION FOR IMPOSED LOADS AS SHOWN IN THE DECK SCHEDULE.

   b. MAXIMUM DEFLECTION UNDER SUPERIMPOSED LOAD SHALL BE LESS THAN OR EQUAL TO L/360.

   c. MAXIMUM STRESS IN DECK FOR TOTAL LOAD USING APPROPRIATE NON-COMPOSITE AND COMPOSITE PROPERTIES SHALL BE LESS THAN OR EQUAL TO 0.75 FY.

   d. MAXIMUM ALLOWABLE STRESS IN CONCRETE SHALL BE AS PER ACI 318, LATEST EDITION.

   e. THE COMPOSITE DECK SHALL BE DESIGNED ON THE BASIS OF OBTAINING A MINIMUM FACTOR OF SAFETY OF 2 FOR THE TOTAL SUPERIMPOSED LOAD ON A SINGLE SPAN BASIS.

16. SHEAR STUDS:

   a. ALL SHEAR STUD PLACEMENT DIAGRAMS SHOWN REPRESENT IDEALIZED CONDITIONS, AND ACTUAL FRAMING CONFIGURATIONS MAY REQUIRE ADDITIONAL MODIFICATIONS AND INTERPRETATIONS.

   b. THE CONTRACTOR SHALL SUBMIT CHECKED SHOP DRAWINGS INDICATING THE SHEAR STUD LAYOUT, INCLUDING SIZE, SPACING AND GROUPING, FOR EACH BEAM.

   c. THE NUMBER OF STUDS PER BEAM AS SHOWN ON THE DRAWINGS INCLUDES REDUCTIONS BASED ON RIB WIDTH, NUMBER OF STUDS PER CELL, DECK-RIB ORIENTATION, AND SLAB THICKNESS AS PER AISC SPECIFICATIONS FOR COMPOSITE CONSTRUCTION, LATEST EDITION. THE ASSUMED ALLOWABLE HORIZONTAL SHEAR DESIGN VALUE (ASD) FOR A NOMINAL 3/4"-DIA. x 6" LONG STUD IS 12.5 KIPS PER STUD FOR NON-CELLULAR DECK WITH NORMAL WEIGHT CONCRETE. THE ASSUMED DECK NOMINAL RIB HEIGHT IS 3", AND THE ASSUMED AVERAGE CONCRETE RIB WIDTH IS 6". THE METAL DECK CONTRACTOR SHALL SUBMIT LOAD TEST DATA VERIFYING THE HORIZONTAL SHEAR CAPACITY OF SHEAR STUDS FOR DIFFERENT DECK TYPES AND CELL CONFIGURATIONS, AS DETAILED ON THE SHOP DRAWINGS. IF ANY OF THE ASSUMPTIONS LISTED ABOVE ARE VIOLATED, THE METAL DECK CONTRACTOR SHALL SUBMIT STRUCTURAL DESIGN CALCULATIONS, PREPARED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK, BASED ON THE DETAILED SHOP DRAWINGS. PROVIDE ALL EXTRA STUDS AS MAY BE REQUIRED TO ACHIEVE THE TOTAL HORIZONTAL SHEAR CAPACITY.

   d. MAXIMUM SPACING OF STUDS SHALL BE 12" ON CENTER.

   e. SHEAR STUDS SHALL BE EITHER WELDED DIRECTLY TO STRUCTURAL STEEL ELEMENTS AT LOCATIONS WITHOUT DECK OR WELDED TYPE THROUGH THE METAL DECK BY PREQUALIFIED METHODS. IF THROUGH DECK WELDING IS UNFEASIBLE, THE STUDS SHALL BE INSTALLED IN PRE-PUNCHED HOLES IN THE METAL DECK. THE CONTRACTOR SHALL ESTABLISH SPECIFIC WELDING REQUIREMENTS FOR EACH THICKNESS OF FRAMING ELEMENT AND/OR GAGE OF METAL DECK.

17. THE OWNER'S TESTING LABORATORY SHALL INSPECT AND TEST ALL METAL DECK AND SHEAR STUD INSTALLATION WORK. SEE TECHNICAL SPECIFICATION SECTION 053100, "STEEL DECKING" FOR ADDITIONAL TESTING AND INSPECTION REQUIREMENTS.

18. CONDUIT SHALL NOT BE PLACED IN STRUCTURAL SLABS.

19. SEE SPECIFICATION SECTION 053100, "STEEL DECKING", FOR ADDITIONAL REQUIREMENTS.

Job Number
ES607052967 Scan Code

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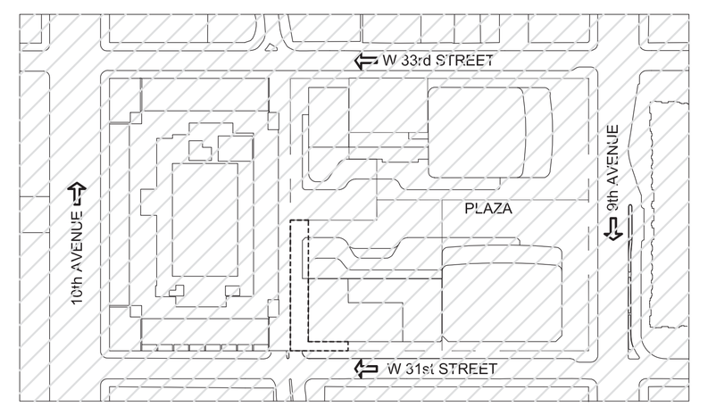


KEYPLAN

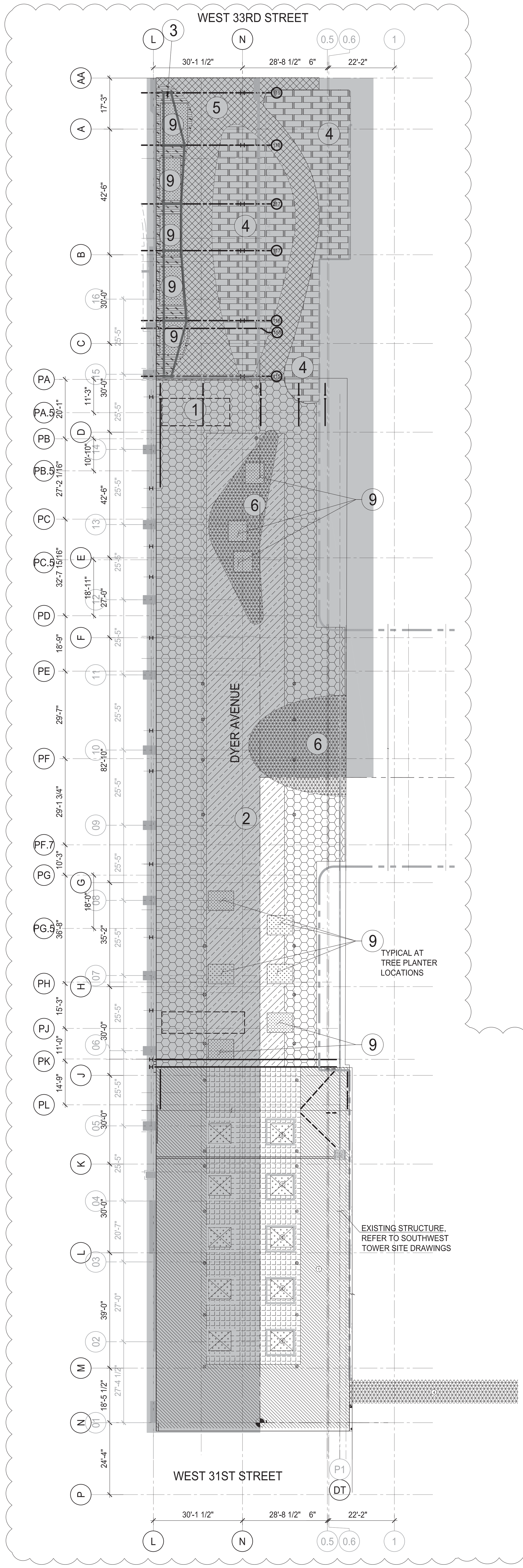
No.	Date	Description
2	02 SEP 2016	ISSUED FOR PERMIT FILING
1	02 MAY 2014	ISSUED FOR PERMIT FILING

Sheet Name:
STRUCTURAL STEEL NOTES

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date: 10/03/2016
NYC Development Hub

Seal & Signature:

Date: 02 SEP 2016
NYC DOB Number:
Project No: 207120
Scale: NTS
DWG No: S-005.01
CAD FILE Name: S-005.DWG



1 LOADING DIAGRAM
SCALE: 1/16" = 1'-0"

SUPERIMPOSED LOAD TABLE					
MARK	AREA	SDL psf	LL psf	SL psf	REMARKS
1	DYER AVE OVERBUILD AREA 'A'	110	100	25	
2	DYER AVE OVERBUILD AREA 'B'	110	100	115	115 psf STOCKPILED SNOW LOAD
3	LANDSCAPE AREA 'A' OVER EXISTING 450	150	50	25	
4	LANDSCAPE AREA 'B' OVER EXISTING 450	250	50	25	
5	DYER AVE OVERBUILD AREA 'C'	120	100	25	INCLUDES 20 psf SDL FOR RIGID INSULATION TO FILL
6	LANDSCAPE	370	50	25	TREE WEIGHT NOT INCLUDED
8	PLAZA	110	100	25	
9	TREE PLANTERS	530	50	25	

