DEPT OF BUILDINGS 121121125 Job Number
E1674564396 Scan Code

RELATED OXFORD

HudsonYards

VESSEL

530 WEST 33RD STREET
NEW YORK, NY

DOB PERMIT APPLICATION SET

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
Tishman Construction Corporation
100 Park Avenue
Tel: 212.708.6800

Executive Architect
Kohn Pedersen Fox Associates PC
Architects & Planning Consultants
11 West 42nd Street
Tel: 212.977.6500 Fax: 212.956.2526

Design Architect
Heatherwick Studio
356-364 Grays Inn Road
London WC1X 8BH
United Kingdom
Tel: 44(0)20 7833 8800

Structural Engineer
Thornton Tomasetti, Inc.
51 Madison Avenue
New York, NY 10010
Tel: 917.661.7800 Fax: 917.661.7801

Civil, Mechanical, Electrical, Plumbing, Fire Alarm, Fire Protection, Security
Ove Arup & Partners P.C.
77 Water Street
New York, NY 10005
Tel: 212.896.3000

CONFIDENTIAL
DO NOT
REPRODUCE

No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan

Date: 05/15/14
Project No. 229.002
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORETTA
026433-1
STATE OF NEW YORK

HYE-VS-T-001.00

Drawing Title

COVER SHEET

Drawing Number
T-001.00

SHEET 1 OF 1

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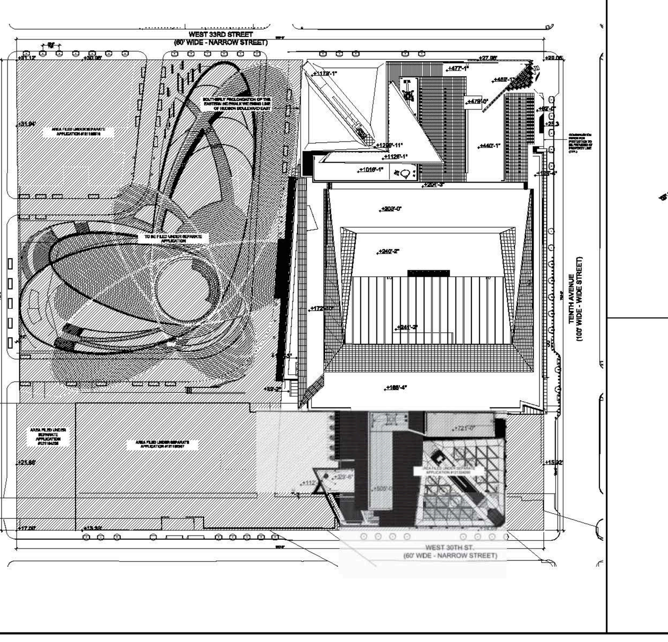
SITE PLAN DIAGRAM
1/128" = 1'-0"

C6-4 / HUDSON YARDS SPECIAL DISTRICT
LARGE SCALE PLAN SUBDISTRICT A
EASTERN RAILYARDS SUBAREA A1

LOT AREA: 570,000 SF

NO LOT COVERAGE REQUIREMENTS [PER ZR 93-514]

LEGEND
AREAS FILED UNDER SEPARATE APPLICATION
PROPOSED BUILDING
ZONING LOT LINE
PROPOSED TREE

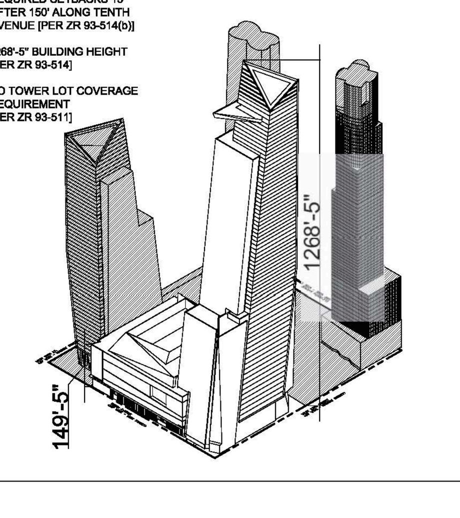


AXONOMETRIC DIAGRAM
NOT TO SCALE

REQUIRED SETBACKS 15' AFTER 150' ALONG TENTH AVENUE [PER ZR 93-514(b)]

1268'-5" BUILDING HEIGHT [PER ZR 93-514]

NO TOWER LOT COVERAGE REQUIREMENT [PER ZR 93-511]



NYC Buildings

ZD1 Zoning Diagram
Must be typewritten.

Orient and affix BIS job number label here

Submitted to resolve objections stated in a notice of intent to revoke issued pursuant to rule 101-15. ☐Yes ☐No

Location Information
House No(s) 500
Street Name WEST 33rd STREET
Borough Manhattan
Block 702
Lot 125
BIN 121186251

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.

Name (please print) MICHAEL GREENE
Signature / Date 11-15-16
P.E. / R.A. Seal (apply seal, then sign and date over seal)
REGISTERED ARCHITECT MICHAEL GREENE NO 027052 STATE OF NEW YORK
Internal Use Only
BIS Doc #
PLAN EXAMINER SIGN AND DATE

6/09

25821 - ZD1-317510.pdf

NYC Buildings
121186251

ZD1 Zoning Diagram
Must be typewritten.
Sheet 1 of 3

1 Applicant Information *Required for all applications.*
Last Name GREENE First Name MICHAEL Middle Initial
Business Name KOHN PEDERSEN FOX & ASSOCIATES Business Telephone (212) 977-6500
Business Address 11 WEST 42ND STREET Business Fax (212) 956-2526
City NEW YORK State NY Zip 10036 Mobile Telephone ( ) -
E-Mail MGREENE@KPF.COM License Number 027052

2 Additional Zoning Characteristics *Required as applicable.*
Dwelling Units Parking area sq. ft. Parking Spaces: Total 210 Enclosed 210

3 BSA and/or CPC Approval for Subject Application *Required as applicable.*
Board of Standards & Appeals (BSA)
☐ Variance Cal. No. Authorizing Zoning Section 72-21
☐ Special Permit Cal. No. Authorizing Zoning Section
☐ General City Law Waiver Cal. No. General City Law Section
☐ Other Cal. No.
City Planning Commission (CPC)
☐ Special Permit ULURP No. N150069ZCM Authorizing Zoning Section 93-122
☐ Authorization App. No. N150070ZCM Authorizing Zoning Section 93-122
☒ Certification App. No. N150071ZCM Authorizing Zoning Section 93-70
☐ Other App. No. N150072ZCM 93-70
N150073ZCM, N150132ZCM 93-70, 93-71

4 Proposed Floor Area *Required for all applications. One Use Group per line.*

Floor Number	Building Code Gross Floor Area (sq. ft.)	Use Group	Residential	Community Facility	Commercial	Manufacturing	FAR
PROPOSED BUILDING - TOWER A & RETAIL PODIUM							
CELLAR	19,421	6	0	0	0	0	0
GROUND FL	105,076	6	0	0	71,956	0	.13
1	183,634	6	0	0	175,952	0	.31
2	138,373	6	0	0	130,701	0	.23
3	167,725	6	0	0	154,573	0	.27
4	184,628	6	0	0	175,963	0	.31
5	189,367	6	0	0	164,495	0	.29
6	182,008	6	0	0	123,655	0	.22
7	136,421	6	0	0	110,673	0	.19
8	148,526	6	0	0	0	0	0
9	62,597	6	0	0	0	0	0
10	83,761	6	0	0	55,621	0	.10

ZD1 Sheet 1 of 3

4 Proposed Floor Area *Required for all applications. One Use Group per line.*

Floor Number	Building Code Gross Floor Area (sq. ft.)	Use Group	Residential	Community Facility	Commercial	Manufacturing	FAR
11	69,579	6	0	0	55,291	0	.1
12	60,991	6	0	0	55,096	0	.1
13	60,658	6	0	0	54,654	0	.1
14	60,322	6	0	0	54,739	0	.1
15	59,980	6	0	0	54,100	0	.09
16	49,147	6	0	0	43,229	0	.08
17	59,286	6	0	0	53,369	0	.09
18	58,932	6	0	0	52,309	0	.08
19	58,573	6	0	0	52,776	0	.09
20	52,474	6	0	0	46,672	0	.08
21	57,086	6	0	0	0	0	0
21U	2,058	6	0	0	0	0	0
22	49,097	6	0	0	45,562	0	.08
23	44,914	6	0	0	31,462	0	.06
24	43,461	6	0	0	39,995	0	.07
25	43,054	6	0	0	39,663	0	.07
26	42,749	6	0	0	39,147	0	.07
27	42,444	6	0	0	38,905	0	.07
28	42,138	6	0	0	38,545	0	.07
29	41,832	6	0	0	38,264	0	.07
30	41,522	6	0	0	37,987	0	.07
31	41,207	6	0	0	37,615	0	.07
32	40,897	6	0	0	37,329	0	.07
33	40,587	6	0	0	37,052	0	.06
34	40,275	6	0	0	36,683	0	.06
35	39,966	6	0	0	36,398	0	.06
36	39,656	6	0	0	36,121	0	.06
37	39,347	6	0	0	35,727	0	.06
38	39,036	6	0	0	35,483	0	.06
Totals	cont.		0	0	cont.	0	cont.

Total Zoning Floor Area: cont.

6/09

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NYC Buildings
121186251

ZD1 Zoning Diagram
Must be typewritten.
Sheet 1 of 3

1 Applicant Information *Required for all applications.*
Last Name GREENE First Name MICHAEL Middle Initial
Business Name KOHN PEDERSEN FOX & ASSOCIATES Business Telephone (212) 977-6500
Business Address 11 WEST 42ND STREET Business Fax (212) 956-2526
City NEW YORK State NY Zip 10036 Mobile Telephone ( ) -
E-Mail MGREENE@KPF.COM License Number 027052

2 Additional Zoning Characteristics *Required as applicable.*
Dwelling Units Parking area sq. ft. Parking Spaces: Total 210 Enclosed 210

3 BSA and/or CPC Approval for Subject Application *Required as applicable.*
Board of Standards & Appeals (BSA)
☐ Variance Cal. No. Authorizing Zoning Section 72-21
☐ Special Permit Cal. No. Authorizing Zoning Section
☐ General City Law Waiver Cal. No. General City Law Section
☐ Other Cal. No.
City Planning Commission (CPC)
☐ Special Permit ULURP No. N150069ZCM Authorizing Zoning Section 93-122
☐ Authorization App. No. N150070ZCM Authorizing Zoning Section 93-122
☒ Certification App. No. N150071ZCM Authorizing Zoning Section 93-70
☐ Other App. No. N150072ZCM 93-70
N150073ZCM, N150132ZCM 93-70, 93-71

4 Proposed Floor Area *Required for all applications. One Use Group per line.*

Floor Number	Building Code Gross Floor Area (sq. ft.)	Use Group	Residential	Community Facility	Commercial	Manufacturing	FAR
39	38,688	6	0	0	0	0	0
39U	1,831	6	0	0	0	0	0
40	37,997	6	0	0	33,276	0	.06
41	37,689	6	0	0	34,667	0	.06
42	37,379	6	0	0	34,335	0	.06
43	37,069	6	0	0	34,043	0	.06
44	36,758	6	0	0	33,734	0	.06
45	36,447	6	0	0	33,403	0	.06
46	36,137	6	0	0	33,112	0	.06
47	35,826	6	0	0	32,802	0	.06
48	35,515	6	0	0	32,416	0	.06
49	35,205	6	0	0	32,159	0	.06

ZD1 Sheet 1 of 3

4 Proposed Floor Area *Required for all applications. One Use Group per line.*

Floor Number	Building Code Gross Floor Area (sq. ft.)	Use Group	Residential	Community Facility	Commercial	Manufacturing	FAR
50	34,895	6	0	0	31,862	0	.06
51	34,585	6	0	0	29,961	0	.05
52	34,273	6	0	0	29,421	0	.05
53	33,963	6	0	0	30,563	0	.05
54	33,652	6	0	0	30,399	0	.05
55	33,342	6	0	0	30,271	0	.05
56	33,031	6	0	0	29,961	0	.05
57	32,720	6	0	0	29,631	0	.05
58	32,409	6	0	0	29,339	0	.05
59	32,098	6	0	0	29,026	0	.05
60	31,751	6	0	0	0	0	0
60U	1,226	6	0	0	0	0	0
61	20,281	6	0	0	8,198	0	.01
61U	234	6	0	0	0	0	0
62	20,148	6	0	0	18,607	0	.03
63	19,844	6	0	0	18,264	0	.03
64	19,540	6	0	0	17,971	0	.03
65	19,803	6	0	0	0	0	0
66	18,611	6	0	0	0	0	0
66M	6,584	6	0	0	0	0	0
67	24,914	6	0	0	24,182	0	.04
68	15,820	6	0	0	14,991	0	.03
ROOF	2,179	6	0	0	0	0	0
CT ACCESS	0	6	0	0	0	0	0
J-BANK EMR	0	6	0	0	0	0	0
BMU ACCES	0	6	0	0	0	0	0
TMD ROOF	0	6	0	0	0	0	0
CROWN	0	6	0	0	0	0	0
Totals	cont.		0	0	cont.	0	cont.

Total Zoning Floor Area: cont.

6/09

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NYC Buildings
121186251

ZD1 Zoning Diagram
Must be typewritten.
Sheet 1 of 3

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E-Mail MGREENE@KPF.COM License Number 027052

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☒ Certification App. No. N150071ZCM Authorizing Zoning Section 93-70
☐ Other App. No. N150072ZCM 93-70
N150073ZCM, N150132ZCM 93-70, 93-71

4 Proposed Floor Area *Required for all applications. One Use Group per line.*

Floor Number	Building Code Gross Floor Area (sq. ft.)	Use Group	Residential	Community Facility	Commercial	Manufacturing	FAR
TOWER C - FILED UNDER SEPARATE APPLICATION (121324290) 501 WEST 30TH STREET							
	1,799,746				1,423,704		2.50
TOWER D - FILED UNDER SEPARATE APPLICATION (121184208) 553 WEST 30TH STREET							
	980,274		740,227				1.3
CULTURE SHED - FILED UNDER SEPARATE APPLICATION (121192397) 545 WEST 30TH STREET							
	129,338			76,302			.14
TOWER E - FILED UNDER SEPARATE APPLICATION (121192618) 560 WEST 33RD STREET							
	1,046,332		489,433		387,212		1.53

ZD1 Sheet 1 of 3

4 Proposed Floor Area *Required for all applications. One Use Group per line.*

Floor Number	Building Code Gross Floor Area (sq. ft.)	Use Group	Residential	Community Facility	Commercial	Manufacturing	FAR
Totals	7,860,940		1,229,660	76,302	4,875,034	0	10.8

Total Zoning Floor Area: 6,180,996

6/09

REPRINT OF ZD-1 FORM FOR TOWER A (APPLICATION # 121186251)
PROVIDED FOR REFENCE ONLY PER REQUEST OF NYC DOB

Hudson Yards Eastern Railyards		
Block/Lots	702 / 8001,8002, 8003, 4, 10, 125, 150, 175	
Zoning Map no.	8b/8d	
Zoning District	C6-4/HY (R10 Equivalent)	
	Large-Scale Plan Subdistrict A	
	Eastern Railyards Subarea A1	
Community District	4	
Zoning Lot Area	570,000	

Floor Area Allowed (ZR-93-21(b))		FAR	Max Zoning Area
	Max Commercial FAR	9	5,130,000
	Max Residential FAR	3	1,710,000
	Max Community Facility FAR	2	1,140,000
	Max on Zoning Lot (all uses combined)	11	6,270,000

Floor Area Proposed on ERY[1]

Building	Zoning Floor Area (ZFA): Commercial Use	Residential Use	Community Facility	Total Area by Building
Tower C	1,423,704			1,423,704
Tower A & Retail Podium[2]	3,064,118			3,064,118
Tower D		740,227		740,227
Culture Shed[3]			76,302	76,302
Tower E	387,212	489,433		876,645
Pavilion[4]	10,800			10,800
Vessel[5]	0			0
Total ZFA on ERY by Use	**4,885,834**	**1,229,660**	**76,302**	
Total FAR on ERY by Use	**8.572**	**2.157**	**0.134**	
Total ZFA on ERY (all uses)	**6,191,796**			
Total FAR on ERY (all uses)	**10.863**			

1- Areas shown are a compilation of the areas shown on each individual building's application currently on file with the Department of Buildings. These areas are compiled to provide an overview of proposed development on the entire zoning lot. Refer to individual building applications for all other zoning compliance information, including, but not limited to, building location, setbacks and detailed floor area information.

2- Floor area shown on Platform, application # 121331763 is not included above as area is now included in Tower A / Retail Podium application #121186251

3- Floor area shown on Mini-D, application # 121331193 is not included above as area is now included in Culture Shed filing - application #121192397

4- Pavilion has not yet been filed. Area shown is the maximum area allowed under zoning resolution (ZR-93-71(b))

5- Vessel is an art piece functioning as an elevated aerial walkway which is unenclosed and contains no floor area as defined in ZR 12-10.