SNOW LOADS

SNOW LOADS WERE DETERMINED IN ACCORDANCE WITH THE CITY OF NEW YORK BUILDING CODE, 2008 AND ASCE 07

STRUCTURAL OCCUPANCY CATEGORY: IV
IMPORTANCE FACTOR, Is : 1.2
GROUND SNOW LOADS, Pg : 25 PSF
EXPOSURE FACTOR, Ce : 1.0
THERMAL FACTOR, Ct : 1.2

SEISMIC LOADS

SEISMIC LOADS WERE DETERMINED IN ACCORDANCE WITH THE CITY OF NEW YORK BUILDING CODE, 2008 AND ASCE 07

STRUCTURAL OCCUPANCY CATEGORY: IV
SEISMIC USE GROUP: III
IMPORTANCE FACTOR, Ie : 1.5
SEISMIC DESIGN CATEGORY: C
SOIL CLASS: B
DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS:
Sds = 0.243g, Sd1 = 0.047g
SEISMIC FORCE-RESISTING SYSTEM: ORDINARY REINFORCED CONCRETE SHEAR WALLS
DESIGN COEFFICIENTS AND FACTORS: R = 4, Cd = 4

NOTES:
1. STRUCTURAL SYSTEM IS NOT DESIGNED FOR CONSTRUCTION MATERIAL STAGING AREA. ANY ADDITIONAL LOADING SHOULD BE COORDINATED WITH ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW.
2. THE STRUCTURAL SLAB IS DESIGNED TO SUPPORT A MAXIMUM CONCENTRATED FORCE OF 6KIPS FOR MAINTENANCE EQUIPMENT. THE STRUCTURAL SYSTEM CAN SUPPORT THE WEIGHT OF ONLY ONE VEHICLE PER STRUCTURAL STEEL BEAM.

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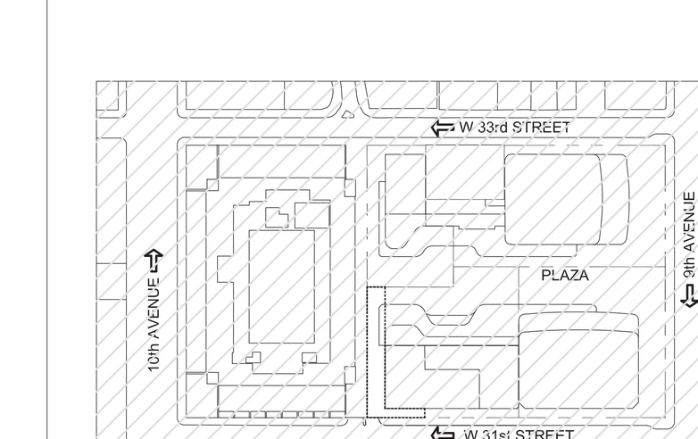


KEYPLAN

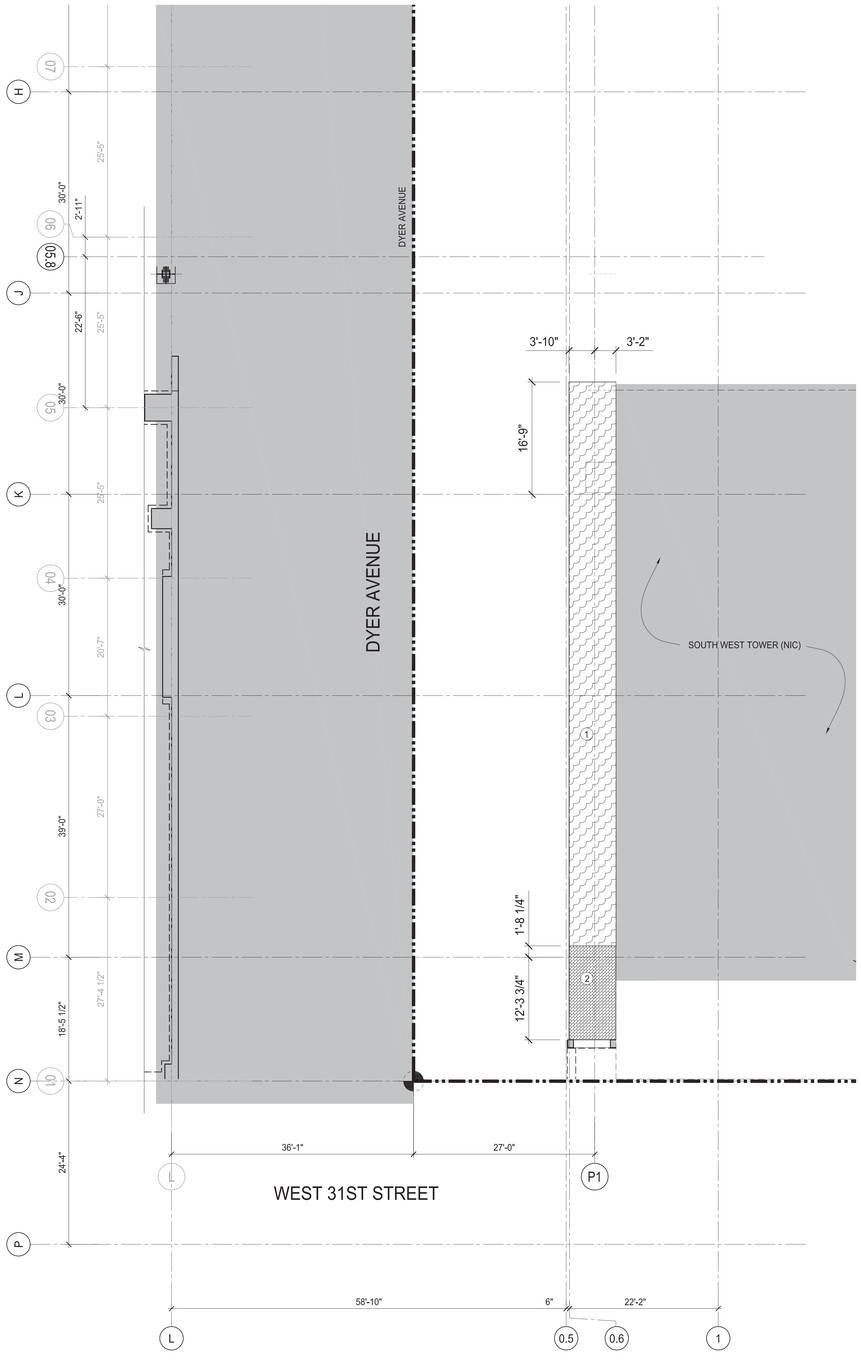
No.	Date	Description
2	02 SEP 2016	ISSUED FOR PERMIT FILING
1	02 MAY 2014	ISSUED FOR PERMIT FILING

Sheet Name:
LOADING DIAGRAMS

Seal & Signature:
STATE OF NEW YORK CHARLES MICHAEL BESJAK 079322 LICENSED PROFESSIONAL ENGINEER

Damian Titus
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date: 10/03/2016
NYC Development Hub

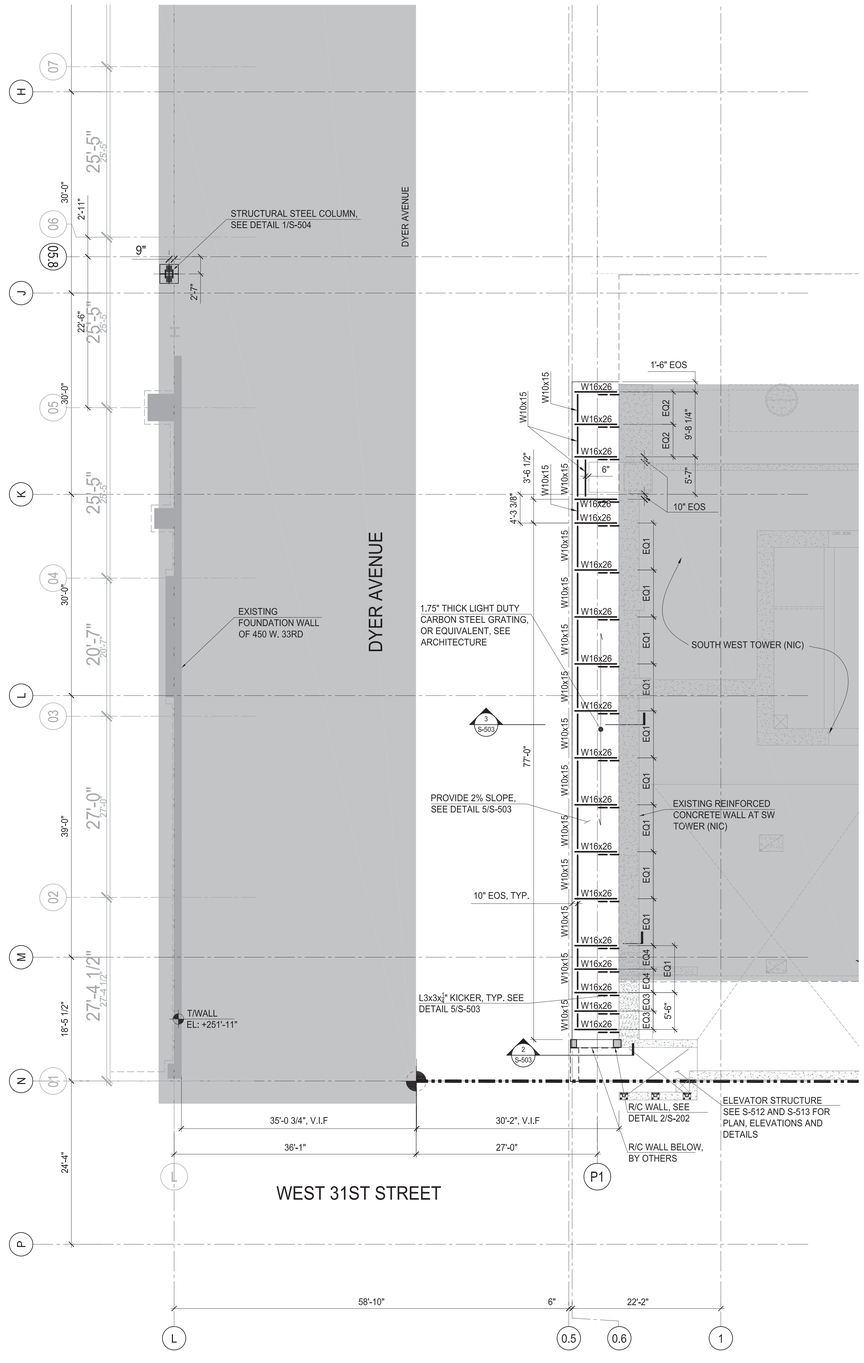
Date: 02 SEP 2016
NYC DOB Number:
Project No: 207120
Scale: NTS
DWG No: S-011.01
CAD FILE Name: S-011.DWG



SUPERIMPOSED LOAD TABLE					
MARK	AREA	SDL psf	LL psf	SL psf	REMARKS
1	DYER AVE. CANTILEVER SHED	30	100	0	
2	DYER AVE. CANTILEVER SHED AT EQUIPMENT STORAGE	30	300	0	

NOTES:
1. STRUCTURAL SYSTEM IS NOT DESIGNED FOR CONSTRUCTION MATERIAL STAGING AREA. ANY ADDITIONAL LOADING SHOULD BE COORDINATED WITH ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW.
2. THE STRUCTURAL SLAB IS DESIGNED TO SUPPORT A MAXIMUM CONCENTRATED FORCE OF 6KIPS FOR MAINTENANCE EQUIPMENT. THE STRUCTURAL SYSTEM CAN SUPPORT THE WEIGHT OF ONLY ONE VEHICLE PER STRUCTURAL STEEL BEAM.

1 LOADING DIAGRAM
SCALE: 1/8" = 1'-0"



NOTE:
1. ALL DIMENSIONS TO EXISTING STRUCTURES ARE APPROXIMATE AND NEED TO BE VERIFIED BY SURVEY PRIOR TO STARTING SHOP DRAWINGS.
2. T/STEEL ELEVATION = [EL: +27'-5 7/8"], FOR W16 AT WESTERN EDGE, UNLESS NOTED OTHERWISE, SEE DETAIL 5/S-503
3. T/STEEL ELEVATION = [EL: +26'-5 5/8"], FOR W10 EDGE BEAMS, UNLESS NOTED OTHERWISE, SEE DETAIL 5/S-503
4. DO NOT ADD ANY NEW LOAD ONTO THE 450W33rd STREET BUILDING UNTIL THE FULL FACADE HAS BEEN FULLY REMOVED
5. ALL STEEL BEAMS EXPOSED TO WEATHER, SHALL BE GALVANIZED

2 GROUND LEVEL FRAMING PLAN
SCALE: 1/8" = 1'-0"

SCALE IN INCHES: 0, 4", 8", 16"

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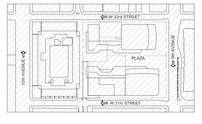

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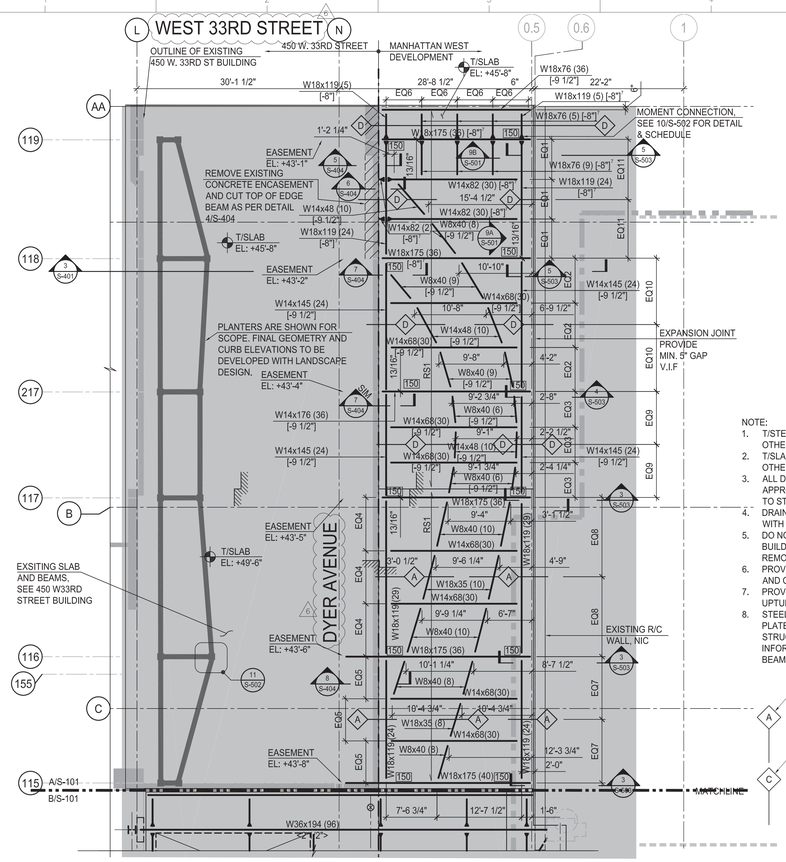
Damian Titus
BuildingNYC
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date: 10/03/2016
NYC Development Hub

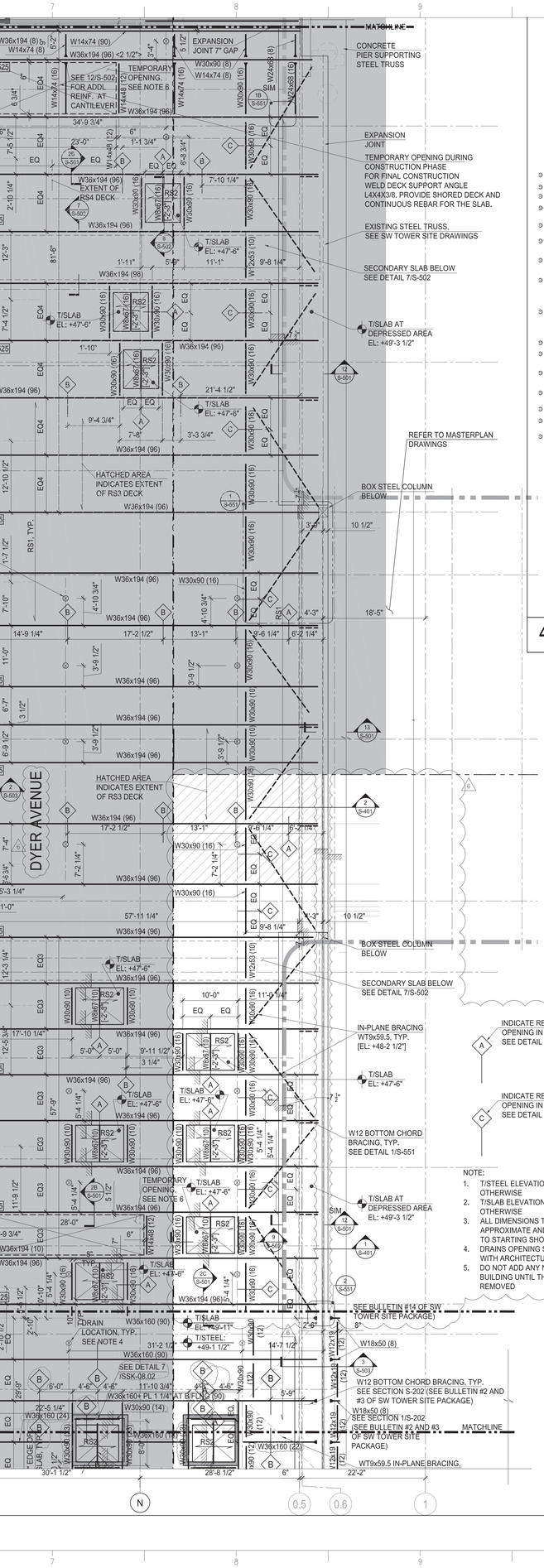
Sheet Name:
STORAGE SHED LOADING DIAGRAM AND FRAMING PLAN

Seal & Signature:

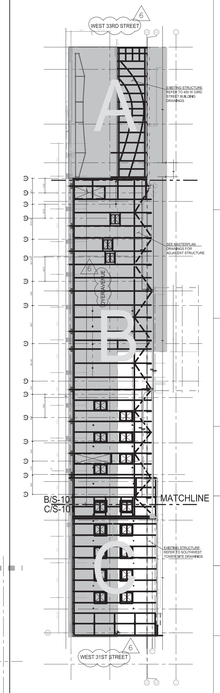
Date: 02 SEP 2016
NYC DOB Number:
Project No: 207120
Scale: NTS
DWG No:
S-100.00
CAD FILE Name: S-100.DWG