ZR 23-24 / 35-40 - DWELLING UNITS

Dwelling unit counts shown below provided for overview of zoning lot, refer to individual buidling applications for dwelling unit compliance

D.U. Factor (R10 Equivalent)	790
Max FA on site	6,270,000
Commercial FA used	4,885,834
Community Faciliy FA used	76,302
Max Residential FA available on site	1,307,864
Max Number of Dwelling Units	**1,656**

	Dwelling units Provided	
Tower D (#121184208)	391	
Tower E (#121192618)	137	
Total Dwelling Units Provided	**528**	**< 1,677 COMPLIES**

ZR 33-03 / 93-62 - STREET TREES

Frontage along 33rd Street: 800'	
Frontage along Tenth Ave.: 712.5'	
Frontage along 30th Street: 800'	
Frontage along Eleventh Ave.: 712.5'	**121 Trees Required**
Total Frontage: 3,025' / 25' = 121 Trees	**61 Provided**

Note: Trees not provided at curb cuts, underneath existing highline, above DEP water tunnel infrastructure, or along Eleventh Avenue viaduct due to infeasibility of planting.
Refer to individual building applications for further information

ZR 36-62 - OFF-STREET LOADING REQUIREMENTS

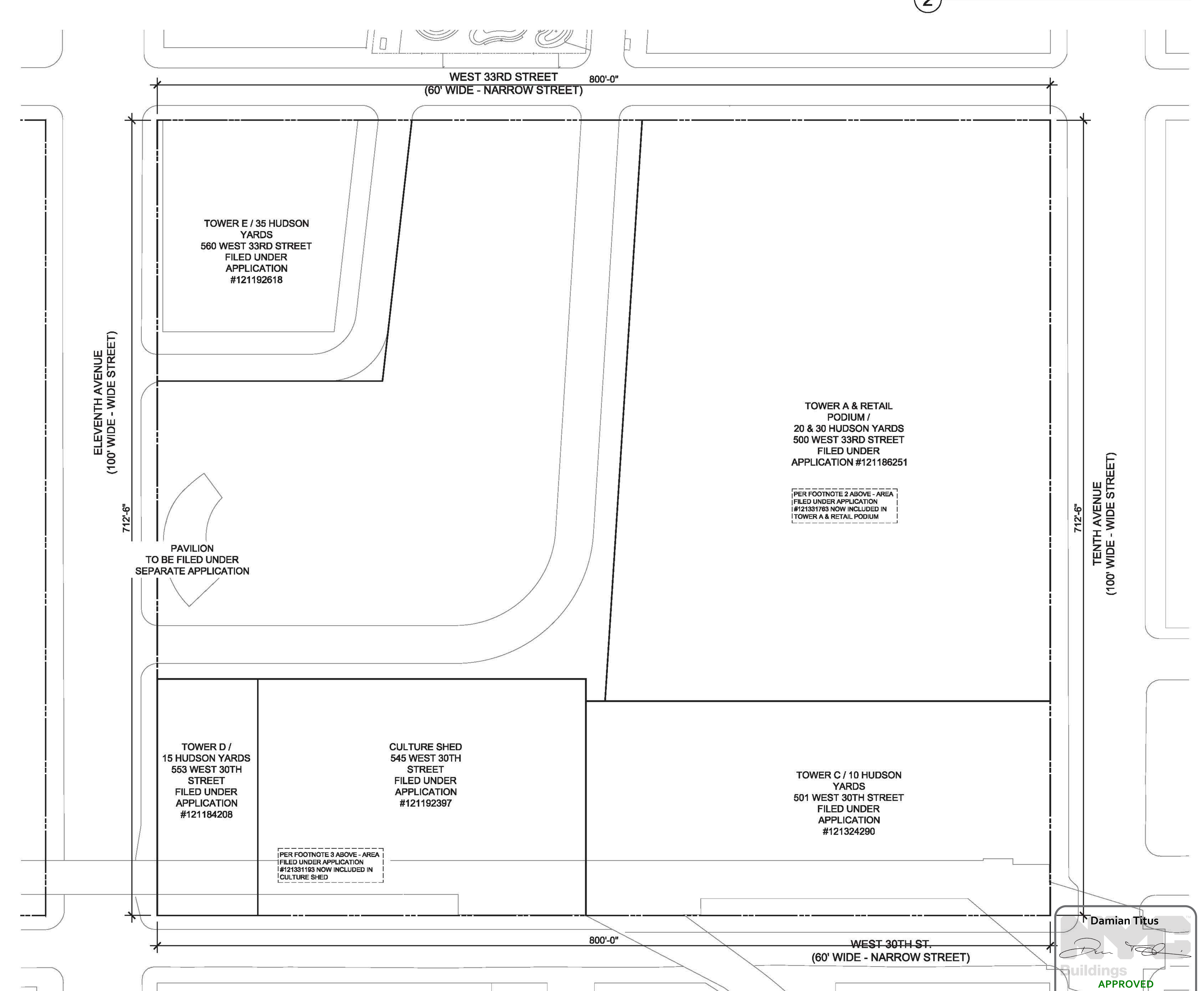
COMPLIANCE WITH ZR 36-62 - REQUIRED ACCESSORY OFF-STREET LOADING BERTHS IS SHOWN ON INDIVIDUAL APPLICATIONS

ZR 36-70 - BICYCLE PARKING

SEE INDIVIDUAL APPLICATIONS FOR DETAILED COMPLIANCE WITH ZR 36-70 - SUMMARY OF COMPLIANCE SHOWN BELOW

	REQUIRED SPACES	PROVIDED SPACES	
TOWER C	189	189	COMPLIES
TOWER A & RETAIL PODIUM	377	377	COMPLIES
TOWER D	195	258	COMPLIES
CULTURE SHED	10	10	COMPLIES
TOWER E	113	113	COMPLIES
PAVILION	NOT YET FILED	NOT YET FILED	N/A
TOTALS	**884**	**947**	**COMPLIES**

2 MASTER PLAN ZONING NOTES



1 SITE PLAN
SCALE: NTS

Damian Titus
NYC Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

FOR REFERENCE ONLY
THIS PAGE WAS ORIGINALLY PREPARED UNDER
NB APPLICATION #121186251
BY KOHN PEDERSON FOX ASSOCIATES, PC

DEPT OF BLDGS 121191183 Job Number
ES264537615 Scan Code

HUDSON YARDS-
EASTERN RAILYARDS

Block 702
New York, NY

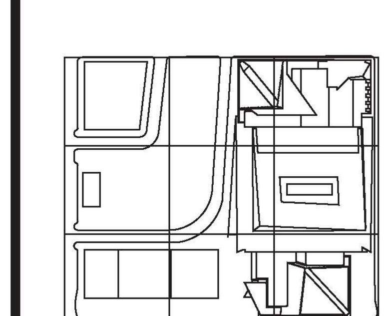
Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.986.7510

Architect
Kohn Pedersen Fox Associates PC
Architects & Planning Consultants
11 West 42nd Street
New York, NY 10036
Tel: 212.977.6500 Fax: 212.956.2526

No.	Issue	Date
12	D.O.B. BUILDING PERMIT FILING	11/30/2016
11	D.O.B. BUILDING PERMIT FILING	10/15/2016
10	D.O.B. BUILDING PERMIT FILING	8/17/2016
9	D.O.B. BUILDING PERMIT FILING	5/27/2016
8	D.O.B. BUILDING PERMIT FILING	5/9/2016
7	D.O.B. BUILDING PERMIT FILING	1/8/2016
6	D.O.B. BUILDING PERMIT FILING	11/13/2015
5	D.O.B. BUILDING PERMIT FILING	7/31/2015
4	D.O.B. BUILDING PERMIT FILING	4/17/2015
3	D.O.B. BUILDING PERMIT FILING	4/10/2015
2	D.O.B. BUILDING PERMIT FILING	4/2/2015
1	D.O.B. BUILDING PERMIT FILING	2/26/2015

Key Plan



Date 6/20/2014
Project No. 1776
Drawn By
Sheet Number
HYE-ERY-Z-000-00
Drawing Title
ZONING
FLOOR AREA
MASTER PLAN
Drawing Number
Z0-000
B-Scan Drawing Number
Z-000.00

SHEET 1 OF X

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Filename: P:\Projects\1776_WestSideYards\Documents\Zoning\KPF\002_ZoningDOB\Zoning_MasterPlan\HYE-ERY-Z-000-00.dwg Plotted by: Fitzgerald-Green, Robin Plot Time: 4/10/2015 6:02 PM

CERT OF BLDG 121191185 Job Number
E3921169001 Scan Code

ZR-11	Block	**702**	
	Lot	**175**	
	Zoning District	**C6-4/HY** (Special Hudson Yards District) **Large-Scale Plan Subdistrict A** **Eastern Railyards Subarea A1**	
	Zoning Map	**8b/8d**	
	Zoning Lot Area	**570,000 sf**	
ZR 13		N/A per ZR 93-80	
ZR 14		N/A	
ZR 15		N/A not a residential alteration	
ZR 32	**USE REGULATIONS**		
ZR 32-10		**Uses Permitted** Use Group 1-12 **Uses Provided** Use Group 12 proposed	
ZR 32-60	**SIGN REGS**	No signage under this application	Complies
ZR 33-03 / 93-62	**STREET TREES**	Frontage along 33rd Street: 800' Frontage along Tenth Ave.: 712.5' Frontage along 30th Street: 800' Frontage along Eleventh Ave.: 712.5' Total Frontage: 3,025' / 25' = 121 Trees **121 Trees Required** **61 Provided** Note: Trees not shown at curb cuts, underneath existing highline, above DEP water tunnel infrastructure, or along Eleventh Avenue viaduct due to infeasibility of planting.	Complies

ZR 36-62	**OFF-STREET LOADING**	No floor area proposed - no off-street loading required, none proposed.	Complies
ZR 36-70	**BICYCLE PARKING**	None required per 36-711	Complies
ZR 93-12		N/A No Residential Proposed under this application	
ZR 93-14	**RETAIL AND GLAZING REQUIREMENTS**	N/A	Complies
ZR 93-15	**SECURITY GATES**	No security gates proposed under this application	Complies
ZR 93-17	**SIGNAGE**	No signage under this application	Complies
ZR 93-18	**NON-CONFORMING USES**	N/A - Nothing in Use Group 16 being proposed	
ZR 93-19	**ELECTRICAL SUBSTATION**	N/A - no Electrical Substations proposed	
ZR 93-21(b)	**Floor Area**	No floor area proposed under this application	Complies
ZR 93-31		N/A to subarea A1	
ZR 93-32		N/A to subarea A1	
ZR 93-33		N/A to subarea A1	
ZR 93-34		N/A no redistribution from subarea A1 proposed under this application	

ZR 93-514	**HEIGHT AND SETBACK REGULATIONS**	Not applicable	Complies
ZR 93-514	**LOCATION OF BUILDINGS**	See Site Plan - Drawing 01/Sheet Z-001.00	Complies
ZR 93-514(a)(4)	**BUILDING LOCATION AT SPUR**	N/A - proposed building does not face highline	Complies
ZR 93-60	**MANDATORY IMPROVEMENTS**		
ZR 93-61 / 93-A4	**Sidewalk Widenings**	See Site Plan - Drawing 1/Sheet Z-001.00	Complies
ZR 93-63	**Pedestrian Circulation Space**	N/A per 93-63(d)	
ZR 93-64	**Major Building Entrances**	N/A to subarea A1	
ZR 93-66	**Open Area Requirements in Large-Scale Plan Subdistrict A**	N/A to subarea A1	
ZR 93-70	**PUBLIC ACCESS REQUIREMENTS**	For compliance with public access requirements see Application #121186251	Complies
ZR 93-71		See application #121186251	Complies
ZR 93-71 (c)		See application #121186251	Complies

ZR 93-72		N/A to subarea A1	
ZR 93-73		N/A to subarea A1	
ZR 93-74		N/A to subarea A1	
ZR 93-75		N/A to subarea A1	
ZR 93-76		N/A to subarea A1	
ZR 93-77		N/A to subarea A1	
ZR 93-78		N/A to subarea A1	
ZR 93-80	**PARKING**		
ZR 93-821(d)		Permitted 350 Provided 252 - under application #121324290	Complies
ZR 93-822		N/A to subarea A1	
ZR 93-83	**Use and Location of Parking Facilities**	All parking located above grade is located such that no portion of such parking facility is visible from adjoining streets or publicly accessible open areas. See application #121324290 under which parking is proposed.	Complies
ZR 93-831	**Authorization for above-grade parking**	N/A - above grade parking complies with paragraph b of Section 93-83.	
ZR 93-84	**Curb Cut Restrictions**	No curb cuts for parking facilities or loading berths proposed under this application	Complies
ZR 93-841		N/A to subarea A1	
ZR 93-842		N/A to subarea A1	
ZR 93-85		N/A to subarea A1	
ZR 93-90	**Harassment**	N/A - no residential proposed under this application	
ZR 93-91	**Demolition**	N/A - no demolition of "Multiple Dwelling" proposed under this application	

2 ZONING CALCULATIONS

CORNER LOT #1: (30.4 + 82.5)/2 × 20.4 = 1,271 → (201.17 + 30.96')/2 × 201.17 = 31.94'/2 → + 31.29'

INTERIOR LOT #1: 82.5 × 30.96' / 2 × 29.66' → + 29.46'

CORNER LOT #2: (82.5 + 75')/2 × 20.4 = 1,623 → (229.96' × 29.96')/2 × (229.96' × 29.3')/2 → + 27.85'

THROUGH LOT PORTION #2: 75' × 20.4 / 2 × 35.3' / 2 × 13.93' → + 20.61'

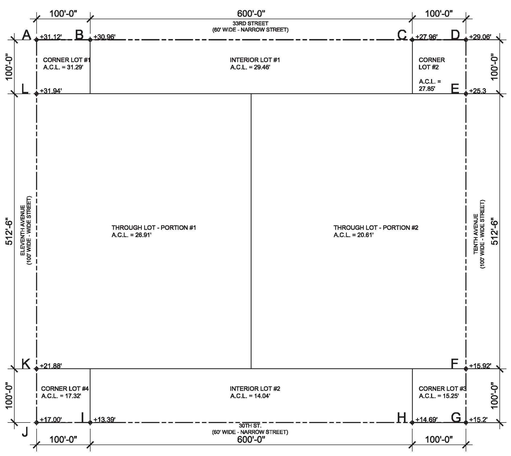
CORNER LOT #3: (87 × 16.5')/2 × (83 × 9.5')/2 → (153.53' × 13.73')/2 × (153.3' × 34.93')/2 → + 15.25'

INTERIOR LOT #2: 75' × 87' / 2 × 14.03' / 2 × 13.35' → + 14.04'

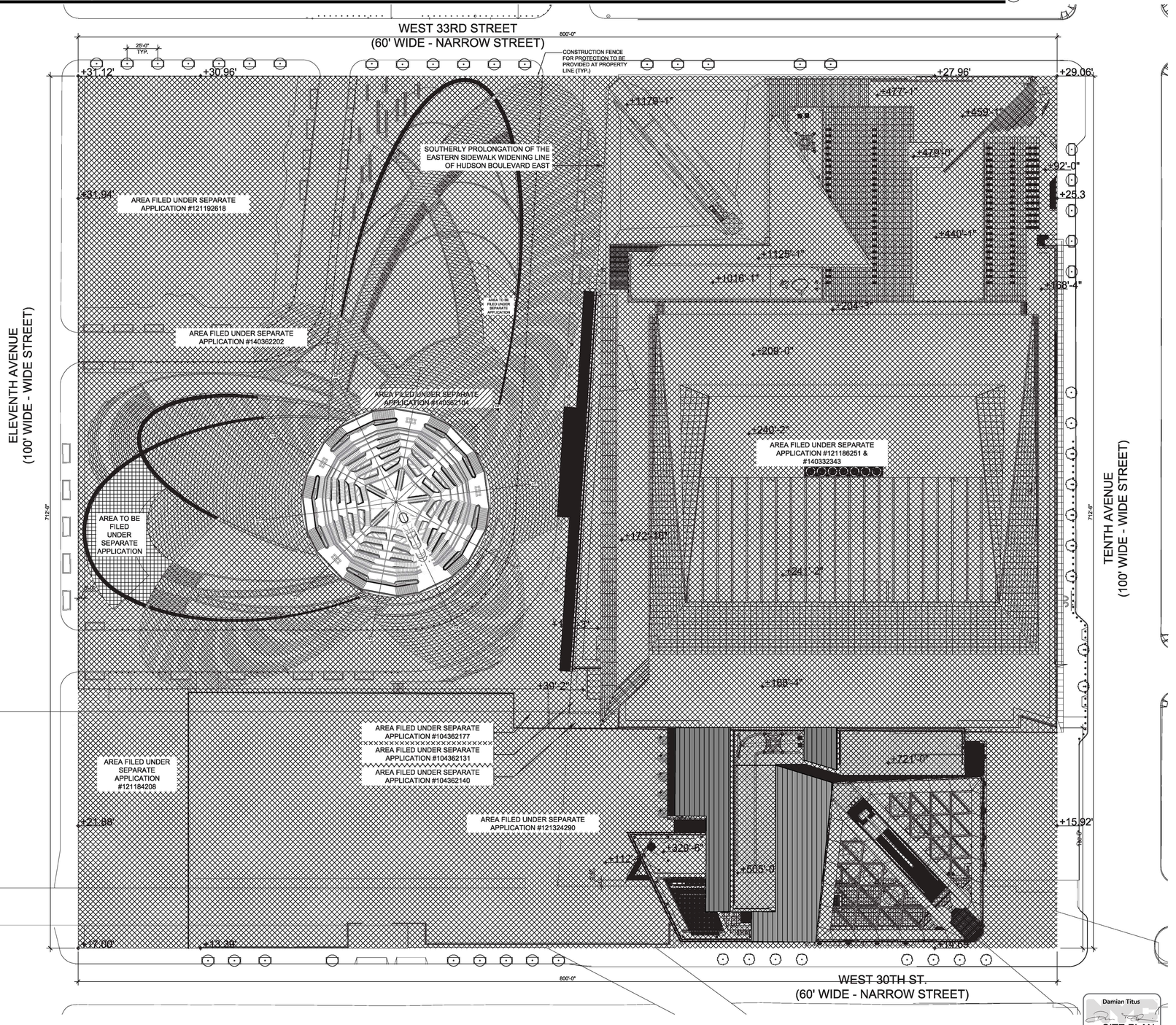
CORNER LOT #4: (82 × 16.5')/2 × (82 × 9.5')/2 → (113.39' × 13.73')/2 × (13.3' × 31.88')/2 → + 17.32'

THROUGH LOT #1: 75' × 87' / 2 × 31.88' / 2 × 31.56' → + 26.91'

4 CURB LEVEL CALCULATION
SCALE: 1/128"=1'-0"



3 CURB LEVEL PLAN
SCALE: 1/128"=1'-0"



Page 2 December 23, 2013

not diminish its essential character as "[a] publicly accessible space, open to the sky." See 93-71(b). In this regard, we note that the "Hudson Yards-Vessel" is proposed as a multi-level aerial walkway system that is open to the sky and the elements and does not cover the Outdoor Plaza as would a cantilever or similar building feature. As such, we believe that for purposes of calculating its contribution towards the ten percent limit, it would be appropriate to include only the area occupied by the base of the structure.

The views expressed herein are limited to the application of Section 93-71 to the "Hudson Yards-Vessel" generally as depicted in the June 17, 2013 renderings. We express no views herein concerning the merits of the "Hudson Yards-Vessel" design or its function as an amenity in the Outdoor Plaza.

Sincerely,

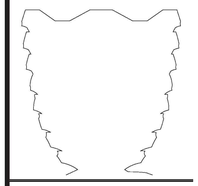
David Karnovsky

C: F. Ruchala

REPRINT OF LETTER FROM NYC DEPARTMENT OF CITY PLANNING

HUDSON YARDS-VESSEL

530 W 33RD STREET
New York, NY



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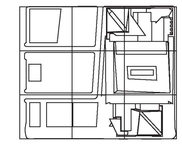
Key Plan



Date 9/10/2015
Project No. 2298.02
Drawn By
Sheet Number HYE-VS-Z0-0001
Drawing Title

ZONING
SITE PLAN
NOTES
AVG. CURB

Drawing Number Z-001.00

1 SITE PLAN
SCALE: 1/128"=1'-0"

Damian Titus
Under Directive 2 of 1975
Date: 12/07/2016

SHEET 1 OF 1

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Filename: Q:\Projects\2298_HY\Overbuild\2298-N-002 Vessel\Documents\Zoning\02_Zoning\DOB\Sheets\HYE-VS-Z0-0001.dwg Plotted by: Fitzgerald-Green, Robin Plot Time: 9/11/2015 3:11 PM

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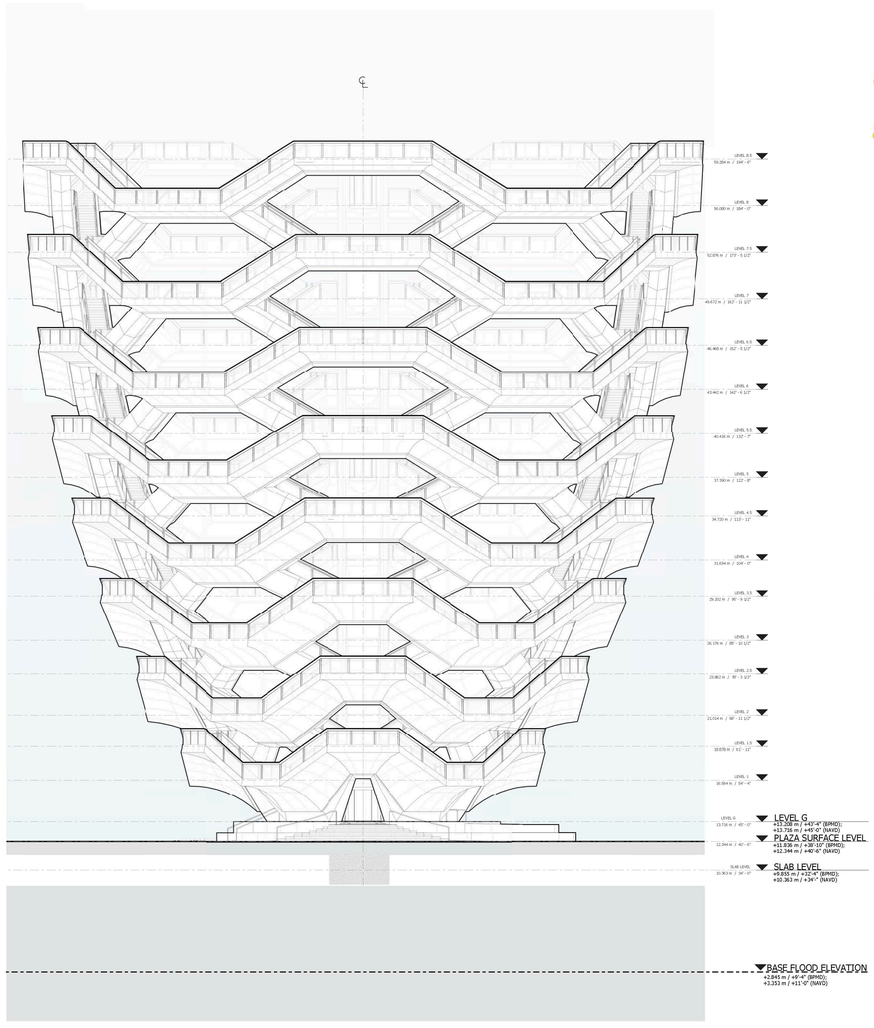


SECTION FLOOD LEVEL AT VESSEL

CODE SUMMARY

APPLICABLE CODES

2014 NEW YORK CITY BUILDING CODE
2014 NEW YORK CITY MECHANICAL CODE
2014 NEW YORK CITY FIRE CODE
2014 NEW YORK CITY PLUMBING CODE
2014 NEW YORK CITY ELECTRICAL CODE (BASED ON 2005 NEC)
AMERICANS WITH DISABILITIES GUIDELINES (ADAAG) 2003 ICC/ANSI 117.1

OCCUPANCY GROUPS

A-5 ASSEMBLY

THE BUILDING WILL BE CONSTRUCTED USING THE NONSEPARATED MIXED USE PROVISIONS OUTLINED IN SECTION 508.3.2 OF THE BUILDING CODE.

TABLE 503
CONSTRUCTION CLASSIFICATION
CONSTRUCTION TYPE: TYPE IIB
AUTOMATIC SPRINKLERS: NO

IN ACCORDANCE WITH NONSEPARATED MIXED USE PROVISIONS OF THE BUILDING CODE, THE HEIGHT AND AREA OF THE BUILDING MUST COMPLY WITH THE MOST RESTRICTIVE HEIGHT AND AREA REQUIREMENTS FOR THE OCCUPANCY CLASSIFICATIONS OF THE BUILDING AND THE CONSTRUCTION TYPE.

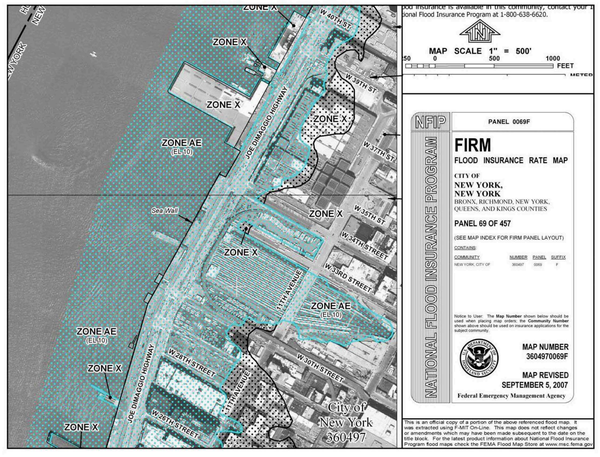
ALLOWABLE BUILDING AREA: UNLIMITED
ALLOWABLE BUILDING HEIGHT: UNLIMITED

CONSTRUCTION REQUIREMENTS

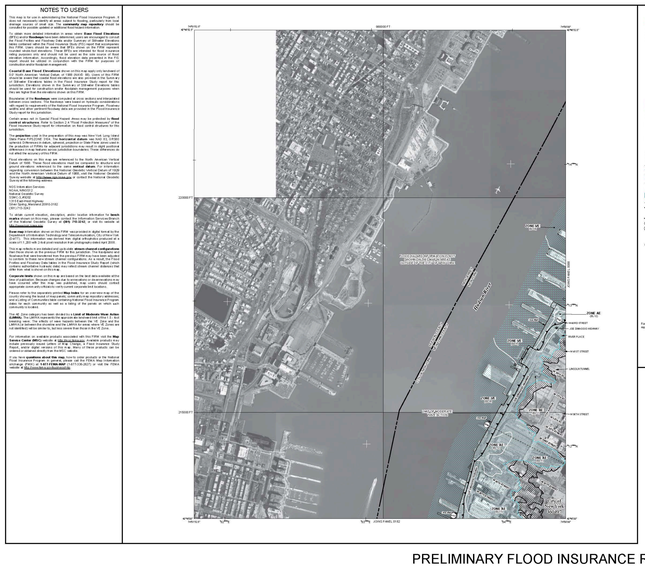
FIRE RESISTANCE OF STRUCTURAL ELEMENTS MUST BE IN ACCORDANCE WITH THE FOLLOWING:
TABLE 601 & 602

BUILDING ELEMENT	FIRE RESISTANCE RATING (IN HOURS)
PRIMARY STRUCTURAL FRAME	0
BEARING WALLS EXTERIOR INTERIOR	0 0
NONBEARING WALLS AND PARTITIONS EXTERIOR	0
NONBEARING WALLS AND PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION AND SECONDARY MEMBERS	0
ROOF CONSTRUCTION AND SECONDARY MEMBERS	0

1. EXTERIOR FIRE SEPARATIONS ARE MEASURED PERPENDICULARLY FROM THE BUILDING FACE TO THE CLOSEST INTERIOR LOT LINE, TO THE CENTERLINE OF A STREET OR PUBLIC WAY, OR TO AN IMAGINARY LINE BETWEEN TWO BUILDINGS ON THE SAME PROPERTY.



FLOOD INSURANCE RATE MAP(2007)



PRELIMINARY FLOOD INSURANCE RATE MAP (2013)

ALL WORK ABOVE BASE FLOOD ELEVATION

DEPARTMENT OF BUILDINGS NOTES

NOTIFICATION OF THE DEPARTMENT: NOTIFICATION TO BE PROVIDED TO DEPARTMENT OF BUILDINGS 24-48 HOURS PRIOR TO COMMENCEMENT OF EARTHWORK, AS PER BC 3304.3.1.

NOTIFICATION OF ADJACENT BUILDING OWNERS: WRITTEN NOTIFICATION TO BE PROVIDED TO ADJACENT BUILDING OWNERS NOT LESS THAN 10 DAYS PRIOR TO COMMENCEMENT OF EXCAVATION WORK, AS PER BC 3304.3.2.

DUTIES AND POWERS OF COMMISSIONER OF BUILDINGS: AUTHORITY TO RENDER INTERPRETATIONS AND TO ADOPT RULES ESTABLISHING POLICIES AND PROCEDURES HELD BY THE COMMISSIONER OF BUILDINGS, AS PER BC 104.

STRUCTURAL DESIGN: BUILDING, STRUCTURES, AND PARTS THEREOF ARE DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH STRENGTH DESIGN, LOAD AND RESISTANCE FACTOR DESIGN, ALLOWABLE STRESS DESIGN, EMPIRICAL DESIGN, OR CONVENTIONAL CONSTRUCTION METHODS, AS PER REQUIREMENTS OF 2014 NYC BUILDING CODE, BC 1604. REFER TO STRUCTURAL DRAWINGS FOR FURTHER INFORMATION.

MECHANICAL EQUIPMENT AND BUILDING SYSTEMS: MECHANICAL EQUIPMENT SHALL BE CONSTRUCTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE 2014 NYC MECHANICAL CODE AND 2014 NYC FUEL GAS CODE, AS PER BC 2801.1. REFER TO MECHANICAL DRAWINGS FOR FURTHER INFORMATION.

PLUMBING SYSTEMS: PLUMBING SYSTEM AND EQUIPMENT SHALL BE CONSTRUCTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE 2014 NYC BUILDING CODE, AS PER BC 2901.1. REFER TO PLUMBING DRAWINGS FOR FURTHER INFORMATION.

SOILS AND FOUNDATIONS: BUILDING AND FOUNDATION SYSTEM DESIGNED AS PER REQUIREMENTS OF BC 1801.

FOOTINGS AND FOUNDATIONS: FOOTINGS AND FOUNDATIONS DESIGNED AS PER REQUIREMENTS OF BC 1805.

PLUMBING SYSTEMS: PLUMBING SYSTEMS DESIGNED AS PER REQUIREMENTS OF BC 2901 AND BC 401.

SEISMIC DESIGN PROVISIONS: CONCRETE COMPONENTS THAT RESIST SEISMIC FORCES DESIGNED AS PER REQUIREMENTS OF BC 1910 AND LL 17/96.

TRANSIT AUTHORITY APPROVAL: PROJECT IS NOT WITHIN 200' OF TRANSIT AUTHORITY.

ENERGY CODE: TBD, NO ENCLOSED STRUCTURES, NO CHANGE TO BUILDING ENCLOSURE, AND NO MECHANICAL SYSTEMS.

FLOOD ZONE NOTES:
BASE FLOOD ELEVATION IS +9'-4" (BPMD)/ +11'-0" (NAVD)
ALL WORK LOCATED ABOVE BASE FLOOD ELEVATION

SPECIAL INSPECTIONS	CODE/SECTION
FIRE-RESISTANT PENETRATIONS AND JOINTS	BC 1704.27
FLOOD ZONE COMPLIANCE	BC 1704.29/BC G105

PROGRESS INSPECTIONS	CODE/SECTION
ENERGY CODE COMPLIANCE INSPECTIONS	BC 109.3.5
OTHERS TBD	

ASSOCIATED APPLICATIONS	DATE FILED	APP #
PLATFORM NEW BUILDING		121331763
TOWER C NEW BUILDING		121324290
TOWER D NEW BUILDING		121184208
TOWER A NEW BUILDING		121186251
RETAIL PODIUM ALTERATION		140332343
TOWER E NEW BUILDING		121192618
CULTURAL SHED		121192397

HISTORIC LANDMARK STRUCTURES: PROPOSED WORK IS NOT WITHIN 90' OF ANY ADJACENT HISTORIC LANDMARK STRUCTURES, TPPN 10/88 THEREFORE NOT APPLICABLE. LANDMARK MAP SHOWN BELOW.

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

HUDSON YARDS-VESSEL

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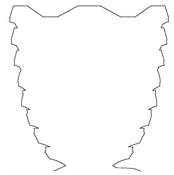

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Project No. 2298.02
Drawn By
Sheet Number HYE-VS-A-002

REGISTERED ARCHITECT ANTHONY MORRIS 034343 STATE OF NEW YORK

Drawing Title

BUILDING DEPARTMENT NOTES & FEMA MAP

Drawing Number

A-001.00

SHEET 01 OF 86

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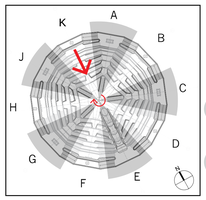
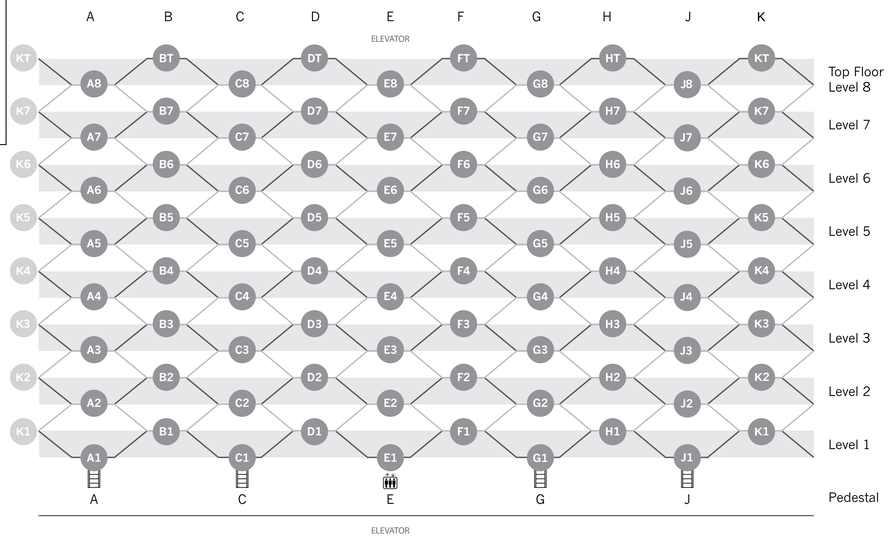




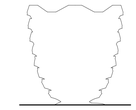
CODE	ELEMENT	DESCRIPTION
S-1	**INTERLAYER (WHERE VISIBLE)**	• Carbon steel • Grey to match RAL 7021 (Black Grey) • (Colour to be confirmed in mockup)
S-2	**EXPOSED STRUCTURAL DECK**	• Structural steel deck • (Colour to be confirmed in mock-up)
PC-1	**PLATFORM PAVING**	• Precast concrete paver with exposed aggregate • 2' x 2' x 2.5" paver size • Benchmark sample 'Wausau Tile' H15-266 (To be confirmed in mock up) • Rough finish
PC-3	**STAIR TREADS AND RISERS**	• Moulded precast concrete stair tread with exposed aggregate • Tread and riser as one element spanning full width of stair • To match 'Wausau Tile' H15-266 (To be confirmed in mock up) • Rough finish
PC-4	**LEAN RAIL**	• Precast concrete leanrail with exposed aggregate • Elements to span distances between guardrail posts • To match 'Wausau Tile' H15-266 (To be confirmed in mock up) • Smooth polished finish (finish and colour to be confirmed in mockup)
SS-1	**SOFFIT CLADDING** **GUARDRAIL LEAN RAIL FASCIA**	• 316L, 3mm stainless steel • 1.4m/1.5m maximum panel width • #7 mirror finish and with copper colour PVD • To match approved sample: VES-XX-SA-XX0024 • 316L, 2mm stainless steel external fascia • Joint lines to align with posts • #7 mirror finish and with copper colour PVD • To match approved sample: VES-XX-SA-XX0024
SS-2	**GUARDRAIL HANDRAIL**	• 316L stainless steel • 3mm thickness • (Profile and surface finish to be confirmed in mockup)
SS-3	**GUARDRAIL POST**	• 2205 solid stainless steel • Water jet cut edges and matt finish sides • Exposed weld to match stainless steel colour • (Surface finish to be confirmed in mockup)
SS-4	**GUARDRAIL UPSTAND** **GUARDRAIL LEAN RAIL INBOARD FASCIA**	• 316L stainless steel • 3mm thickness • (Heavy shot peened finish to be confirmed in mockup) • 316L stainless steel • 2mm thickness • (Heavy shot peened finish to be confirmed in mockup)
G-1	**GUARDRAIL GLASS**	• Laminated clear glazing - low iron
ST-1	**PEDESTAL WALKING SURFACE**	• Granite 'Jet Mist' • Flamed finish
ST-2	**PEDESTAL TERRACE HORIZONTAL SURFACE**	• Granite 'Jet Mist' • Rough surface finish TBD
ST-3	**PEDESTAL TERRACE VERTICAL SURFACE**	• Granite 'Jet Mist' • Smooth surface finish TBD
SS-5	**PEDESTAL LIGHTING GRILL**	• Stainless Steel
SS-6	**PEDESTAL HANDRAILS**	• 316L Stainless Steel • 3mm thickness • (Profile and surface finish to be confirmed in mockup)
M-1	**ELEVATOR CAR EXTERNAL FRAMING/SURFACES** **ELEVATOR ENTRANCE / BARRIER FRAMING**	• Stainless Steel • Non-Directional Finish
G-2	**ELEVATOR CAR GLAZING** **ELEVATOR ENTRANCE / BARRIER GLAZING**	• Laminated clear glazing - Low Iron
M-2	**ELEVATOR CAR VERTICAL INTERNAL SURFACES**	• Cast steel painted finish
M-3	**ELEVATOR CAR FLOOR**	• Same as M-1
M-4	**ELEVATOR CEILING**	• Same as M-1
ME-1	**SECURITY GATES**	• TBD

METRIC SCALE	IMPERIAL SCALE (Nearest equivalent to metric)
1:1	FULL SIZE
1:2	HALF SIZE
1:5	3"= 1'-0"
1:10	1 1/2"=1'-0"
1:20	3/4"=1'-0"
1:25	1/2"=1'-0"
1:30	3/8"=1'-0"
1:50	1/4"=1'-0"
1:100	1/8"=1'-0"
1:200	1/16"=1'-0"
1:250	1"=20'-0"
1:500	1"=80'-0"

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016.
NYC Development Hub

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY



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Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORETTI
026443
STATE OF NEW YORK