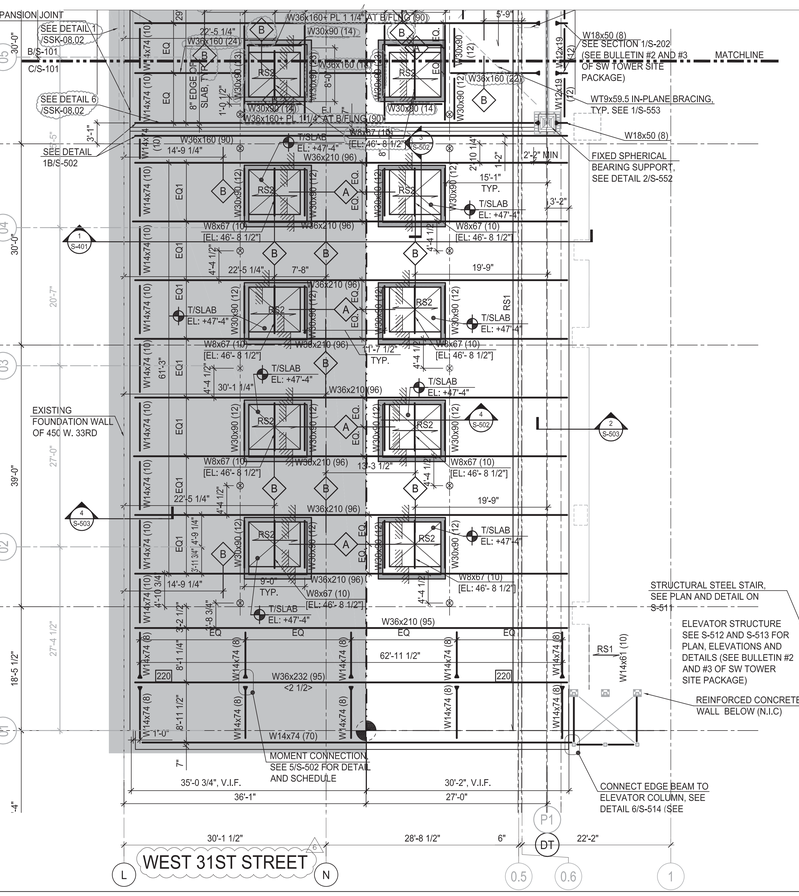
1 LEVEL 1 FRAMING PLAN A
SCALE: 1/8" = 1'–0"



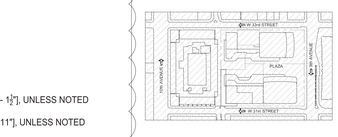
2 LEVEL 1 FRAMING PLAN B
SCALE: 1/8" = 1'–0"



4 KEY PLAN
SCALE: 1/8" = 1'–0"



3 LEVEL 1 FRAMING PLAN C
SCALE: 1/8" = 1'–0"



KEYPLAN

No.	Date	Description
6	02 SEP 2016	ISSUED FOR PERMIT FILING
5	30 OCT 2015	ISSUED FOR PERMIT FILING
4	14 AUG 2015	ISSUED FOR PERMIT FILING
3	10 JUL 2015	ISSUED FOR PERMIT FILING
2	18 MAY 2015	ISSUED FOR PERMIT FILING
1	02 MAY 2014	ISSUED FOR PERMIT FILING

Damian Titus
Buildings
APPROVED
Under Directive 1 of 1975
AMENDED APPLICATION
Date: 10/03/2016
NYC Development Hub

0 4' 8' 16'
SCALE IN INCHES

MANHATTAN WEST:
SOUTHWEST RESIDENTIAL TOWER SITE

West 31st Street
New York, NY

Client
Brookfield
250 Vesey Street, 15th Floor, New York, NY 10281-1023

Architecture/Structural Engineering
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Skidmore, Owings & Merrill LLP
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Landscape
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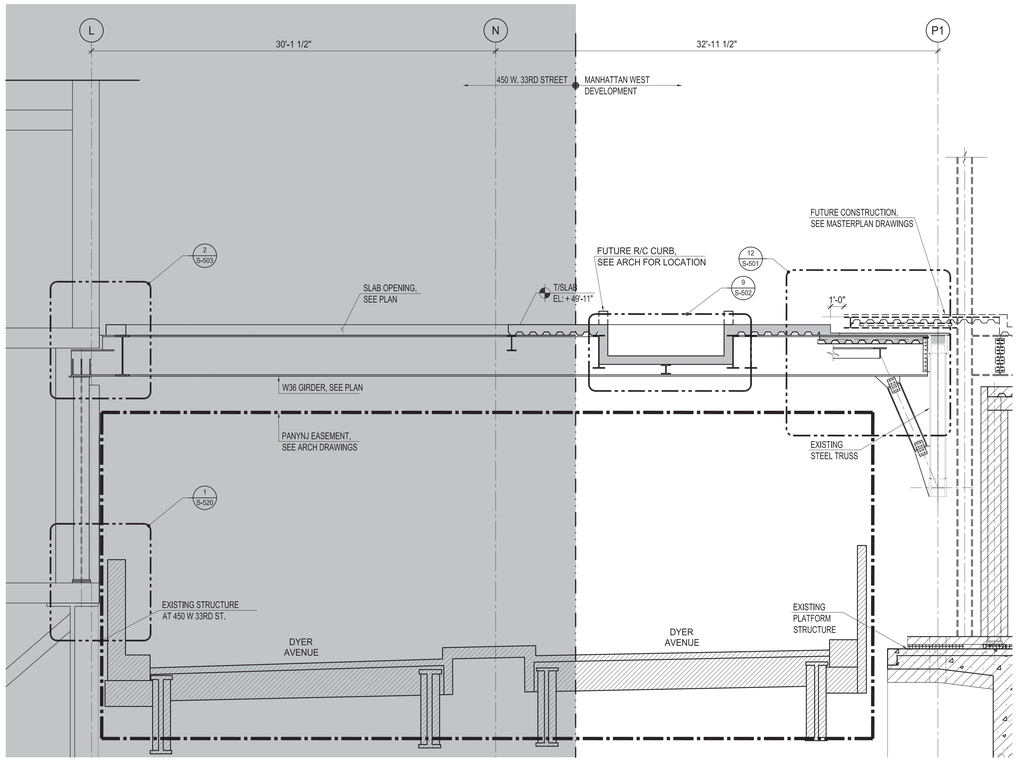
MEP Engineering
Parsons Brinckerhoff
1 Penn Plaza, 2nd Floor, New York, NY 10119

Electrical Engineering
Cosentini Associates
Two Pennsylvania Plaza, 3rd Floor, New York, NY 10121

Sheet Name:
DYER AVENUE OVERBUILD FRAMING PLAN

Seal & Signature:

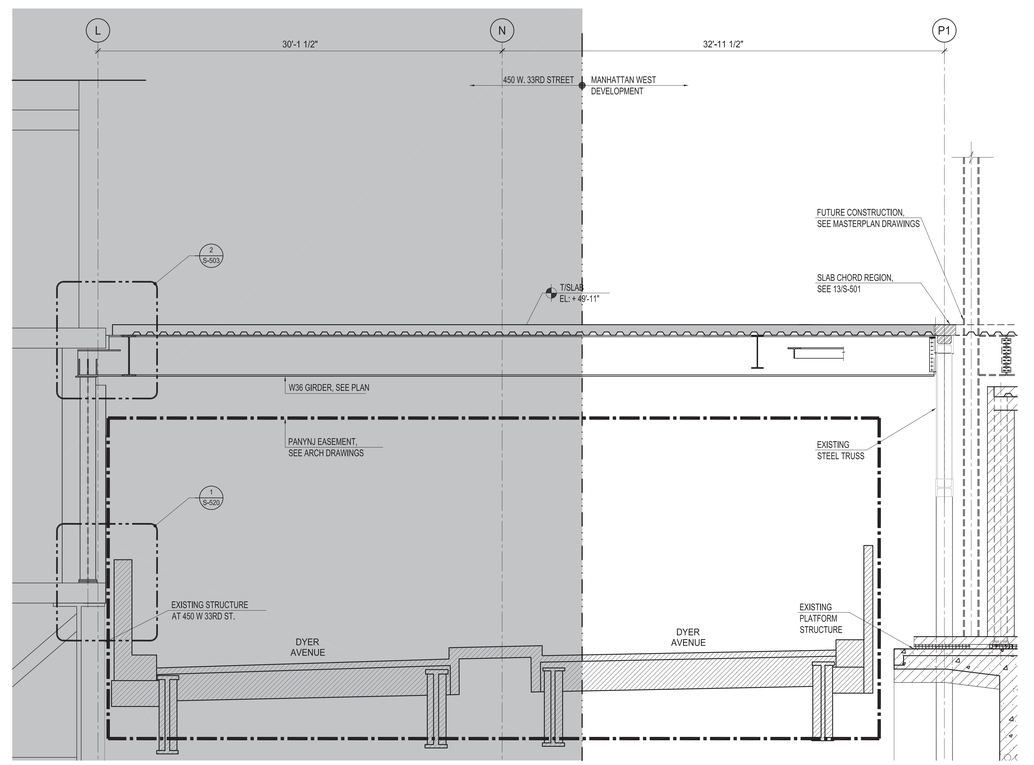
Date:	02 SEP 2016
NYC DOB Number:	
Project No.:	207120
Scale:	NTS
DWG No:	S-102.02
CAD FILE Name:	S-101.DWG



NOTES:

1. ALL DIMENSIONS TO EXISTING STRUCTURE ARE APPROXIMATE AND NEED TO BE VERIFIED BY SURVEY PRIOR TO STARTING SHOP DRAWINGS.
2. DO NOT ADD ANY LOAD ONTO THE 450 W 33rd STREET BUILDING UNTIL THE FULL FACADE HAS BEEN FULLY REMOVED.