HYE-VS-A-001

Drawing Title

MATERIAL SCHEDULE, SCALE CONVERSION, AND SIGNAGE CONCEPT

Drawing Number
A-002.00

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A-001
25/05/2016 18:40:05
MATERIAL SCHEDULE SHEET
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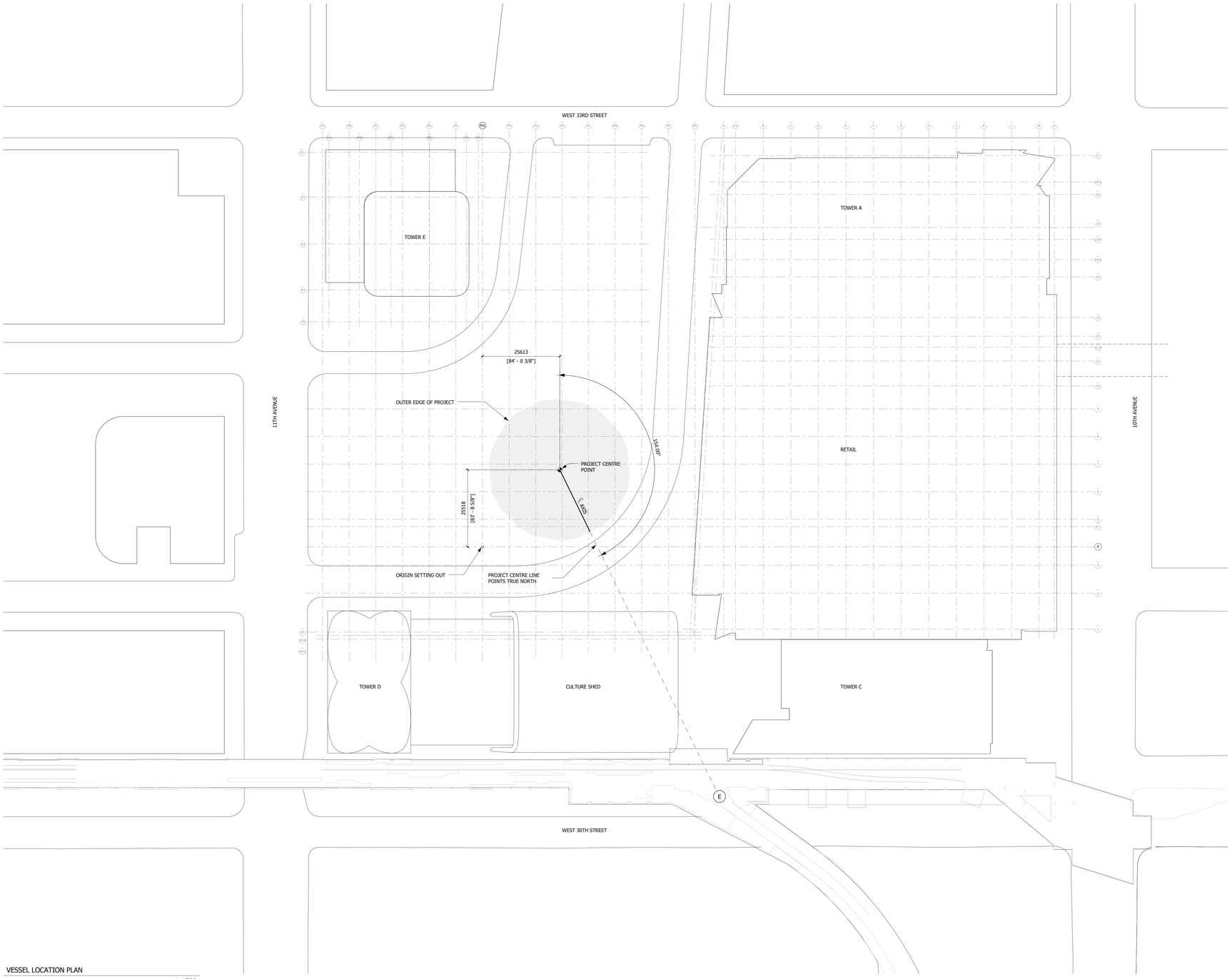
DEPT OF BLDGS 121191185 Job Number
ES2478R1R5 Scan Code



1 VESSEL LOCATION PLAN

1 : 500

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

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Drawing Number
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A-010
25/05/2016 18:40:19
VESSEL_LOCATION PLAN
C:\BIM\13_VESSEL_MASTER_laurence.rvt

EXIST OF BLOCK 3719185 Job Number
ES 0401260 Scan Code

NOTES:

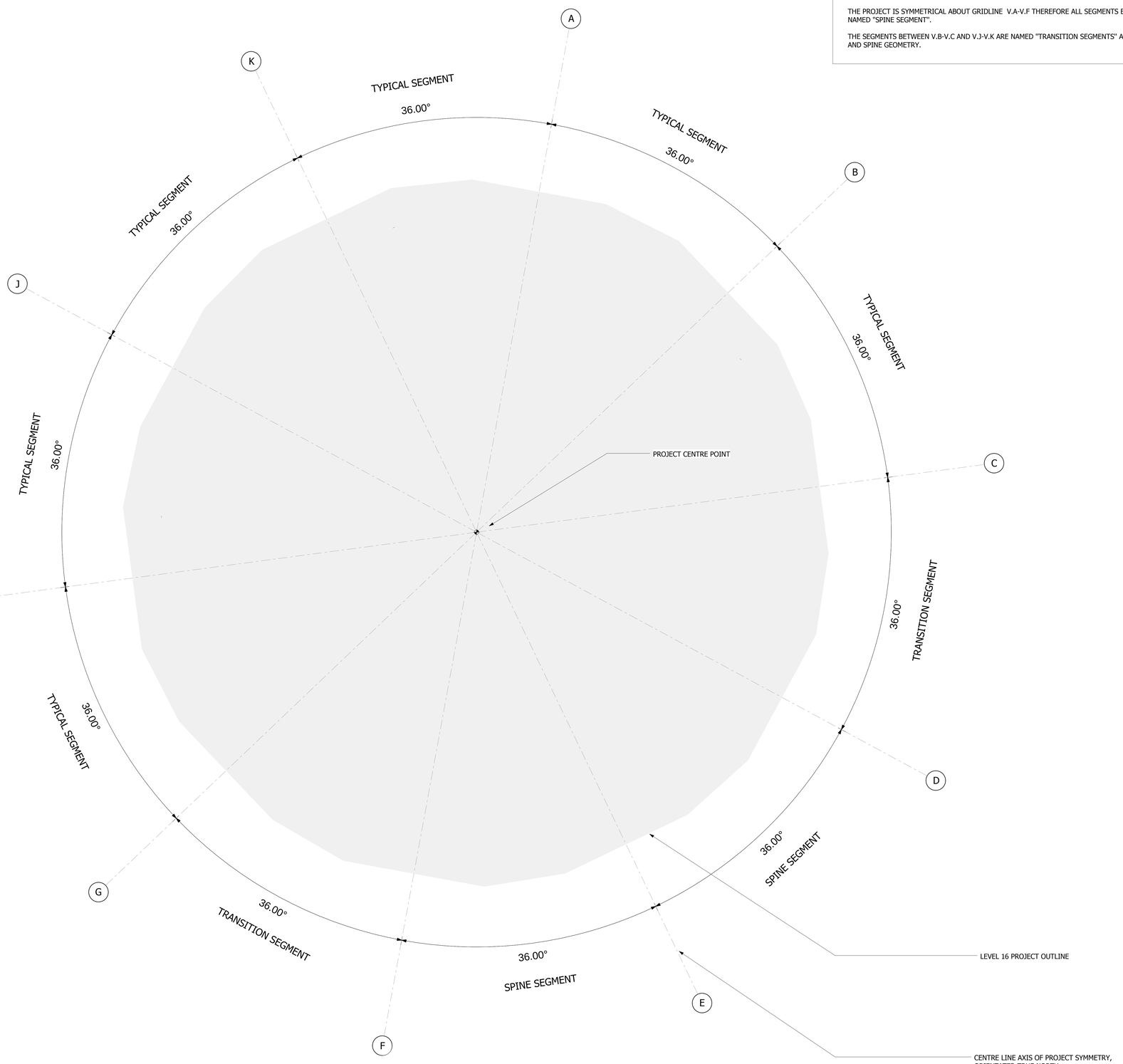
PROJECT SET OUT ON A RADIAL GRID WITH ROTATIONALLY SYMMETRICAL AND MIRRORED SEGMENTS.

THERE ARE 10 GRIDLINES V.A - .VK.

AT GRIDLINE VA-VA SPINE ELEMENT SUPPORTS AN ELEVATOR TRACK.

THE PROJECT IS SYMMETRICAL ABOUT GRIDLINE V.A-V.F THEREFORE ALL SEGMENTS BETWEEN GRIDLINES V.A-V.B AND V.K-V.A ARE NAMED "SPINE SEGMENT".

THE SEGMENTS BETWEEN V.B-V.C AND V.J-V.K ARE NAMED "TRANSITION SEGMENTS" AS THEY TRANSITION BETWEEN THE TYPICAL AND SPINE GEOMETRY.



1 SET OUT PLAN

1 : 100

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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Executive Architect
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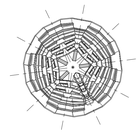
Key Plan



Date: 08/29/14
Project No. 220807
Drawn By
Sheet Number **HYE-VS-A-020**

Drawing Title

PROJECT SETTING OUT PLAN

Drawing Number
A-020.00

Damian Titus
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Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

SHEET 04 OF 86

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A.020
25/03/2016 18:40:36
PROJECT SETTING OUT PLAN
C:\BIM\731_VESSEL_MASTER_lawrence.rvt

DEPT OF BUILDINGS 321191185 Job Number
B10958130RB Scan Code

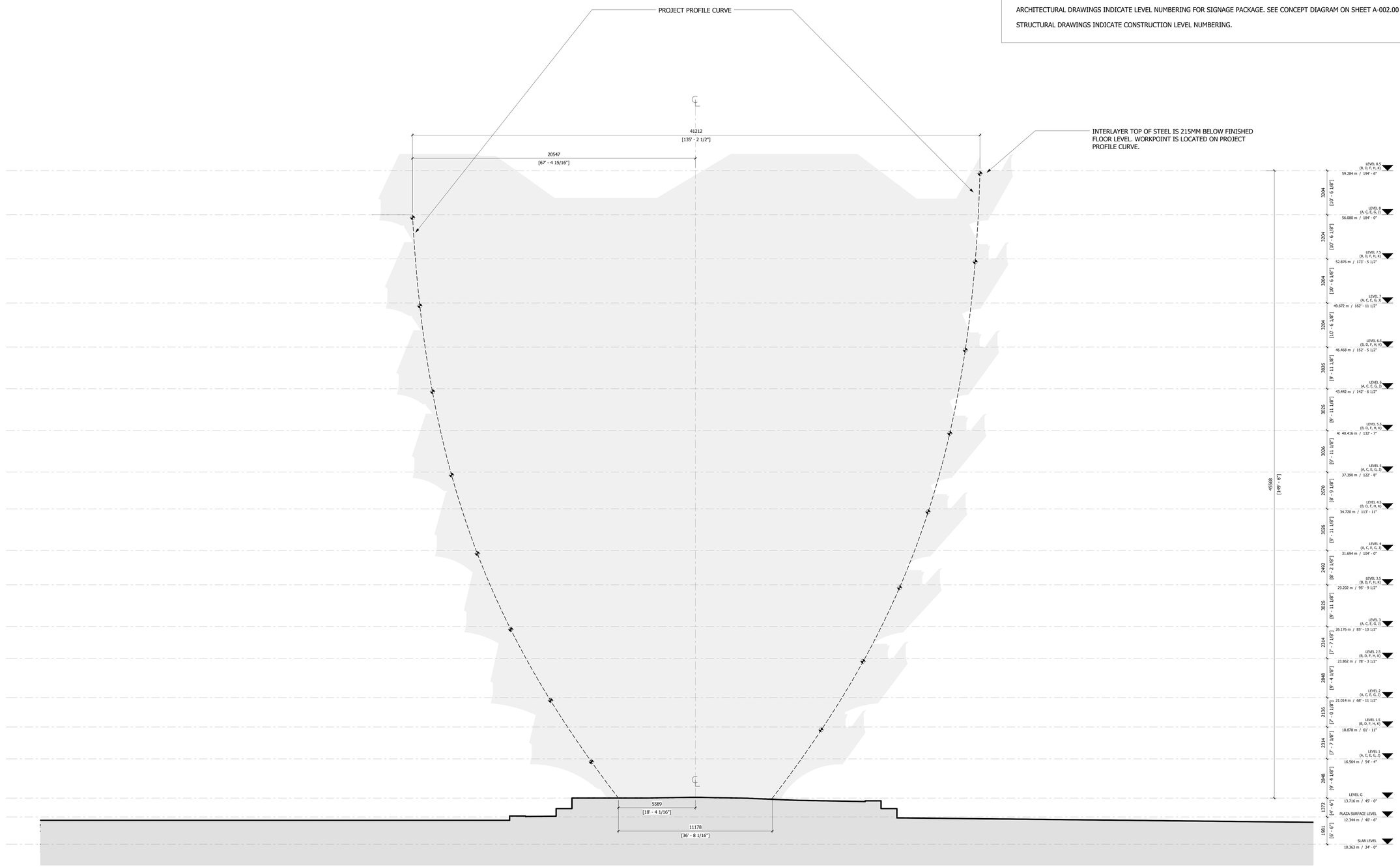
NOTES:

PROJECT HAS 8.5 LEVELS, EACH LEVEL GROWS IN CIRCUMFERENCE AS YOU ASCEND THE PROJECT.

WORKPOINTS SETOUT TO TOP OF STEEL WHICH IS 215MM BELOW FINISHED FLOOR LEVEL ON PLATFORMS.

ARCHITECTURAL DRAWINGS INDICATE LEVEL NUMBERING FOR SIGNAGE PACKAGE. SEE CONCEPT DIAGRAM ON SHEET A-002.00

STRUCTURAL DRAWINGS INDICATE CONSTRUCTION LEVEL NUMBERING.



2 Work Points Setting Out Section C-H

1 : 100

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Key Plan

Date: 08/29/14
Project No. 220800
Drawn By
Sheet Number

HYE-VS-A-021

Drawing Title

PROJECT SETTING OUT SECTION

Drawing Number
A-021.00

SHEET 05 OF 86

Damian Titus
Buildings
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Under Directive 2 of 1975
Date: 12/07/2016
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A-021
25/03/2016 18:40:42
PROJECT SETTING OUT SECTION
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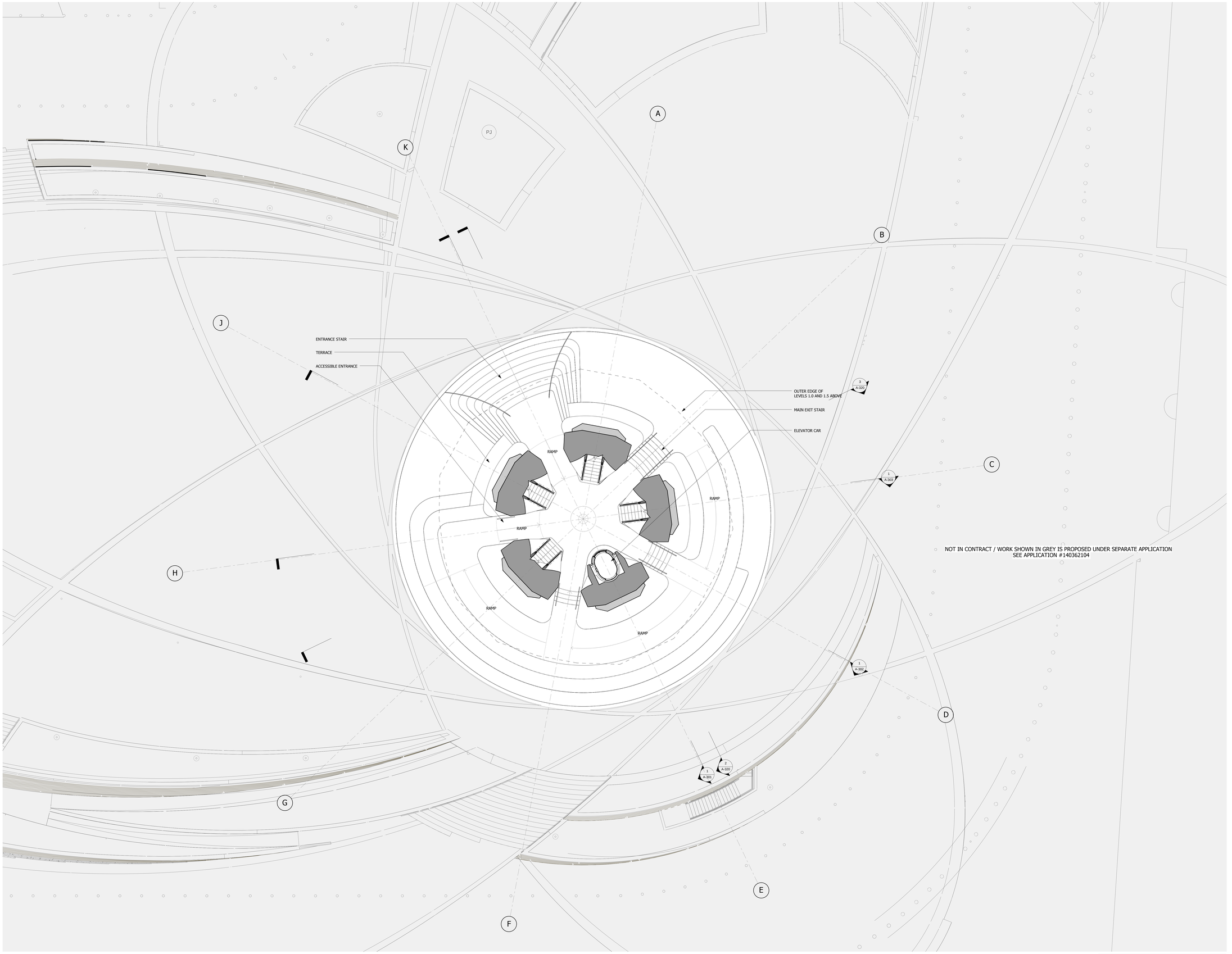
EXIT OF BLOCK 37191185 Job Number
ES0451A2035 Scan Code



1 LEVEL G
1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

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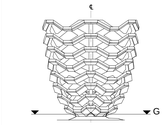

Date: 05/15/14
Project No. 2230.07
Drawn By
Sheet Number

REGISTERED ARCHITECT DAMIAN JAMES TITUS 026443 STATE OF NEW YORK

HYE-VS-A-100

Drawing Title

LEVEL G PLAN

Drawing Number
A-100.00

SHEET 06 OF 86

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A-100
25/03/2016 18:41:06
PRESENTATION_LEVEL PLAN
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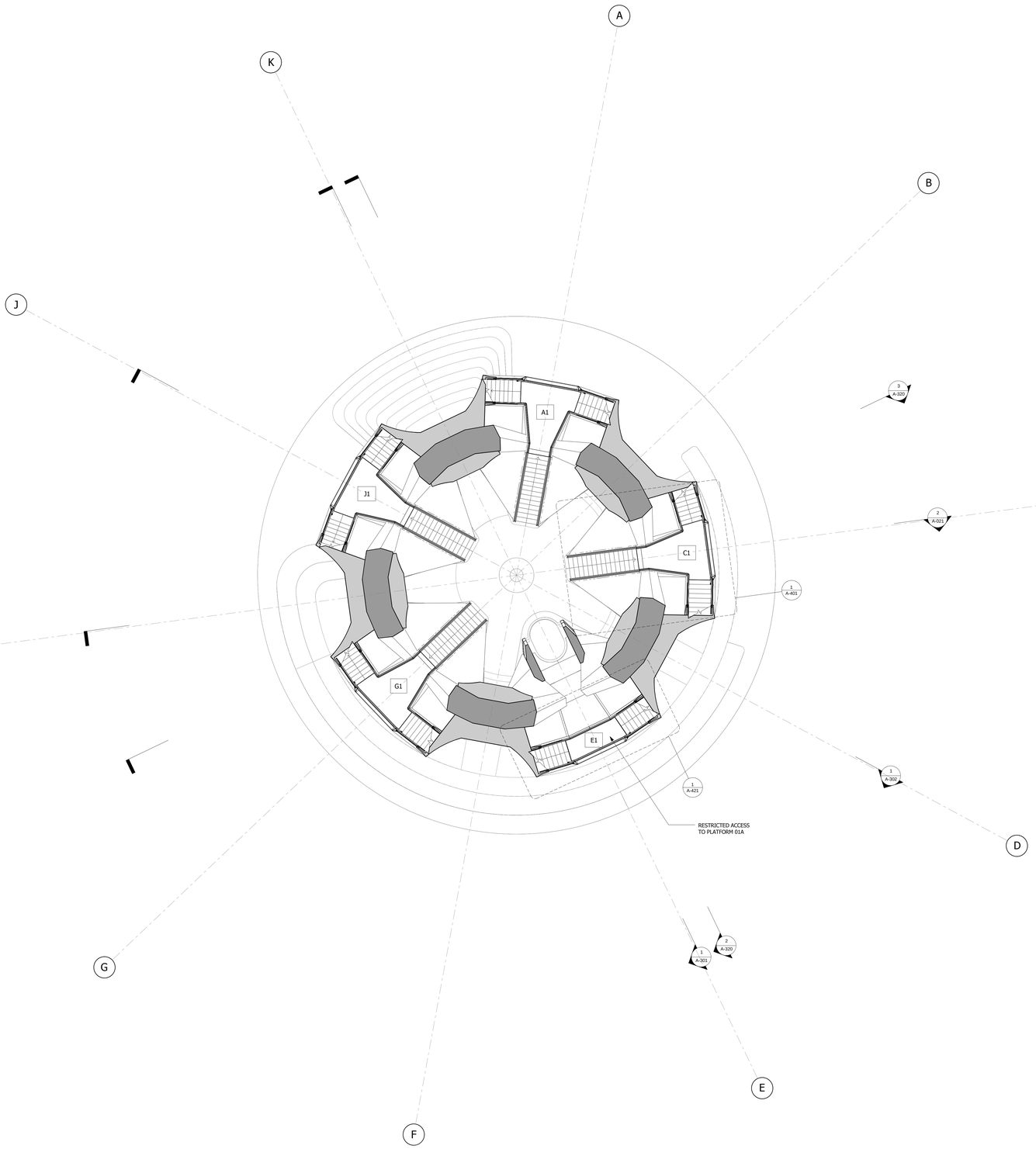
DEPT OF BUILDINGS 121191183 Job Number
B1642852950 Scan Code



1 LEVEL 1 (DISPLAY 1)
16.564m / 54'-4 1/4" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

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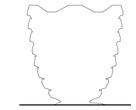

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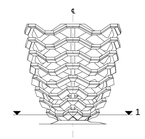
Key Plan



Date: 05/15/14
Project No. 22900
Drawn By
Sheet Number

HYE-VS-A-101

Drawing Title

LEVEL 1 PLAN (DISPLAY 1)

Drawing Number

A-101.00

SHEET 07 OF 86

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A-101
25/07/2016 18:41:19
LEVEL 01 PLAN
C:\Users\731_VESSEL_MASTER_laurence.rvt

1 LEVEL 1.5 (DISPLAY 1)
18.878m / 61'-11 1/4" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

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Date: 12/07/2016
NYC Development Hub

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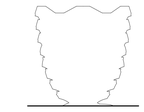
NEW YORK, NY



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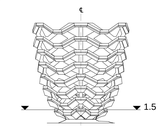
Key Plan



Date: 05/15/14
Project No. 220107
Drawn By SS
Sheet Number

HYE-VS-A-102

Drawing Title

LEVEL 1.5 PLAN (DISPLAY 1)

Drawing Number
A-102.00

SHEET 08 OF 86

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A-102
25/05/2016 18:41:33
LEVEL 02 PLAN
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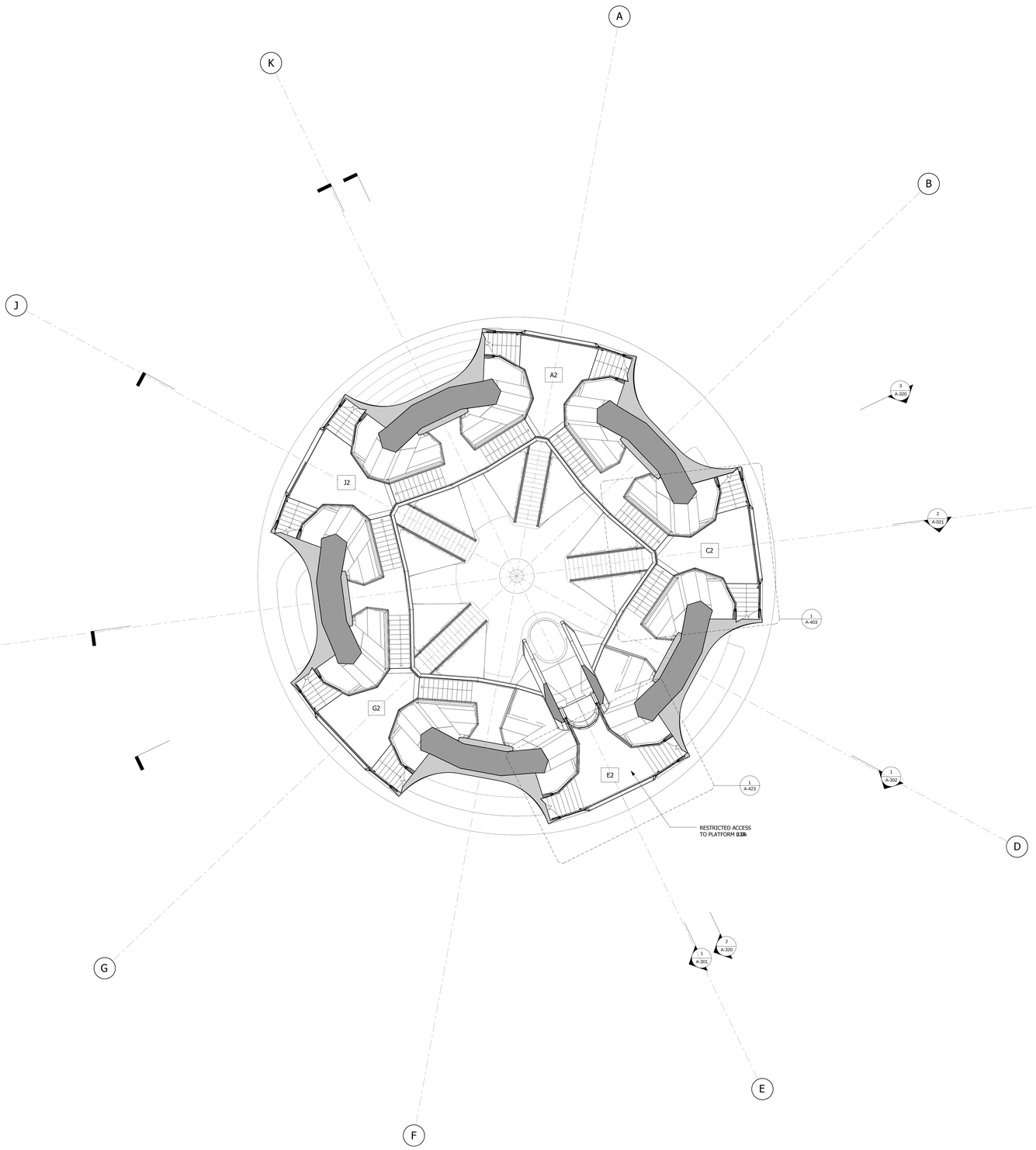
DEPT OF BUILDINGS 121121325 Job Number
E3813352685 Scan Code



1 LEVEL 2 (DISPLAY 2)
21.014m / 68'-11 1/4" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

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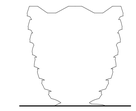

Client
Related Companies
60 Columbus Circle
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Tel: 212.801.1000 Fax: 212.801.1048

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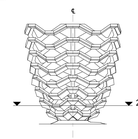

Date: 05/15/14
Project No. 2298607
Drawn By
Sheet Number

REGISTERED ARCHITECT
ROBERT MICHAEL
DIMAS
No. 026843
STATE OF NEW YORK

HYE-VS-A-103

Drawing Title

LEVEL 2 PLAN (DISPLAY 2)

Drawing Number
A-103.00

SHEET 09 OF 86

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A-103
25/03/2016 18:41:51
LEVEL 02 PLAN
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1 LEVEL 2.5 (DISPLAY 2)
23.862m / 78'-3 1/2" 1 : 100

LEGEND
INTERLAYER
CAVITY BEHIND SOFFIT CLADDING

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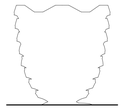

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Related Companies
60 Columbus Circle
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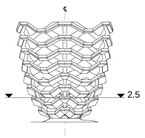

Date: 05/15/14
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MOSCOSO
STATE OF NEW YORK

HYE-VS-A-104

Drawing Title

LEVEL 2.5 PLAN (DISPLAY 2)

Drawing Number
A-104.00

SHEET 10 OF 86

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A-104
25/03/2016 18:42:08
LEVEL 04 PLAN
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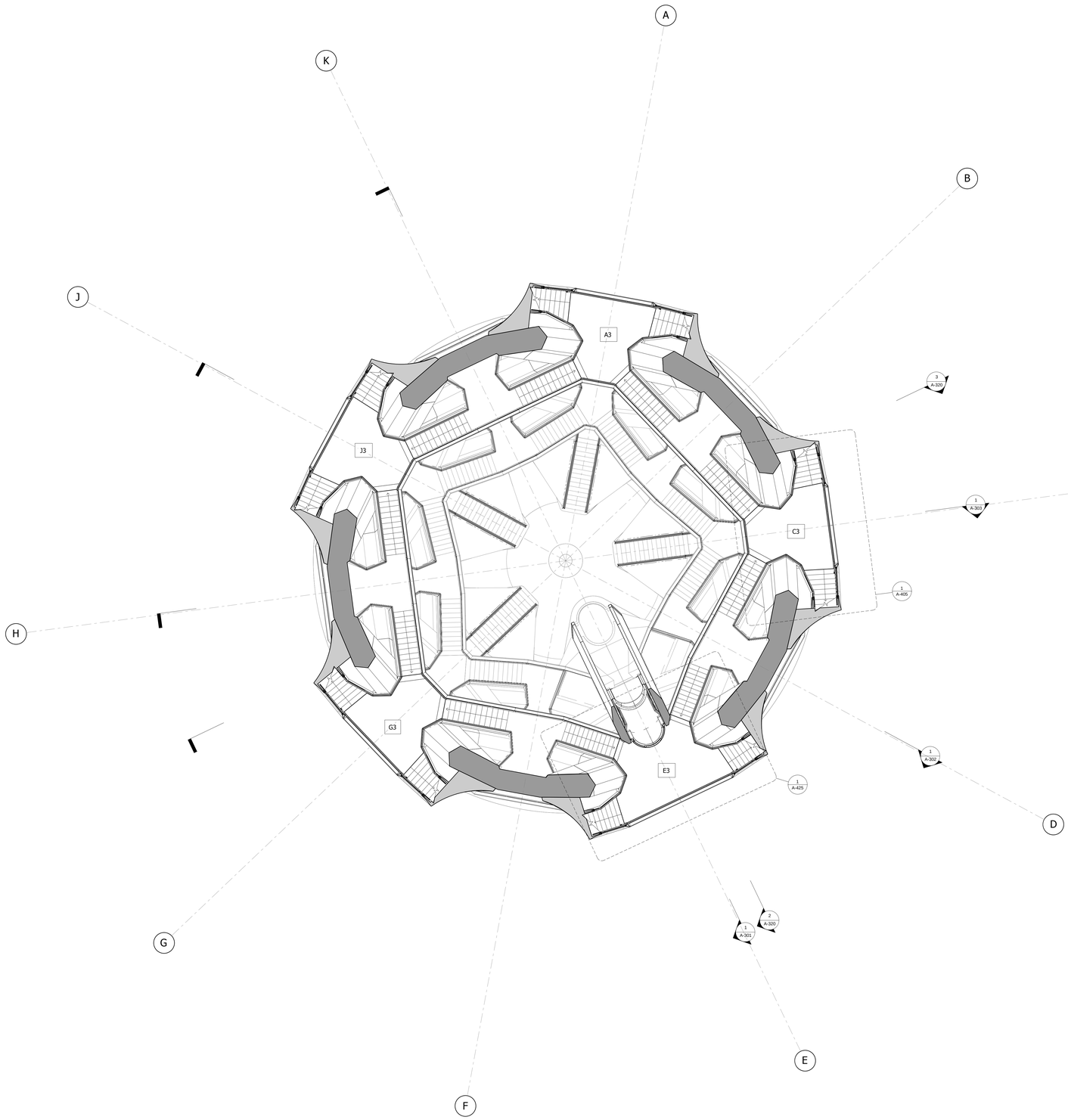
DEPT OF BUILDINGS 421161185 Job Number
K20-7300995 Scan Code



1 LEVEL 3 (DISPLAY 3)
26.176m / 85'-10 1/2" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

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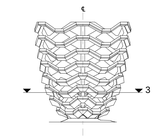
Key Plan



Date: 05/15/14
Project No. 220807
Drawn By
Sheet Number

REGISTERED ARCHITECT
JEREMY MORRIS
029153
STATE OF NEW YORK

HYE-VS-A-105

Drawing Title

LEVEL 3 PLAN (DISPLAY 3)

Drawing Number
A-105.00

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LEVEL 03 PLAN
C:\BIM 731_VESSEL_MASTER_lawrence.rvt
A.105
2/03/2016 18:42:26

EXIST OF BLOCK 3711910 Job Number
ES9957145 Scan Code

1 LEVEL 3.5 (DISPLAY 3)
29.202m / 95'-9 3/4" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

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APPROVED
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Date: 12/07/2016.
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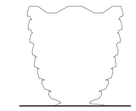

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Structural Engineer
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New York, NY 10010
Tel: 917.661.7800 Fax: 917.661.7801

Civil, Mechanical, Electrical, Plumbing, Fire Alarm, Fire Protection, Security
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New York, NY 10005
Tel: 212.896.3000

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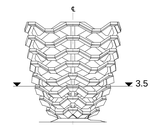
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2298.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHN MICHAEL
MAYFIELD
026345
STATE OF NEW YORK

HYE-VS-A-106

Drawing Title

LEVEL 3.5 PLAN (DISPLAY 3)

Drawing Number
A-106.00

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A-106
25/05/2016 18:42:47
LEVEL 04 PLAN
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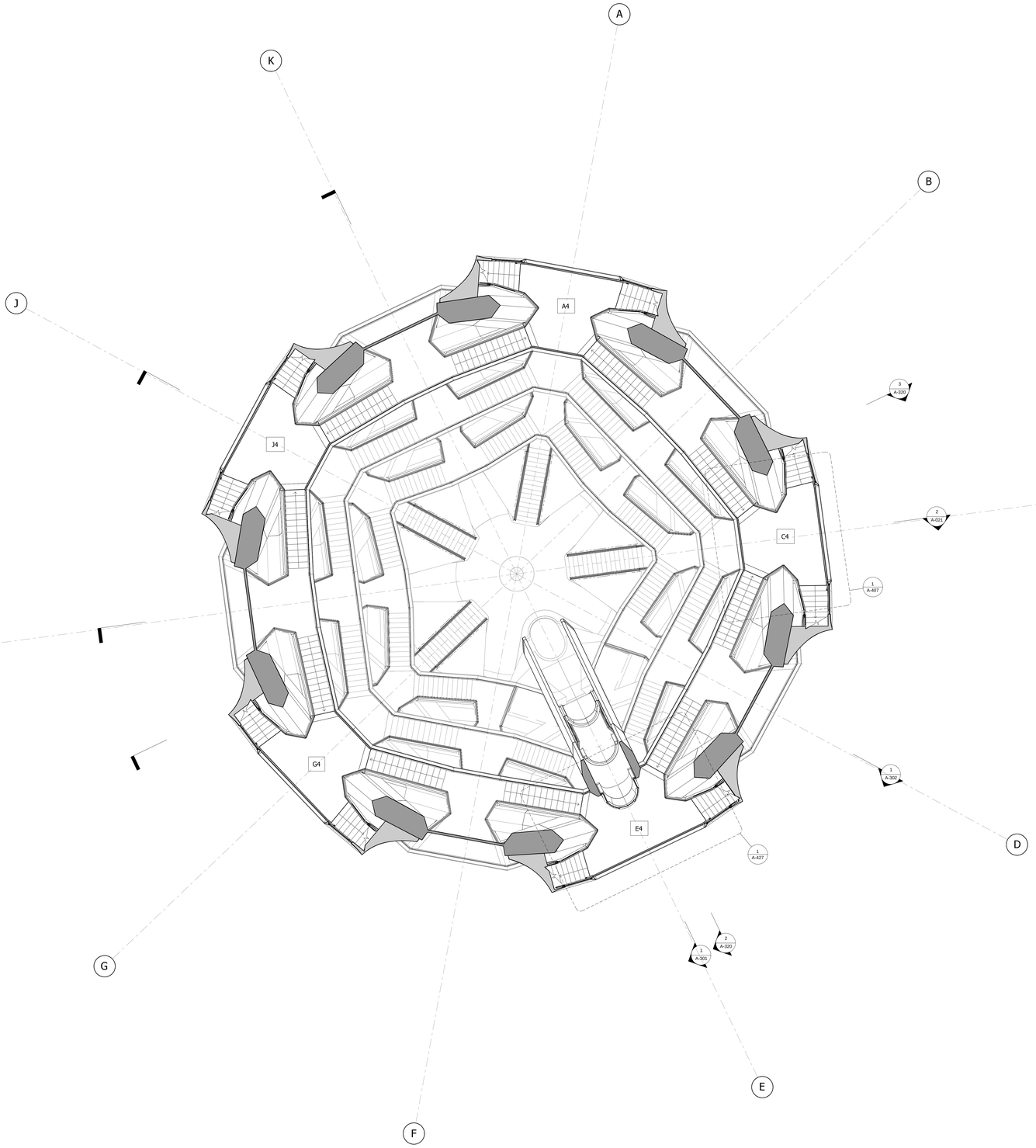
DEPT OF BUILDINGS 321191185 Job Number
E560781065 Scan Code