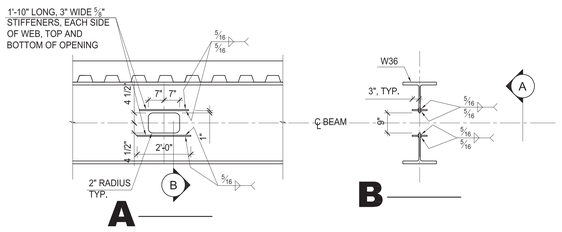
1 SECTION SOUTH OF GRIDLINE H
SCALE: NOT TO SCALE



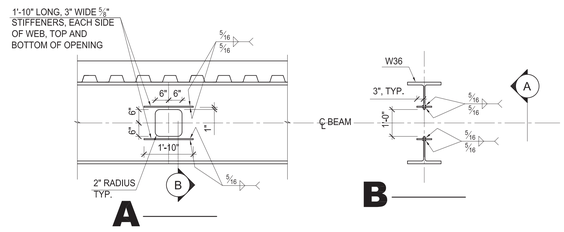
NOTES:

1. ALL DIMENSIONS TO EXISTING STRUCTURE ARE APPROXIMATE AND NEED TO BE VERIFIED BY SURVEY PRIOR TO STARTING SHOP DRAWINGS.
2. DO NOT ADD ANY LOAD ONTO THE 450 W 33rd STREET BUILDING UNTIL THE FULL FACADE HAS BEEN FULLY REMOVED.

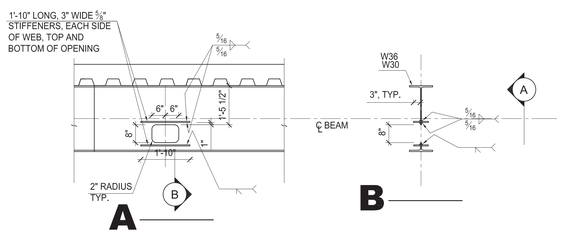
2 SECTION SOUTH OF GRIDLINE 10
SCALE: NOT TO SCALE



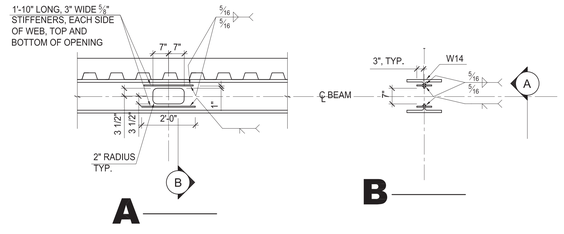
4 DETAIL AT BEAM WEB OPENING (TYPE A)
SCALE: NOT TO SCALE



5 DETAIL AT BEAM WEB OPENING (TYPE B)
SCALE: NOT TO SCALE



6 DETAIL AT BEAM WEB OPENING (TYPE C)
SCALE: NOT TO SCALE



7 DETAIL AT BEAM WEB OPENING (TYPE D)
SCALE: NOT TO SCALE

MANHATTAN WEST:

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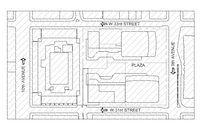

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Sheet Name:

DYER AVENUE OVERBUILD SECTIONS

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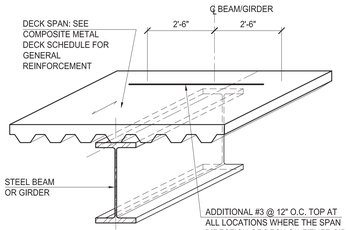
NYC Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date: 10/03/2016
NYC Development Hub

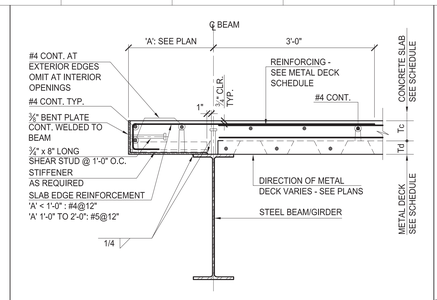
Seal & Signature:

Date: 02 SEP 2016
NYC DOB Number:
Project No: 207120
Scale: NTS
DWG No:
S-401.00
CAD File Name: S-401.DWG

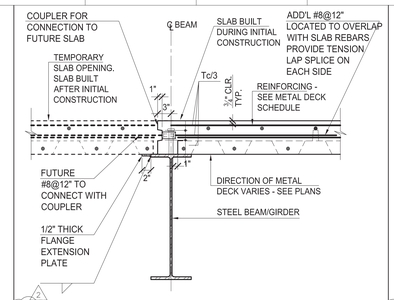


NOTE: PROVIDE ¾" CLEAR COVER FROM TOP OF SLAB TO ADDITIONAL REINFORCEMENT.

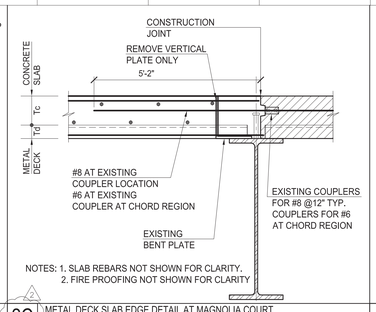
1 TYPICAL ADDITIONAL METAL DECK SLAB REINFORCEMENT AT BEAM
SCALE: NOT TO SCALE



2A TYPICAL METAL DECK SLAB EDGE DETAIL
SCALE: NOT TO SCALE

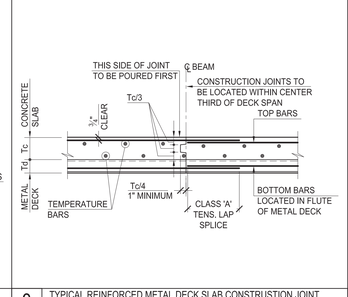


2B METAL DECK SLAB EDGE DETAIL AT TEMPORARY SLAB OPENINGS
SCALE: NOT TO SCALE

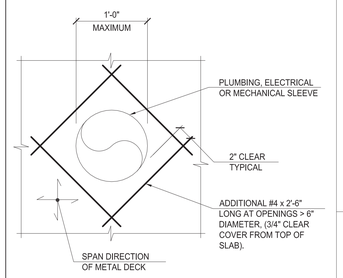


NOTES: 1. SLAB REBARS NOT SHOWN FOR CLARITY.
2. FIRE PROOFING NOT SHOWN FOR CLARITY

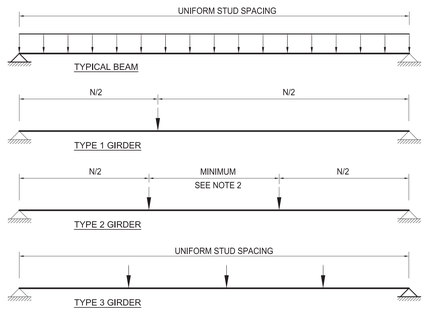
2C METAL DECK SLAB EDGE DETAIL AT MAGNOLIA COURT
SCALE: NOT TO SCALE



3 TYPICAL REINFORCED METAL DECK SLAB CONSTRUSTION JOINT
SCALE: NOT TO SCALE

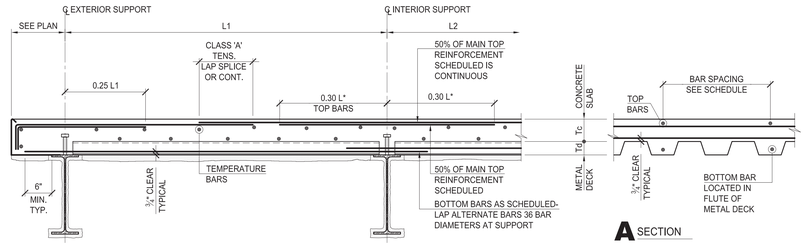


4 TYPICAL METAL DECK SLAB CIRCULAR OPENING
SCALE: NOT TO SCALE



NOTES: 1. ALL DIAGRAMS REPRESENT IDEALIZED CONDITIONS. ACTUAL FRAMING CONFIGURATIONS MAY REQUIRE ADDITIONAL INTERPRETATION.
2. MAXIMUM SPACING OF STUDS SHALL BE 12" ON CENTER.
3. 'N' INDICATES NUMBER OF STUDS SHOWN ON PLANS

5 SHEAR STUD PLACEMENT DIAGRAM
SCALE: NOT TO SCALE



A SECTION

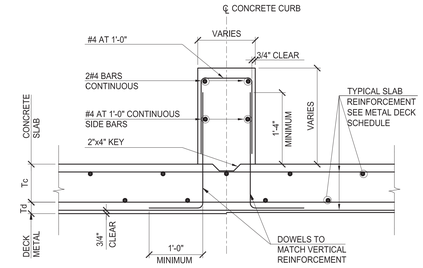
NOTES: 1. L* IS GREATER OF L1 OR L2.
2. METAL DECK SHALL BE DESIGNED AS FORM DECK.
3. SLAB REINFORCING AND SPACING IS BASED ON DECK PROFILE WITH 12" RIB SPACING. ACTUAL SPACING AND QUANTITY SHALL BE CONTINGENT ON SPECIFIC DECK PROFILE PROVIDED BY DECK MANUFACTURER.