1 LEVEL 4 (DISPLAY 4)
31.694m / 103'-11 3/4" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

Damian Titus
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
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HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

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60 Columbus Circle
New York, NY 10023
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Oxford Properties Group
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New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
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100 Park Avenue
Tel: 212.708.6800

Executive Architect
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Architects & Planning Consultants
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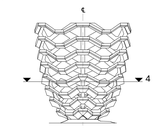
Key Plan



Date: 05/15/14
Project No. 220807
Drawn By
Sheet Number

REGISTERED ARCHITECT
JEREMY MOSES
026143
STATE OF NEW YORK

HYE-VS-A-107

Drawing Title

LEVEL 4 PLAN (DISPLAY 4)

Drawing Number
A-107.00

SHEET 13 OF 86

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A-107
25/03/2016 18:43:10
LEVEL 07 PLAN
C:\BIM\21_VESSEL_MASTER_lawrence.rvt

1 LEVEL 4.5 (DISPLAY 4)
34.720m / 113'-11" 1 : 100

LEGEND
INTERLAYER
CAVITY BEHIND SOFFIT CLADDING

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Under Directive 2 of 1975
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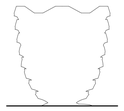
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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100 Park Avenue
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Executive Architect
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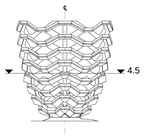
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT ANTHONY MOSELLE 22143-1 STATE OF NEW YORK

HYE-VS-A-108

Drawing Title

LEVEL 4.5 PLAN (DISPLAY 4)

Drawing Number
A-108.00

SHEET 14 OF 86

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LEVEL 08 PLAN
C:\BIM\731_VESSEL_MASTER_laurence.rvt
A-108
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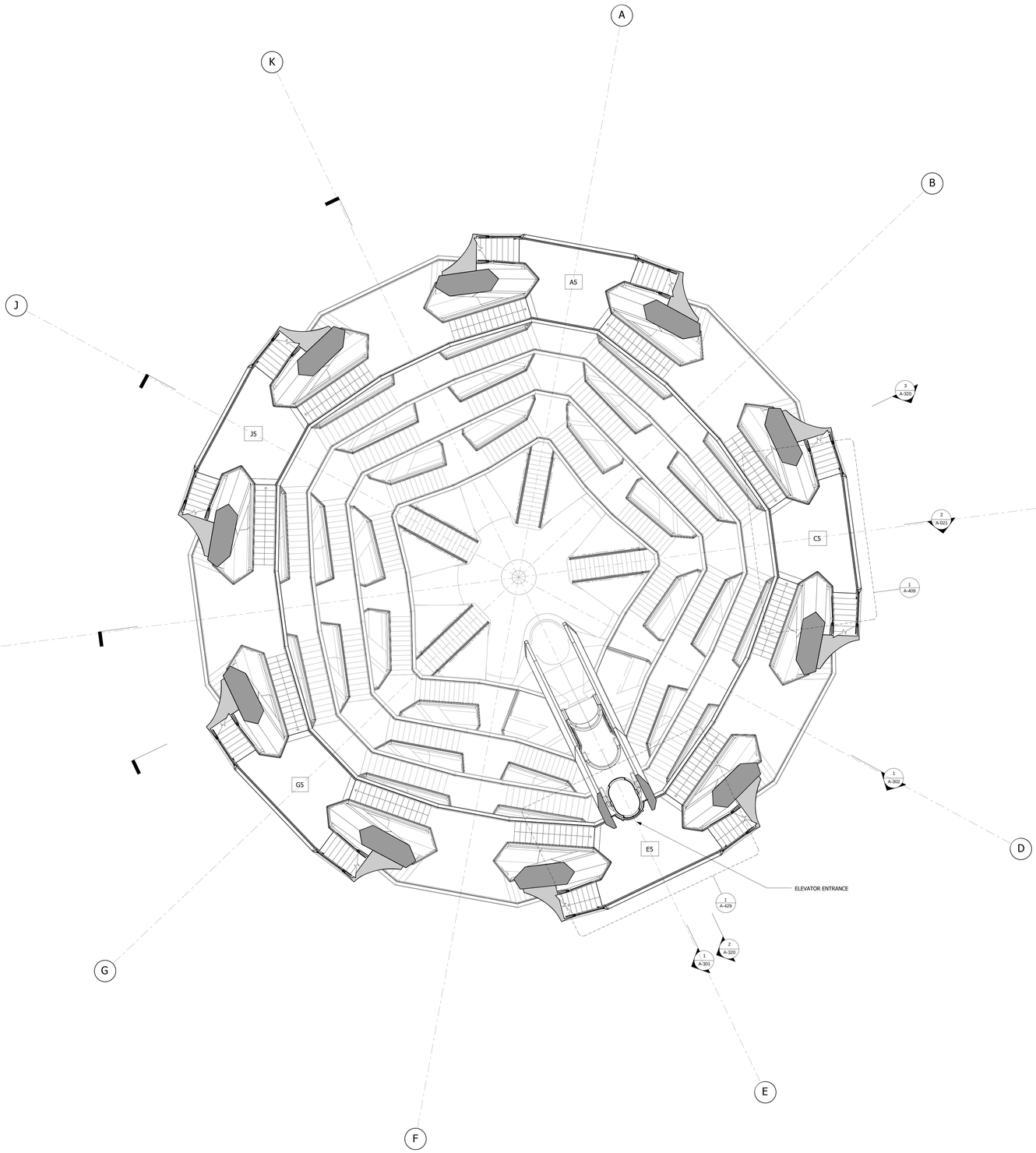
DEPT OF BUILDINGS 121121125 Job Number
ESUB20160505 Scan Code



1 LEVEL 5 (DISPLAY 5)
37.390m / 122'-8" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

Damian Titus
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
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Tel: 212.708.6800

Architect
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Architects & Planning Consultants
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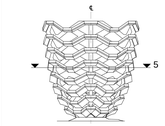
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2208007
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY BORDEN
026443
STATE OF NEW YORK

HYE-VS-A-109

Drawing Title

LEVEL 5 PLAN (DISPLAY 5)

Drawing Number
A-109.00

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A-109
25/05/2016 18:44:03
LEVEL 05 PLAN
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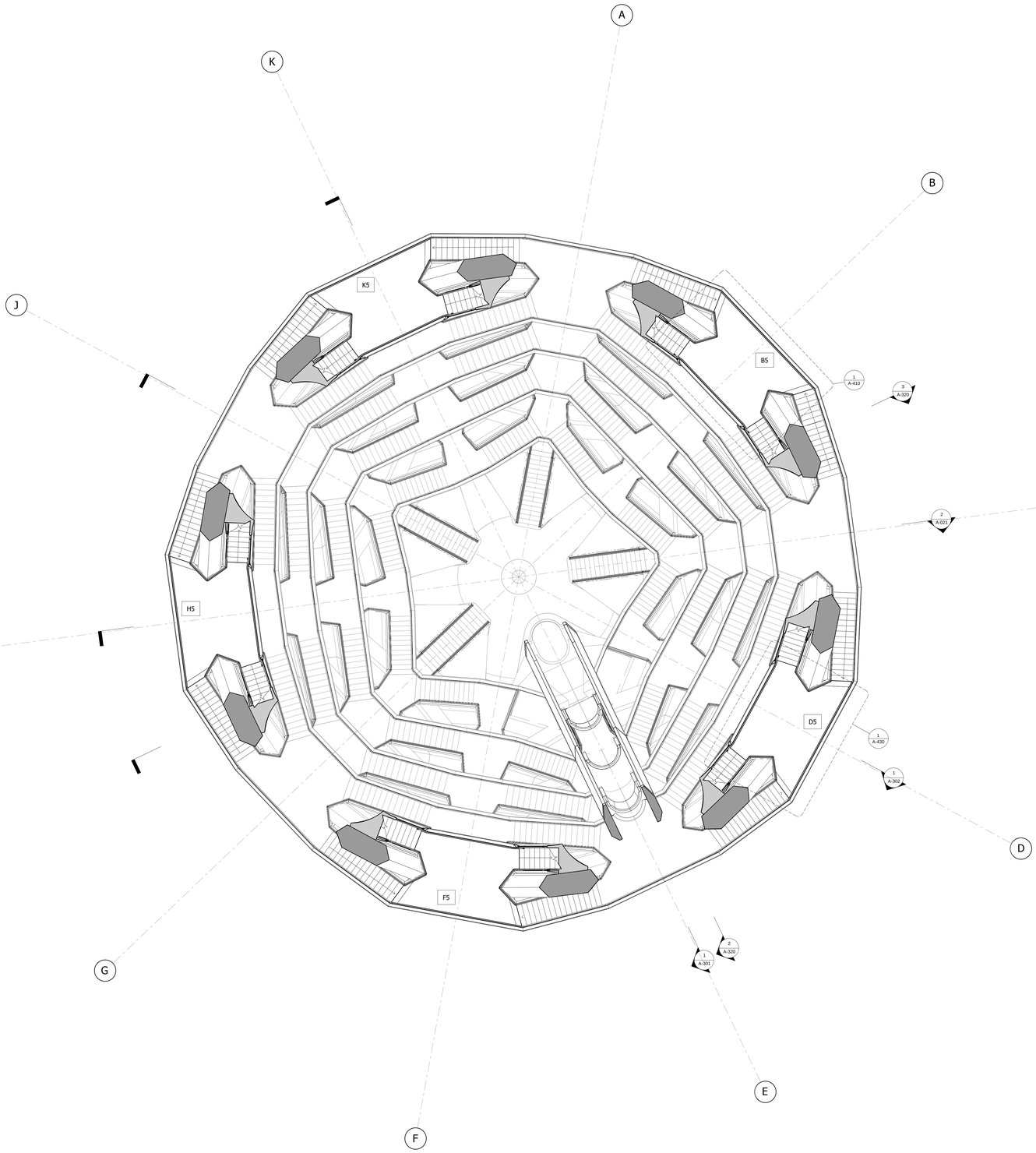
DEPT OF BUILDINGS 121191185 Job Number
B2016104159 Scan Code



1 LEVEL 5.5 (DISPLAY 5)
40.416m / 132'-7 1/4" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

Damian Titus
Buildings
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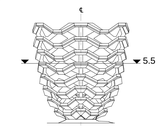
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 22800
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHNNY MOSCHETTI
028345
STATE OF NEW YORK

HYE-VS-A-110

Drawing Title

LEVEL 5.5 PLAN (DISPLAY 5)

Drawing Number

A-110.00

SHEET 16 OF 86

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A-110
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LEVEL 05 PLAN
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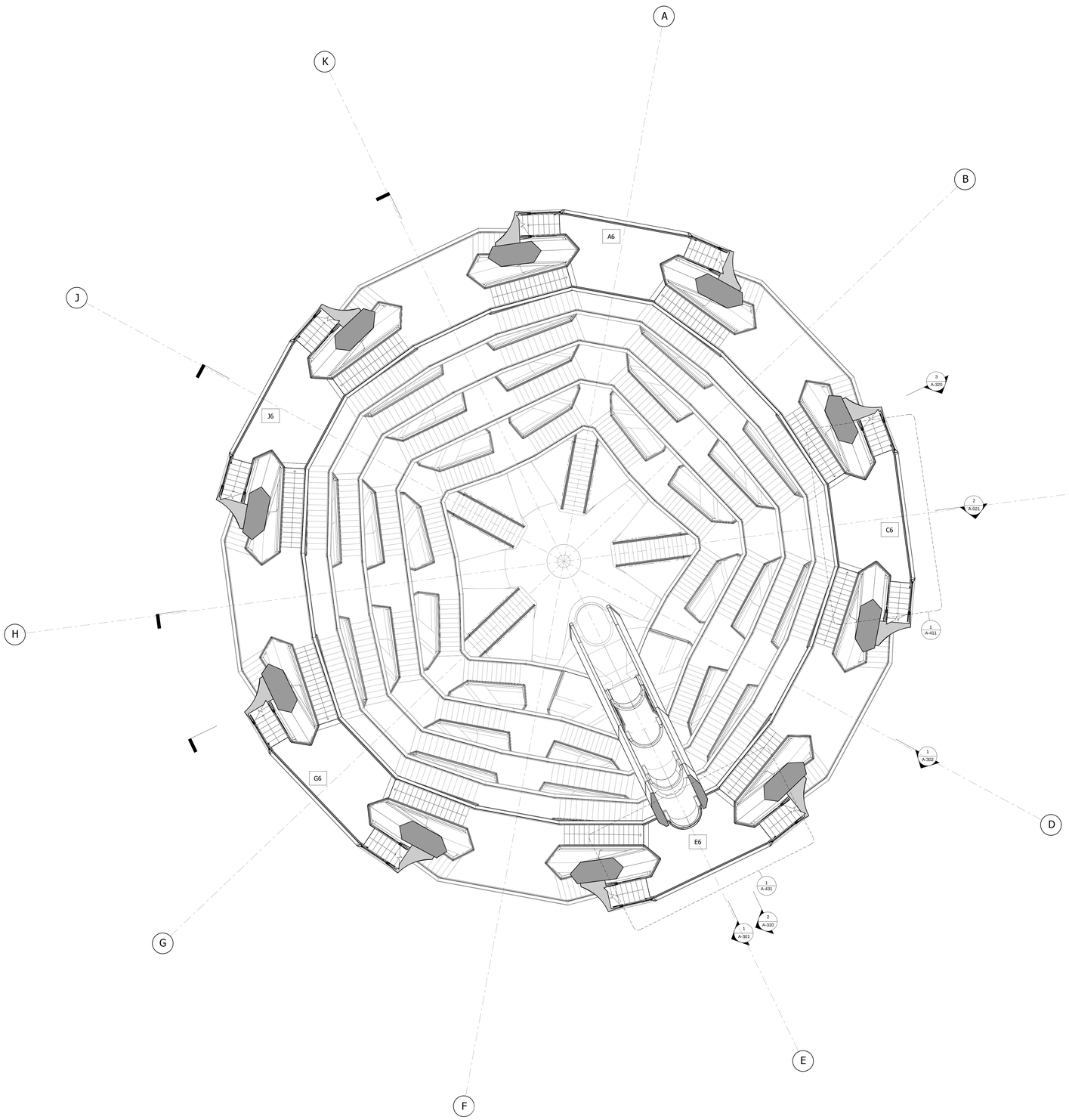
EXIST OF BLOCK 3711911 Job Number
ESCALS0699 Scan Code



1 LEVEL 6 (DISPLAY 6)
43.442m / 142'-6 1/4" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

Damian Titus
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
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HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
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Oxford Properties Group
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Tel: 212.986.7514 Fax: 212.9863.7510

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100 Park Avenue
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Executive Architect
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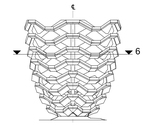
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2230.007
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORRIS
028443
STATE OF NEW YORK

HYE-VS-A-111

Drawing Title

LEVEL 6 PLAN (DISPLAY 6)

Drawing Number
A-111.00

SHEET 17 OF 86

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A-111
2/23/2016 18:45:06
LEVEL 11 PLAN
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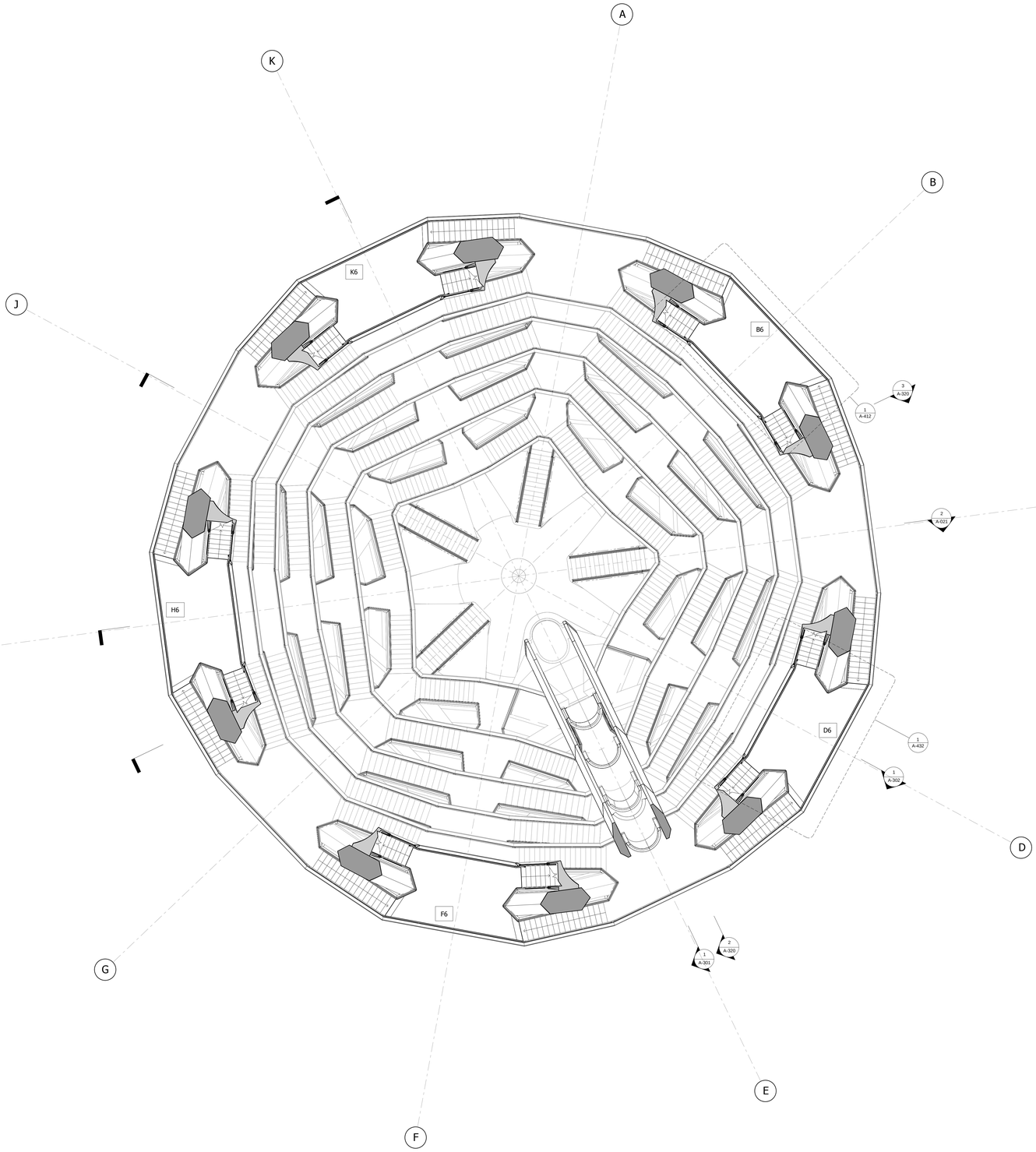
DEPT OF BUILDINGS 121191185 Job Number
E3412804965 Scan Code



1 LEVEL 6.5 (DISPLAY 6)
46.468m / 152'-5 1/2" 1 : 100

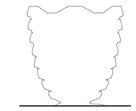
LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
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Architects & Planning Consultants
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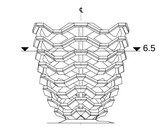
Key Plan



Date: 05/15/14
Project No. 220807
Drawn By
Sheet Number

HYE-VS-A-112

Drawing Title

LEVEL 6.5 PLAN (DISPLAY 6)

Drawing Number
A-112.00

Damian Titus
Exhibition
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A-112
25/07/2016 18:45:41
LEVEL 13 PLAN
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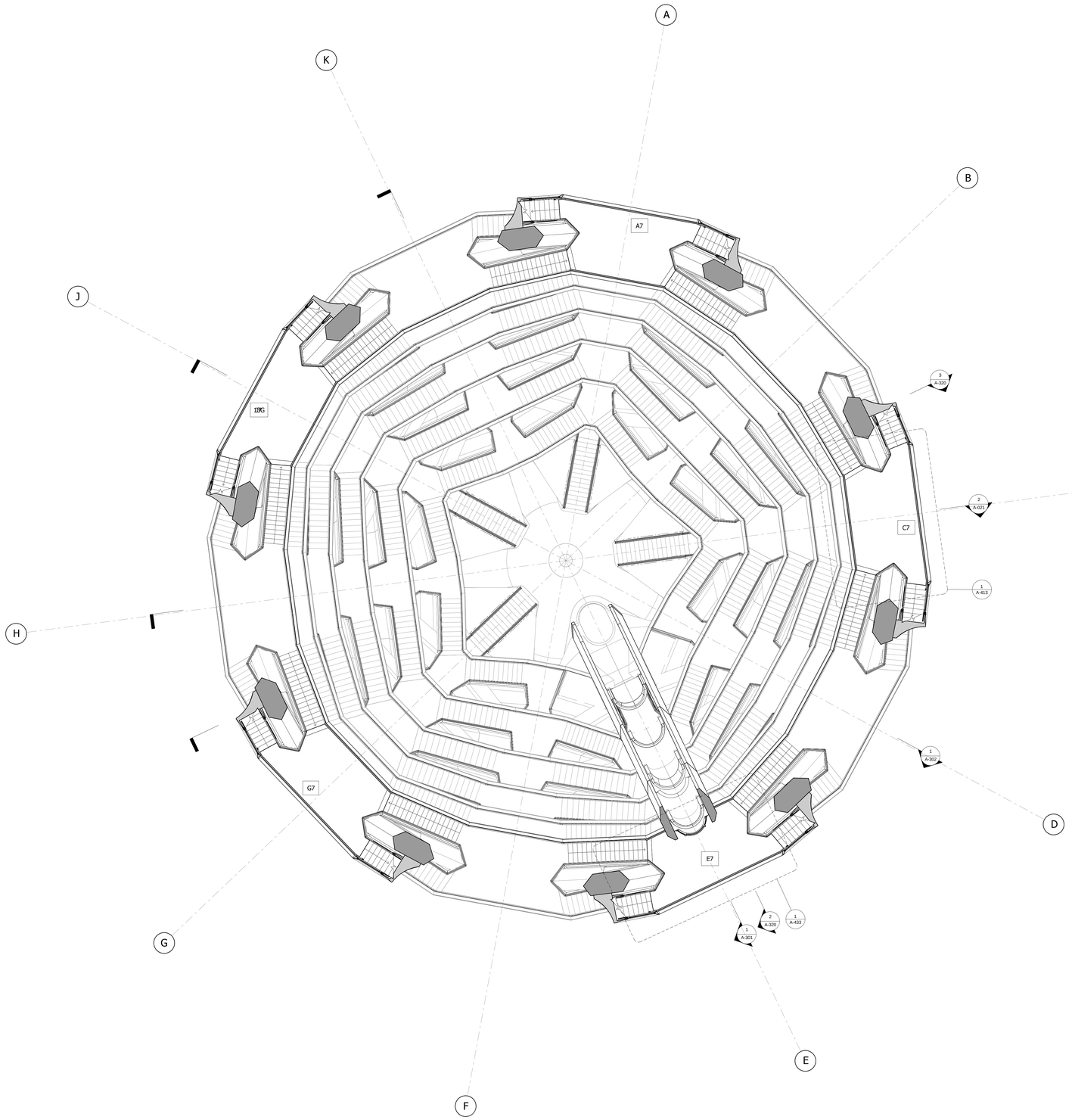
DEPT OF BUILDINGS 121191185 Job Number
ESCHEDULE Scan Code



1 LEVEL 7 (DISPLAY 7)
49.672m / 162'-11 1/2" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

Damian Titus
APPROVED
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Date: 12/07/2016
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HUDSON YARDS VESSEL

530 WEST 33RD STREET
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Architects & Planning Consultants
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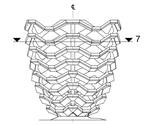
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2230607
Drawn By
Sheet Number

REGISTERED ARCHITECT ANTHONY MICHAEL CARFAGNO 029483 STATE OF NEW YORK

HYE-VS-A-113

Drawing Title

LEVEL 7 PLAN (DISPLAY 7)

Drawing Number

A-113.00

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A-113
25/05/2016 18:46:24
LEVEL 13 PLAN
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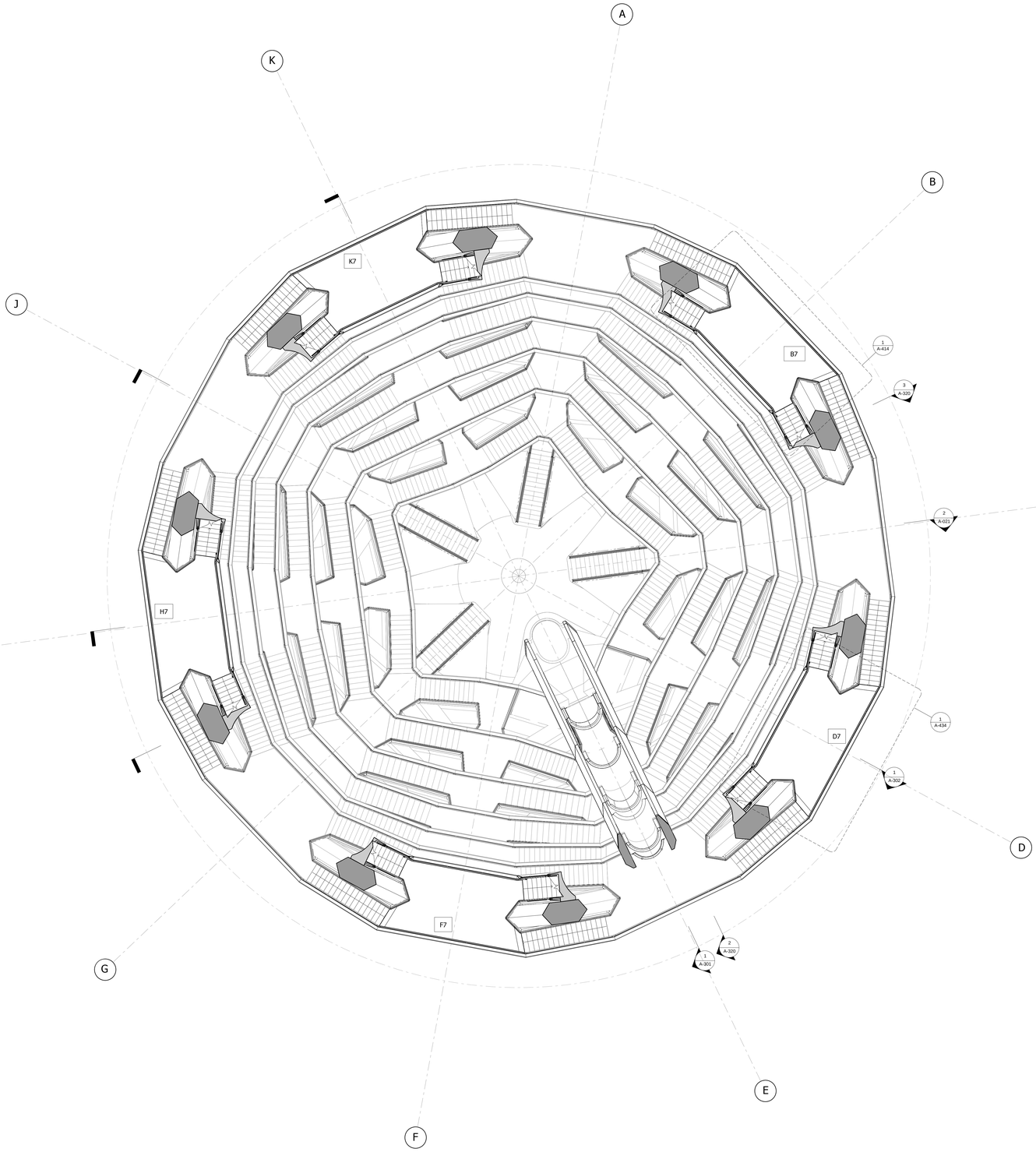
DEPT OF BUILDINGS 321191185 Job Number
B1805305050 Scan Code



1 LEVEL 7.5 (DISPLAY 7)
52.876m / 173'-5 3/4" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

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60 Columbus Circle
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Architects & Planning Consultants
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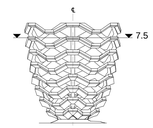
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 220107
Drawn By
Sheet Number

HYE-VS-A-114

Drawing Title

LEVEL 7.5 PLAN (DISPLAY 7)

Drawing Number

A-114.00

Damian Titus
Publicus
APPROVED
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Date: 12/07/2016
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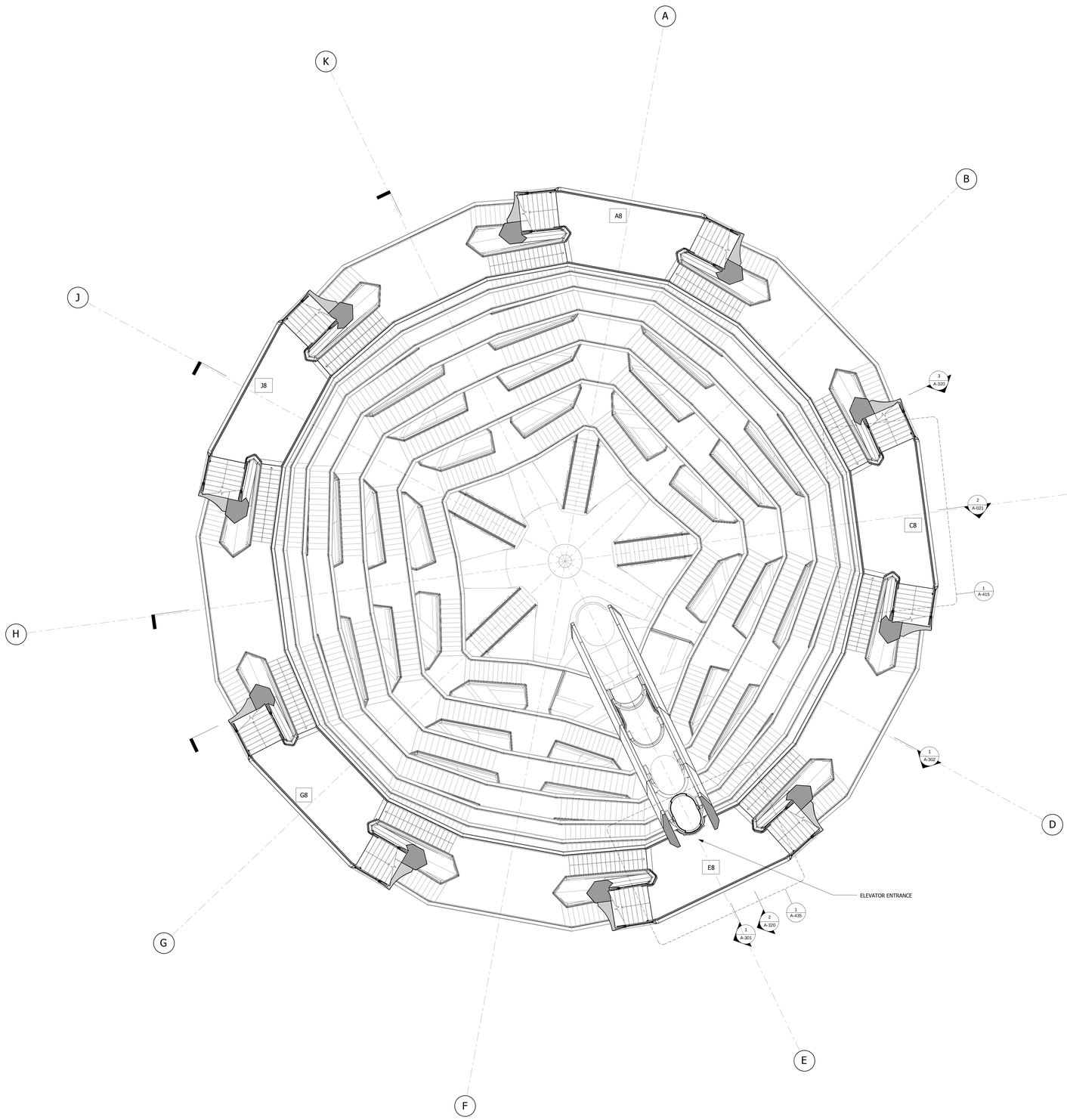
A-114
25/07/2016 18:47:04
LEVEL 14 PLAN
C:\BIM\731_VESSEL_MASTER_laurence.rvt

DEPT OF BUILDINGS 121121125 Job Number
ES2435059P Scan Code



1 LEVEL 8 (DISPLAY 8)
56.080m / 183'-11 3/4" 1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
Tishman Construction Corporation
100 Park Avenue
Tel: 212.708.6800

Executive Architect
Kohn Pedersen Fox Associates PC
Architects & Planning Consultants
11 West 42nd Street
Tel: 212.977.6500 Fax: 212.956.2526

Design Architect
Heatherwick Studio
356-364 Grays Inn Road
London WC1X 8BH
United Kingdom
Tel: 44(0)20 7833 8800

Structural Engineer
Thornton Tomasetti, Inc.
51 Madison Avenue
New York, NY 10010
Tel: 917.661.7800 Fax: 917.661.7801

Civil, Mechanical, Electrical, Plumbing, Fire Alarm, Fire Protection, Security
Ove Arup & Partners P.C.
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New York, NY 10005
Tel: 212.896.3000

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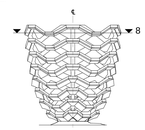
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2230607
Drawn By
Sheet Number

REGISTERED ARCHITECT ANTHONY MICHAEL BELLUSCI 026483 STATE OF NEW YORK

HYE-VS-A-115

Drawing Title

LEVEL 8 PLAN (DISPLAY 8)

Drawing Number

A-115.00

SHEET 21 OF 86

Damian Titus
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

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A-115
25/05/2016 18:47:47
LEVEL 15 PLAN
C:\Work\731_VESSEL_MASTER_lawrence.rvt

DEPT OF BUILDINGS 121121183 Job Number
ES2965240R6 Scan Code

1 LEVEL 8.5 (DISPLAY 8)
59.284m / 194'-6" 1 : 100

LEGEND

INTERLAYER

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NEW YORK, NY

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United Kingdom
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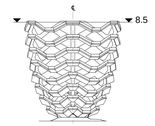
Key Plan



Date: 05/15/14
Project No. 2208007
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY BORG
027443
STATE OF NEW YORK

HYE-VS-A-116

Drawing Title

LEVEL 8.5 PLAN (DISPLAY 8)

Drawing Number

A-116.00

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A-116
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LEVEL 16 PLAN
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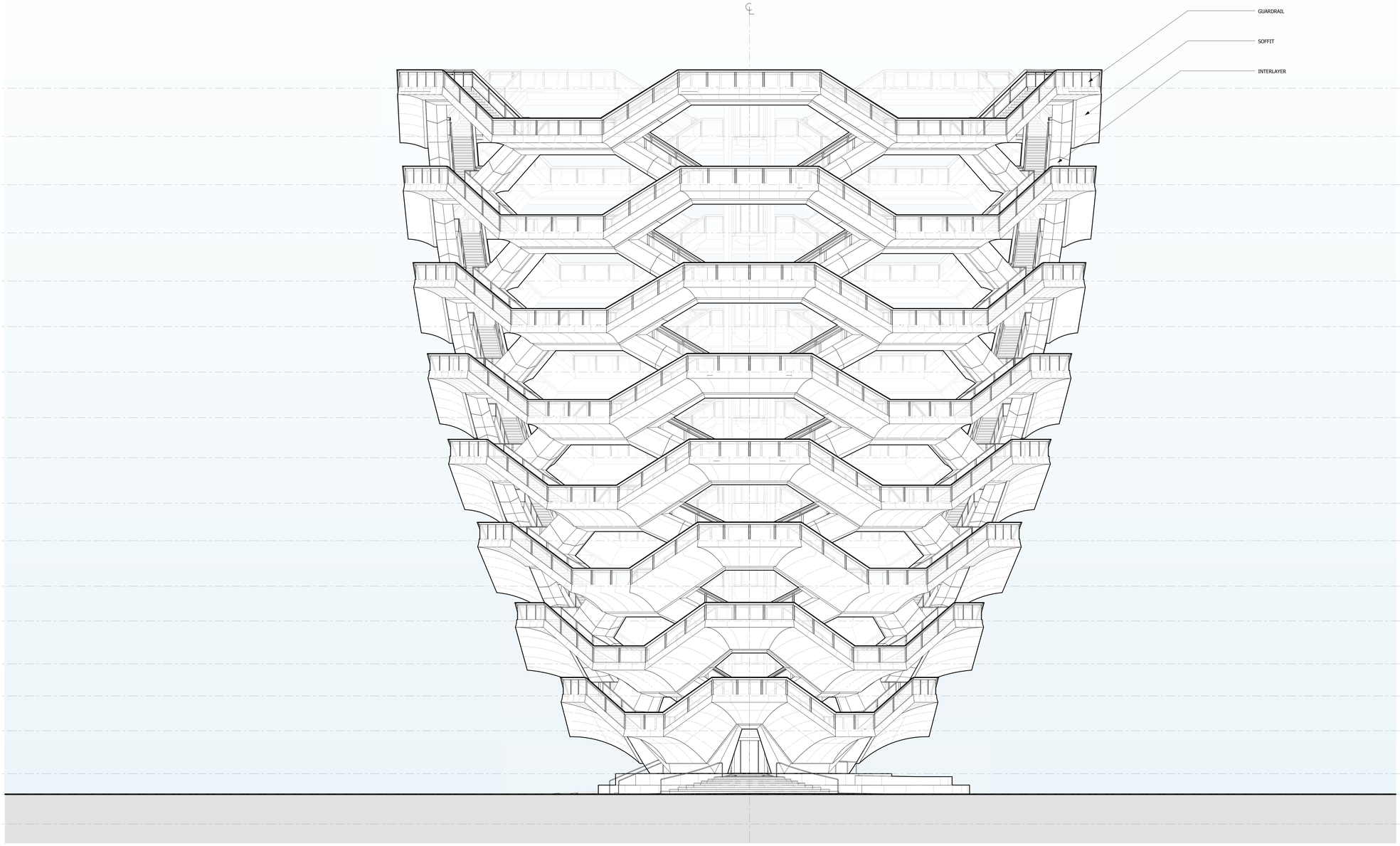
DEPT OF BUILDINGS 421191185 Job Number
B1609731PRI Scan Code