REINFORCED METAL DECK SLAB SCHEDULE

REBAR fy = 60 ksi
DECK fy = 33 ksi

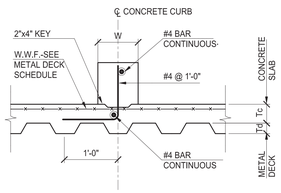
MARK	Td (IN)	Tc (IN)	IMPOSED LOAD CAPACITIES (PSF) LL	SDL	MAIN REINFORCEMENT BOT.	TOP	TEMP. REINF.	CONCRETE WGT. (PCF)	f'c (PSI)	STUD HEIGHT (IN)	REMARKS
RS1	3	6 1/2	100	110	#6@12	#6@12	#4@12	145	4000	6	PLAZA LEVEL
RS2	3	4 1/2	50	530	#6@12	#6@12	#4@12	145	4000	6	TREE PITS
RS3	3	6 1/2	50	370	#5@6	#5@6	#4@12	145	4000	6	LANDSCAPED AREAS

6 TYPICAL REINFORCED METAL DECK SLAB
SCALE: NOT TO SCALE



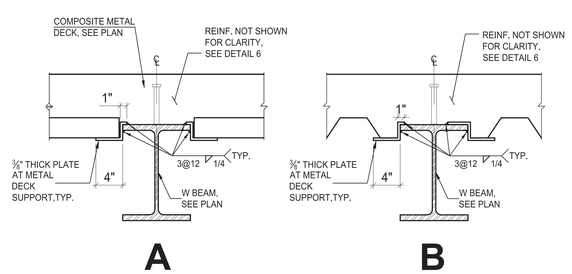
NOTES: 1. THIS DETAIL APPLIES WHEN W>=6".
2. FOR CURB SIZE AND LOCATION, SEE ARCHITECTURAL DRAWINGS.
3. PROVIDE 3/4" CLEAR COVER TO BARS UNLESS NOTED OTHERWISE.

7 TYPICAL DETAILS FOR CONCRETE CURBS
SCALE: NOT TO SCALE

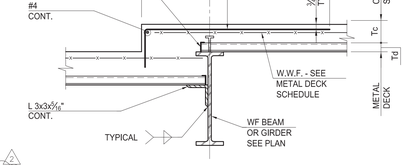


NOTES: 1. THIS DETAIL APPLIES WHEN W<6".
2. FOR CURB SIZE AND LOCATION, SEE ARCHITECTURAL DRAWINGS.
3. PROVIDE 3/4" CLEAR COVER TO BARS UNLESS NOTED OTHERWISE.

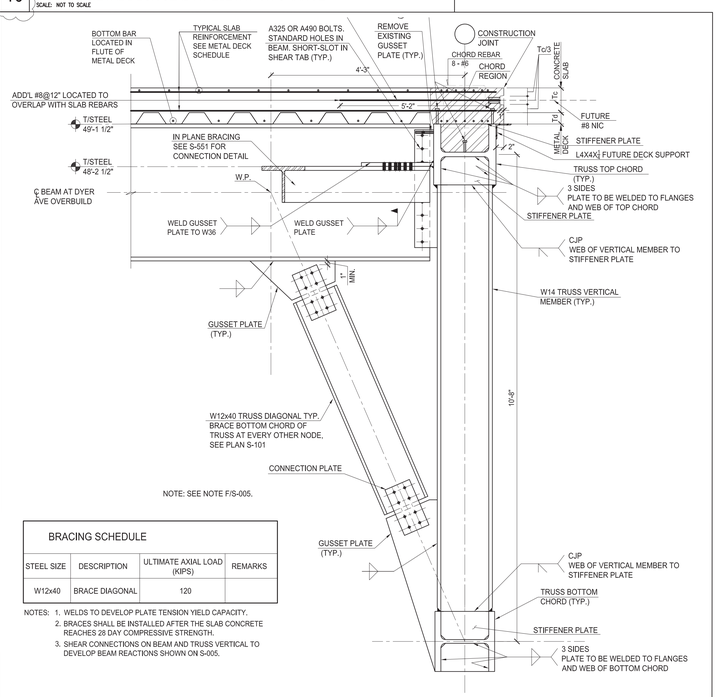
8 TYPICAL DETAILS FOR CONCRETE CURBS ON METAL DECK SLAB
SCALE: NOT TO SCALE



9 TYPICAL METAL DECK SLAB AT ELEVATION CHANGE
SCALE: NOT TO SCALE



10 TYPICAL METAL DECK SLAB AT ELEVATION CHANGE
SCALE: NOT TO SCALE

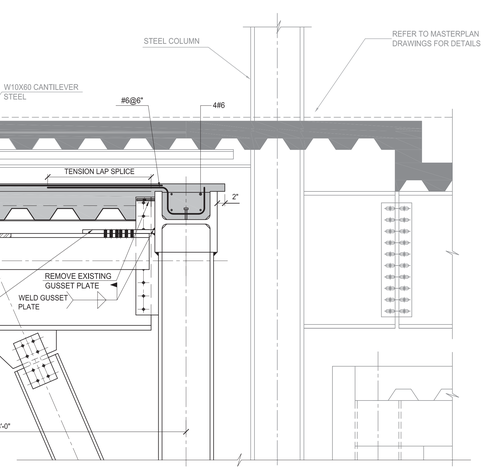


BRACING SCHEDULE

STEEL SIZE	DESCRIPTION	ULTIMATE AXIAL LOAD (KIPS)	REMARKS
W12x40	BRACE DIAGONAL	120	

NOTES: 1. WELDS TO DEVELOP PLATE TENSION YIELD CAPACITY.
2. BRACES SHALL BE INSTALLED AFTER THE SLAB CONCRETE REACHES 28 DAY COMPRESSIVE STRENGTH.
3. SHEAR CONNECTIONS ON BEAM AND TRUSS VERTICAL TO DEVELOP BEAM REACTIONS SHOWN ON S-005.

13 TRUSS BOTTOM CHORD BRACING
SCALE: NOT TO SCALE



12 STEEL SECTION DETAIL AT EXPANSION JOINT ALONG MASTERPLAN PLAZA
SCALE: NOT TO SCALE

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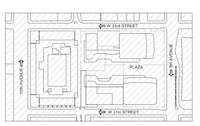


KEYPLAN

No.	Date	Description
2	02 SEP 2016	ISSUED FOR PERMIT FILING
1	02 MAY 2014	ISSUED FOR PERMIT FILING

Sheet Name:

STRUCTURAL METAL DECK SLAB SCHEDULES AND TYPICAL DETAILS

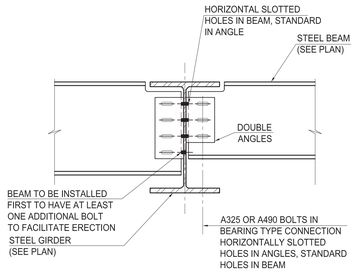
Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
PERMIT APPLICATION
Date: 10/03/2016
NYC Development Hub

Seal & Signature:

Date: 02 SEP 2016
NYC DOB Number:
Project No: 207120
Scale: NTS
DWG No:

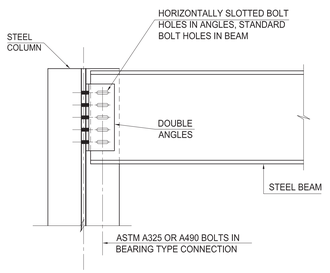
S-501.01

CAD FILE Name: S-501.DWG



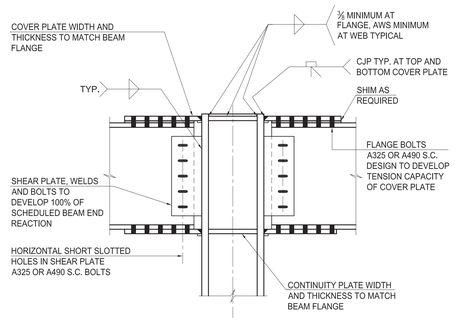
NOTE: CONNECTION TO DEVELOP THE BEAM REACTION IN ACCORDANCE WITH THE AISC-LRFD RECOMMENDED PRACTICE FOR A DOUBLE ANGLE CONNECTION

1 TYPICAL BEAM-TO-BEAM SHEAR CONNECTION
SCALE: NOT TO SCALE

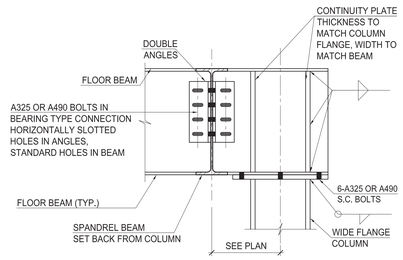


NOTE: CONNECTION TO DEVELOP THE BEAM REACTION IN ACCORDANCE WITH THE AISC-LRFD RECOMMENDED PRACTICE FOR A DOUBLE ANGLE CONNECTION

2 TYPICAL BEAM-TO-COLUMN WEB SHEAR CONNECTION
SCALE: NOT TO SCALE

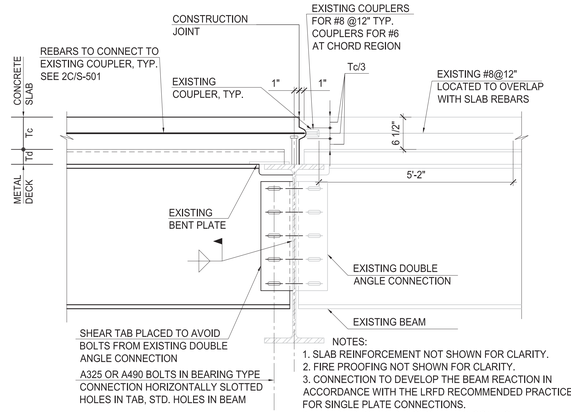


3 TYPICAL BEAM-TO-COLUMN FLANGE MOMENT CONNECTION
SCALE: NOT TO SCALE



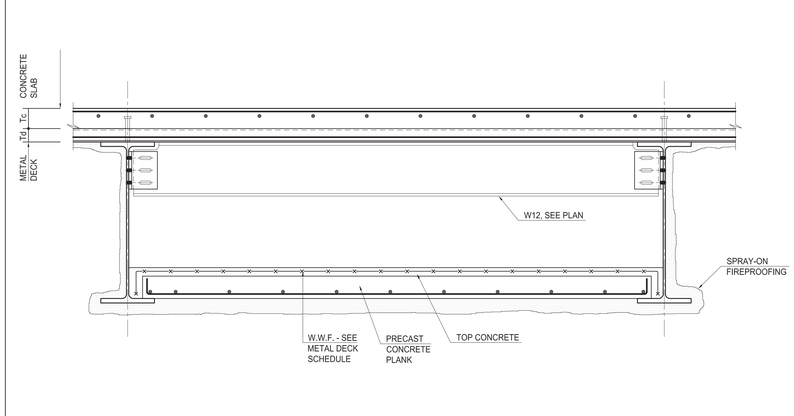
NOTE: CONNECTION TO DEVELOP THE BEAM REACTION IN ACCORDANCE WITH THE AISC-ASD RECOMMENDED PRACTICE FOR A DOUBLE ANGLE CONNECTION.

4 TYP OFFSET SPANDREL AND BEAM OVER TOP OF COL CONN.
SCALE: NOT TO SCALE

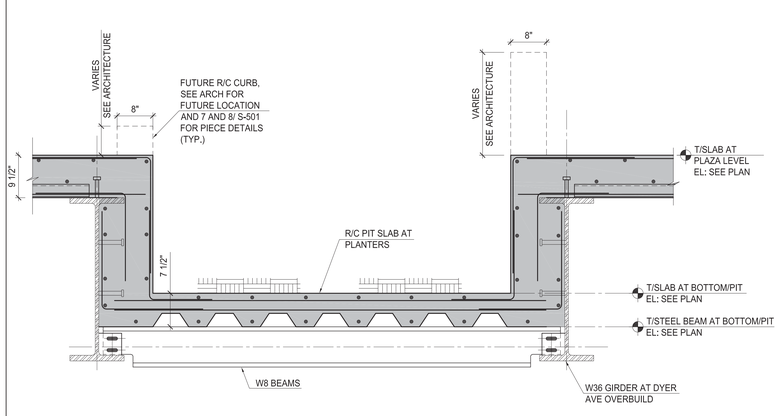


NOTES:
1. SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.
2. FIRE PROOFING NOT SHOWN FOR CLARITY.
3. CONNECTION TO DEVELOP THE BEAM REACTION IN ACCORDANCE WITH THE LRFD RECOMMENDED PRACTICE FOR SINGLE PLATE CONNECTIONS.
4. WHERE REQUIRED, NOTCH THE INCOMING SPANDREL BEAM TO ALLOW FOR THE HORIZONTAL CONTINUOUS PLATE IN THE GIRDER. SEE 2/S-502 OF THE SOUTHWEST RESIDENTIAL SITE DOCUMENTS.

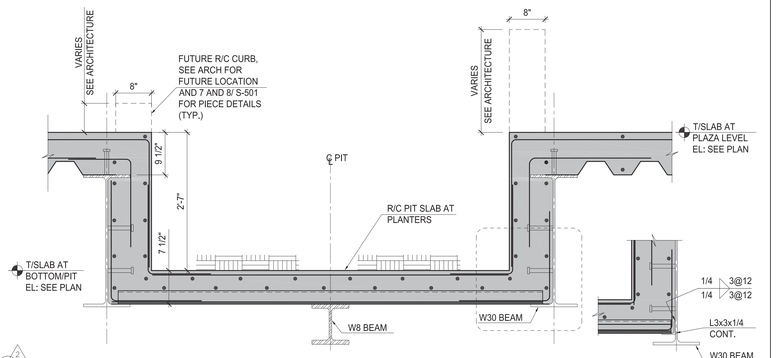
5 BEAM AND SLAB CONNECTION TO EXISTING OVERBUILD STRUCTURE
SCALE: NOT TO SCALE



7 TYPICAL SECTION OF ELECTRICAL DUCT BANK
SCALE: NOT TO SCALE



8 TYPICAL SECTION AT PLANTERS AREA
SCALE: NOT TO SCALE



9 TYPICAL SECTION AT PLANTERS AREA
SCALE: NOT TO SCALE

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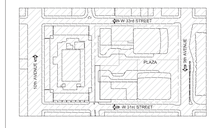

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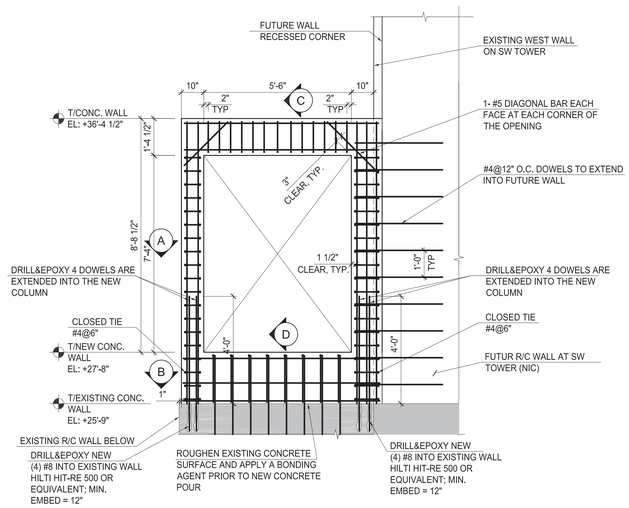
No.	Date	Description
2	02 SEP 2016	ISSUED FOR PERMIT FILING
1	02 MAY 2014	ISSUED FOR PERMIT FILING

Sheet Name:
TYPICAL STRUCTURAL STEEL SECTIONS AND DETAILS

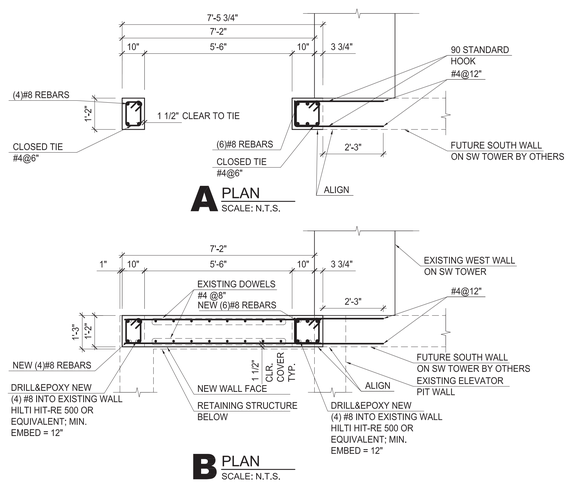
Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date: 10/03/2016
NYC Development Hub

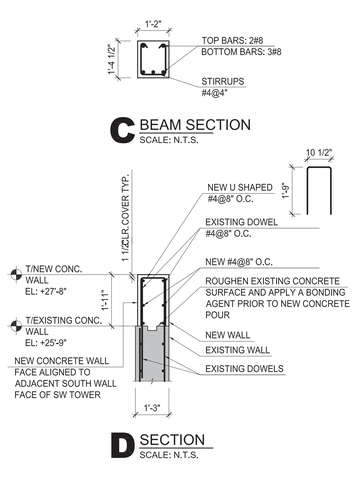
Seal & Signature:

Date: 02 SEP 2016
NYC DOB Number:
Project No: 207120
Scale: NTS
DWG No:
S-502.01
CAD FILE Name: S-502.DWG



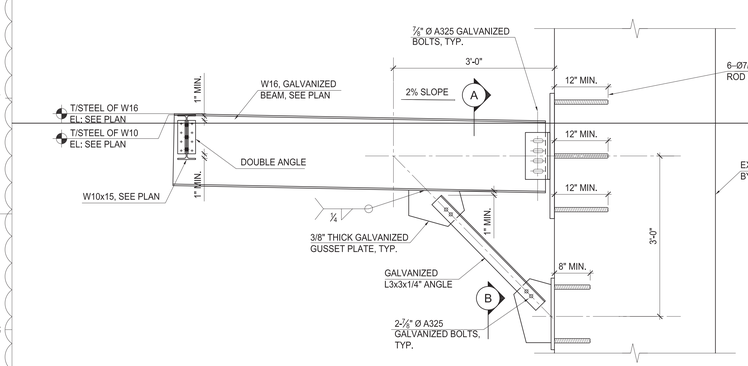
2 REINFORCED CONCRETE WALL DETAIL
SCALE: 1/2"=1'





DRAWING NOTES:

1. CONCRETE SHALL BE NORMAL WT. CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF f'c = 4,000 PSI AT 28 DAYS.
2. AGGREGATES SHALL CONFORM TO THE STANDARDS OF ASTM C33 AND MAXIMUM SIZE SHALL BE 3/4".
3. CONCRETE MIX SHALL PROVIDE A MAXIMUM 0.40 WATER-CEMENT RATIO, INCLUDING WATER CONTENT OF ADMIXTURE, SEE CONCRETE NOTE S-004
4. DETAILER TO CHECK ALL BAR CLEARANCES
5. ALL REINFORCING BARS SHALL CONFORM TO THE STANDARDS OF ASTM A615, GRADE 60.
6. CONTRACTOR TO ROUGHEN SURFACE AND APPLY BONDING AGENT PRIOR TO POURING NEW CONCRETE WALL
7. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF REINFORCING STEEL BARS TO ARCHITECT FOR REVIEW AND TO STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO MATERIAL PROCUREMENT AND FABRICATION.
8. CONCRETE SAMPLES SHALL BE COLLECTED BY A CERTIFIED TESTING FACILITY AND COMPRESSIVE STRENGTH TESTS PERFORMED AT 7 DAYS, 14 DAYS, AND 28 DAYS. ONE SET OF SAMPLES SHALL BE COLLECTED FOR EACH 25 CUBIC YARDS OF CONCRETE PLACEMENT OR A MINIMUM OF ONE SET OF SAMPLES PER DAY.



3 POST-INSTALLED ANCHOR PLATE DETAIL AT EXISTING WALL
SCALE: NOT TO SCALE

MANHATTAN WEST:

SOUTHWEST RESIDENTIAL TOWER SITE

West 31st Street
New York, NY

Client

Brookfield

250 Vesey Street, 15th Floor, New York, NY 10281-1023

Architecture/Structural Engineering

SOM
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

Landscape

James Corner Field Operations
475 Tenth Avenue, New York, NY 10018

MEP Engineering

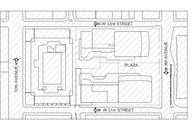
Jaros Baum & Bolles
80 Pine Street, New York, NY 10005

MEP Engineering

Parsons Brinckerhoff
1 Penn Plaza, 2nd Floor, New York, NY 10119

Electrical Engineering

Cosentini Associates
Two Pennsylvania Plaza, 3rd Floor, New York, NY 10121



KEYPLAN

No.	Date	Description
2	02 SEP 2016	ISSUED FOR PERMIT FILING
1	02 MAY 2014	ISSUED FOR PERMIT FILING

Sheet Name:

STRUCTURAL METAL DECK SLAB SCHEDULES AND TYPICAL DETAILS

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
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NYC Development Hub

Seal & Signature:

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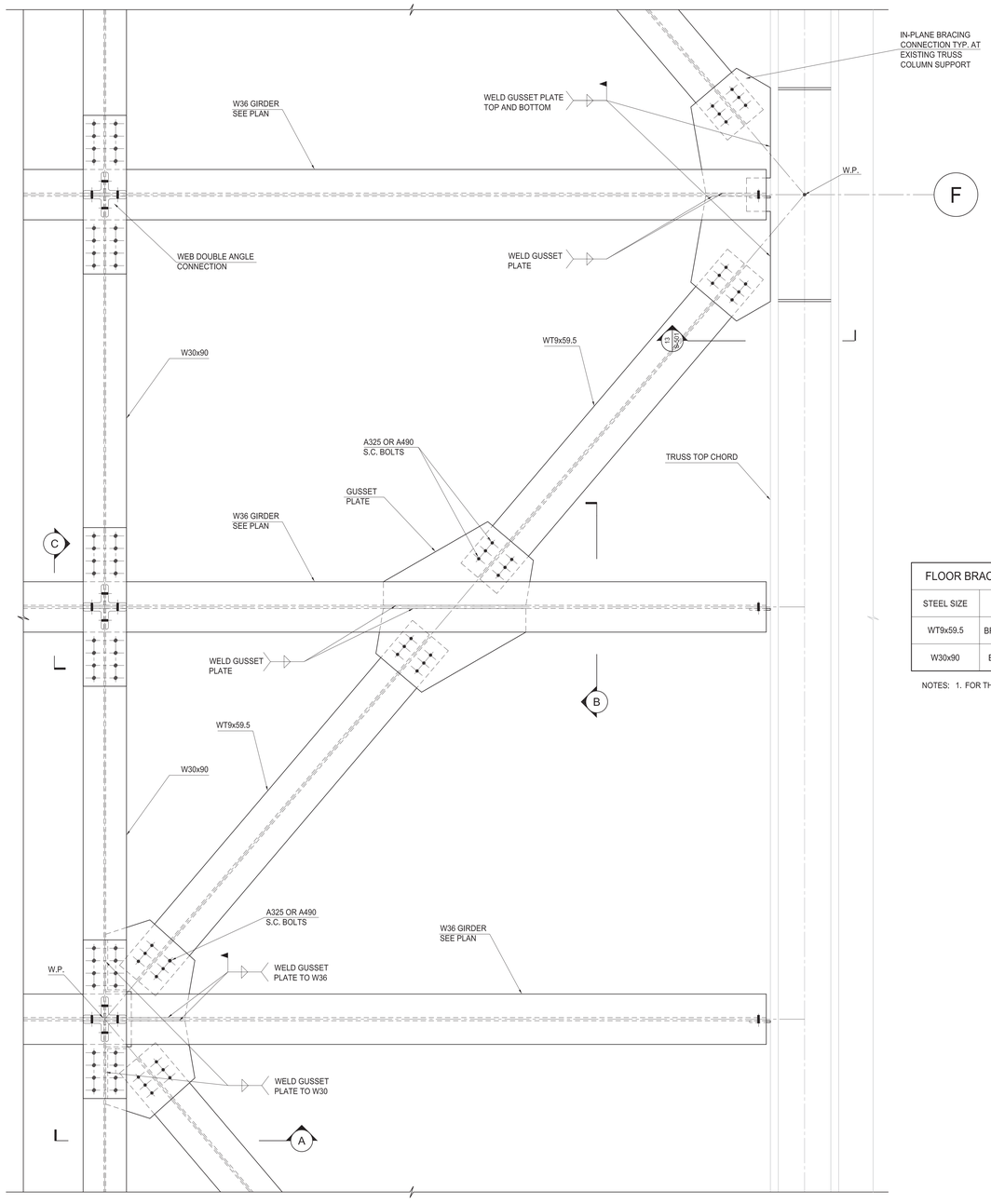
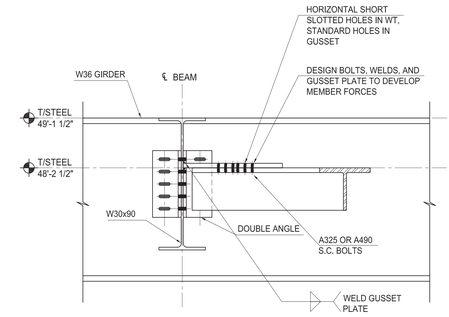
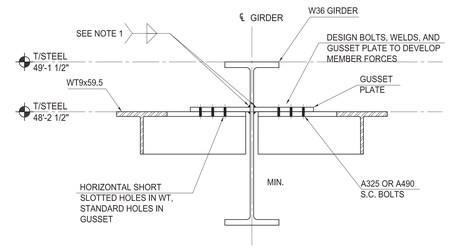


FLOOR BRACING SCHEDULE		ROLLED SHAPES: ASTM A992 GUSSETS: ASTM A572 GR 50	
STEEL SIZE	DESCRIPTION	ULTIMATE AXIAL LOAD (KIPS)	REMARKS
WT9x59.5	BRACE DIAGONAL	250	
W30x90	BRACE CHORD	420	NOTE 1

NOTES: 1. FOR THE ULTIMATE BEAM END REACTIONS SEE S-005.

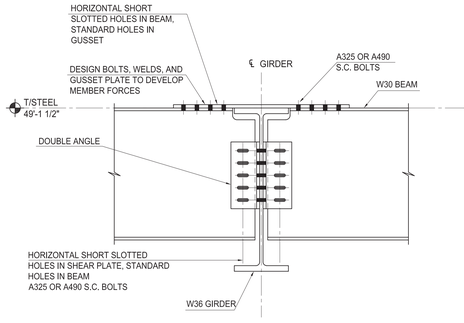


A SECTION



NOTES: 1. DESIGN WELD TO DEVELOP PLATE TENSION YIELD CAPACITY

B SECTION



C SECTION

1 BRACE DETAIL CONNECTIONS
SCALE: NOT TO SCALE

2 BRACE DETAIL CONNECTIONS TO EXISTING GIRDER
SCALE: NOT TO SCALE

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SOUTHWEST RESIDENTIAL TOWER SITE

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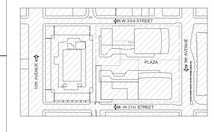

KEYPLAN

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1	02 SEP 2016	ISSUED FOR PERMIT FILING

Sheet Name:
IN-PLANE BRACING SECTIONS AND DETAILS

Seal & Signature:
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BuildingNYC
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NYC Development Hub

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