1 NORTH ELEVATION
1 : 100

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

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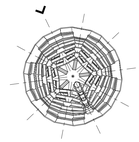
Key Plan



Date: 05/15/14
Project No. 220807
Drawn By
Sheet Number

HYE-VS-A-201

Drawing Title

NORTH ELEVATION

Drawing Number
A-201.00

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A-201
25/07/2016 18:49:47
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DEPT OF BUILDINGS 421191185 Job Number
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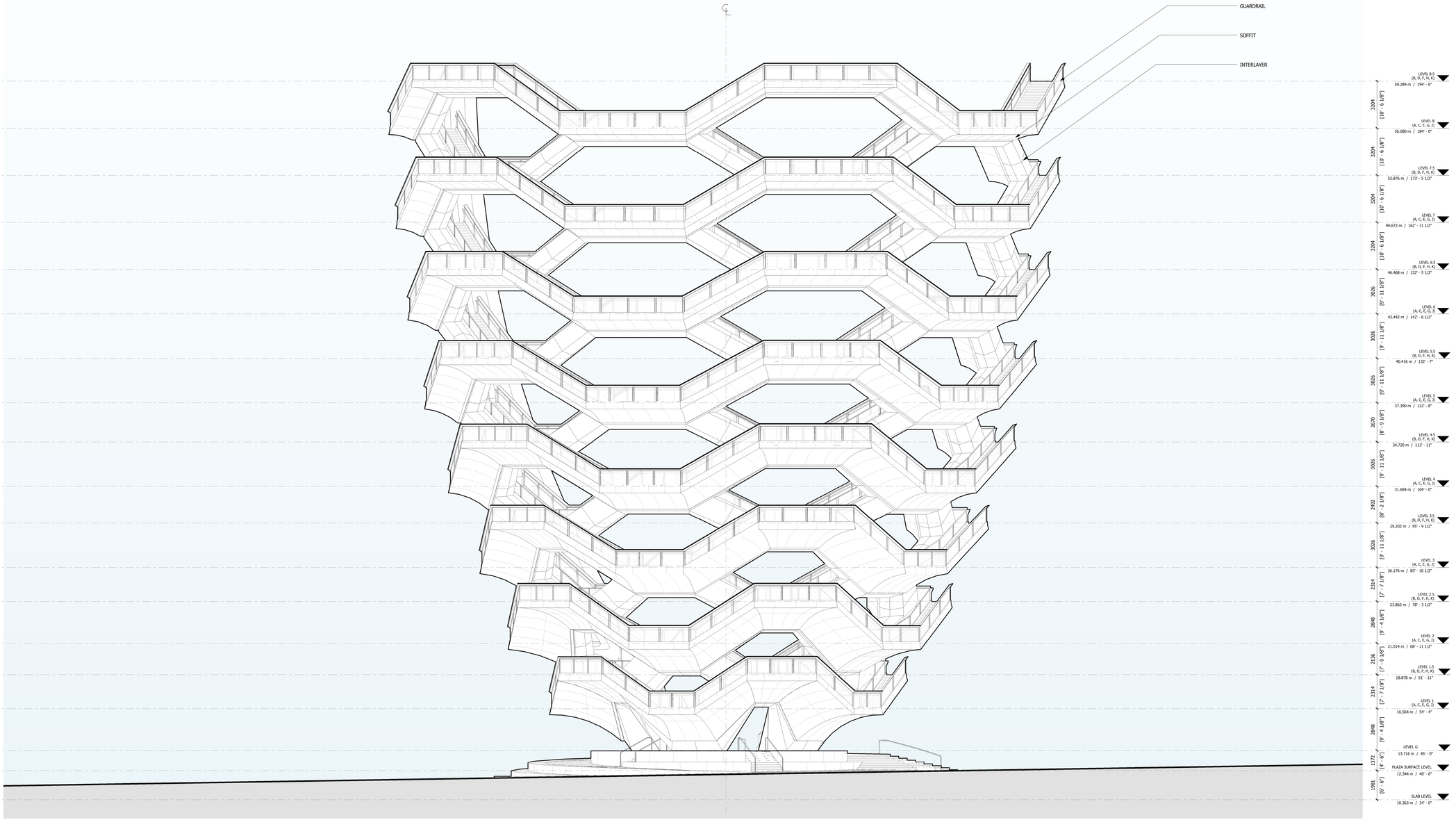

1 EAST ELEVATION
1 : 100

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

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Tel: 212.708.6800

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Architects & Planning Consultants
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United Kingdom
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Tel: 917.661.7800 Fax: 917.661.7801

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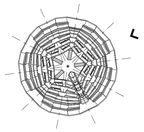
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 220807
Drawn By
Sheet Number

HYE-VS-A-202

Drawing Title

EAST ELEVATION

Drawing Number
A-202.00

SHEET 24 OF 86

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A-202
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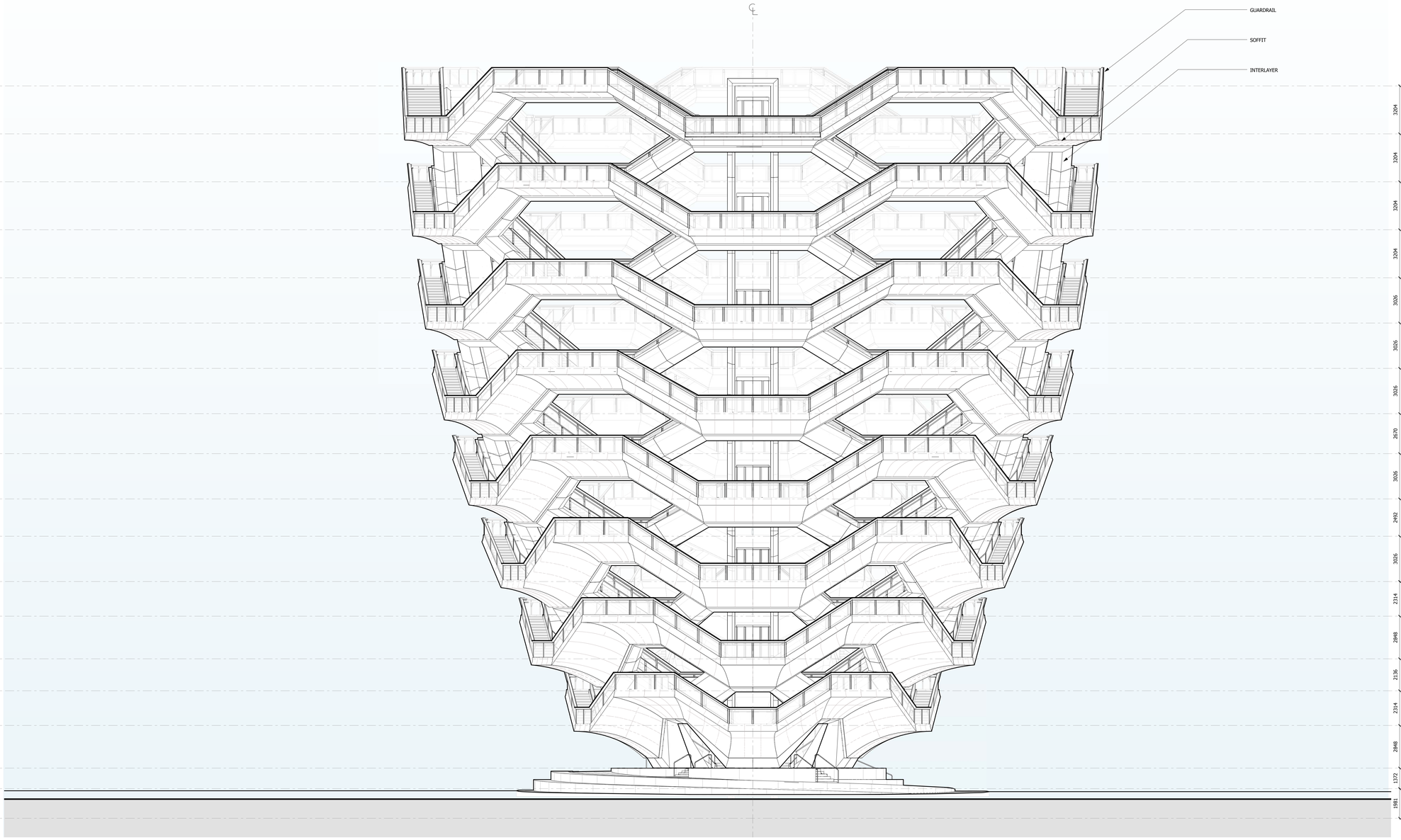

1 SOUTH ELEVATION
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Date: 12/07/2016:
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SOUTH ELEVATION
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25/05/2016 18:52:23

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
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Tel: 212.986.7514 Fax: 212.9863.7510

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100 Park Avenue
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Executive Architect
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Architects & Planning Consultants
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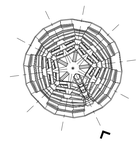
Key Plan



Date: 05/15/14
Project No. 2208007
Drawn By
Sheet Number

HYE-VS-A-203

Drawing Title

SOUTH ELEVATION

Drawing Number

A-203.00

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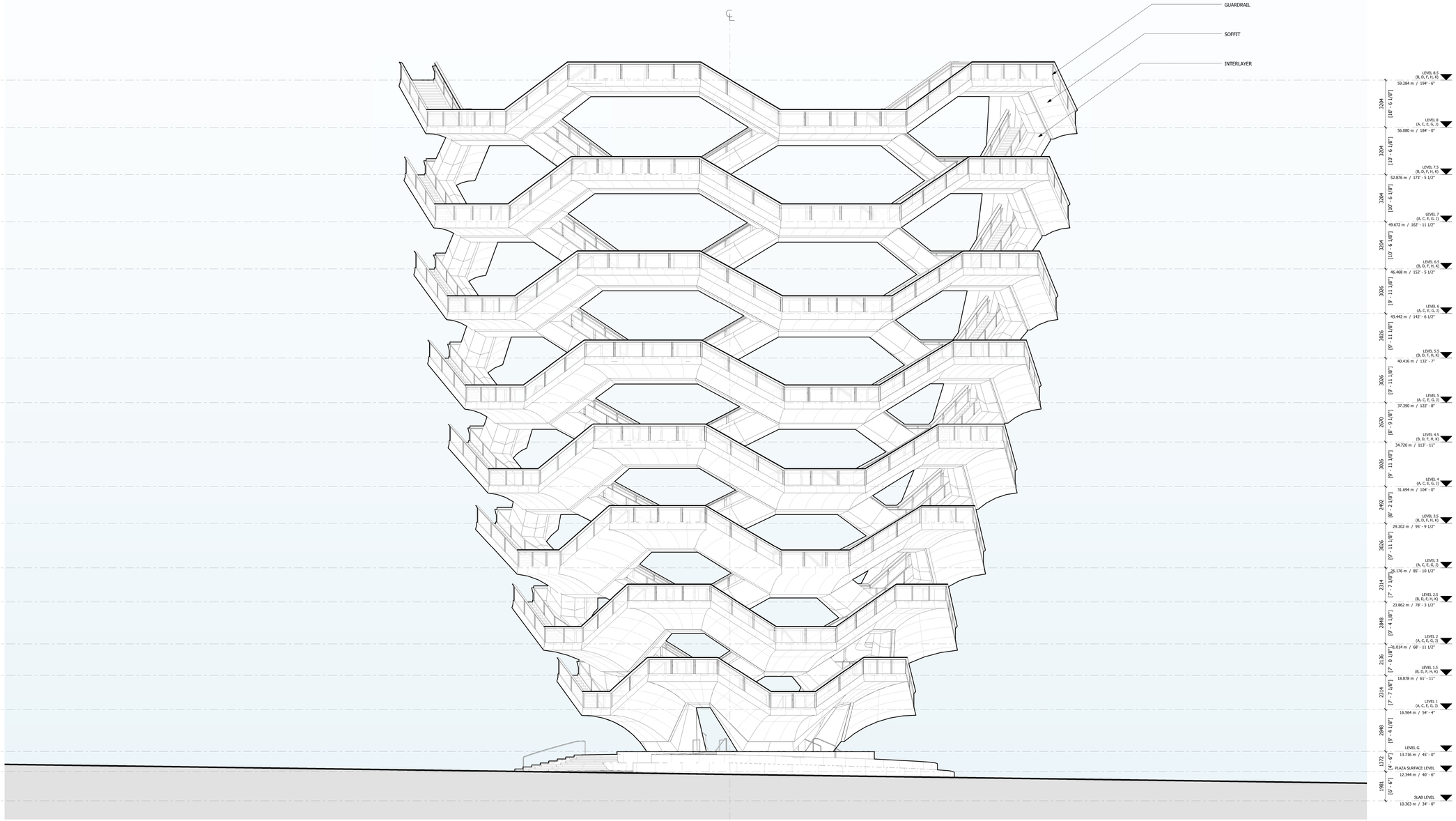
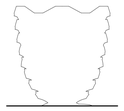


1 WEST ELEVATION

1 : 100

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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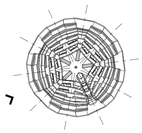
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2298.02
Drawn By
Sheet Number

HYE-VS-A-204

Drawing Title

WEST ELEVATION

Drawing Number
A-204.00

Damian Titus
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SHEET 26 OF 86

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WEST ELEVATION
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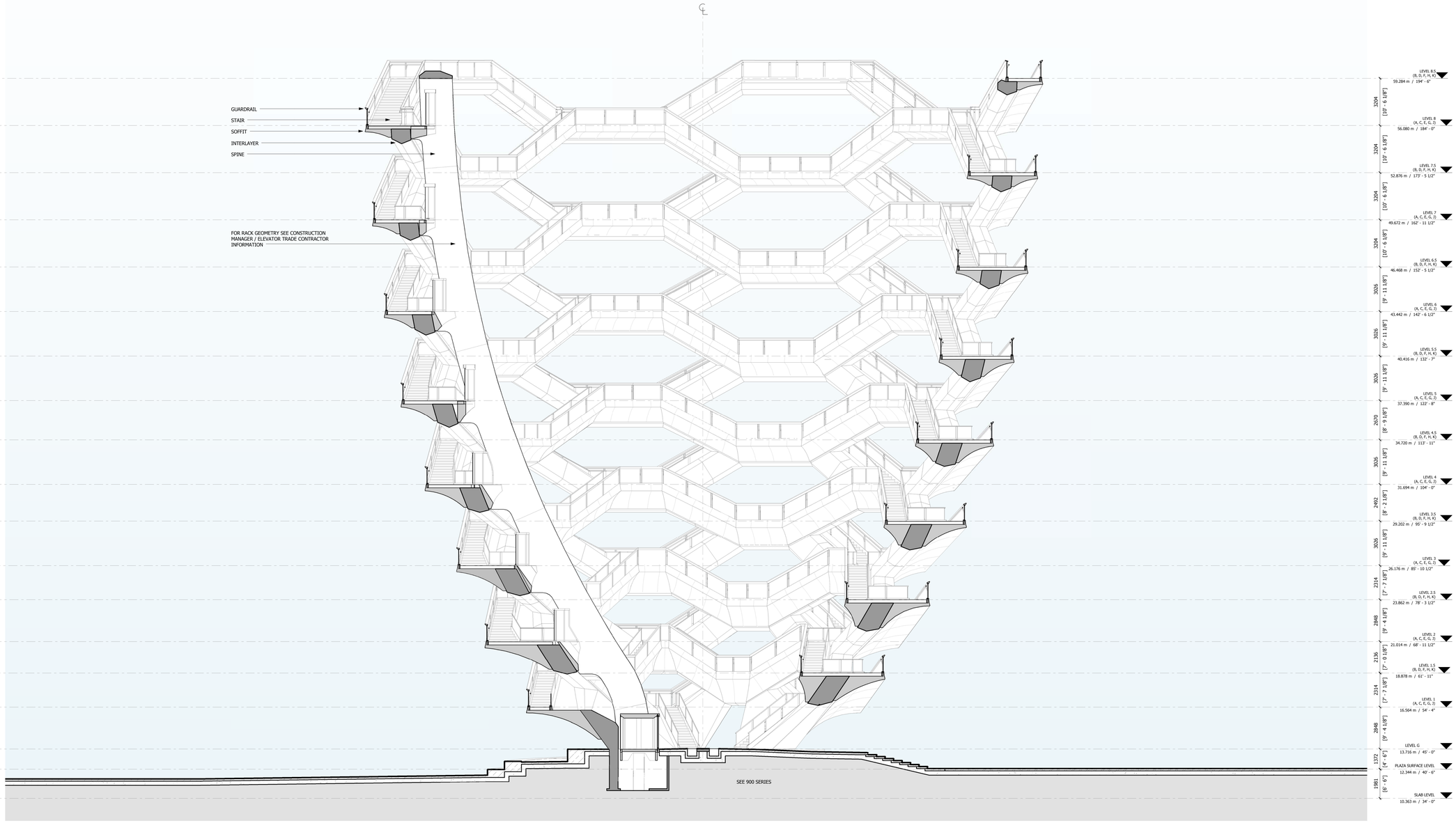
DEPT OF BUILDINGS 121191185 Job Number
B1190220M1 Scan Code



1 SECTION A-F
1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

Damian Titus
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
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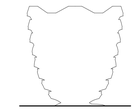
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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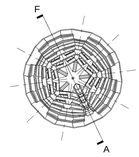

Date: 05/15/14
Project No. 2208907
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORETTI
026443
STATE OF NEW YORK

HYE-VS-A-301

Drawing Title

SECTION A-F

Drawing Number
A-301.00

SHEET 27 OF 86

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A-301
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DEPT OF BUILDINGS 121191185 Job Number
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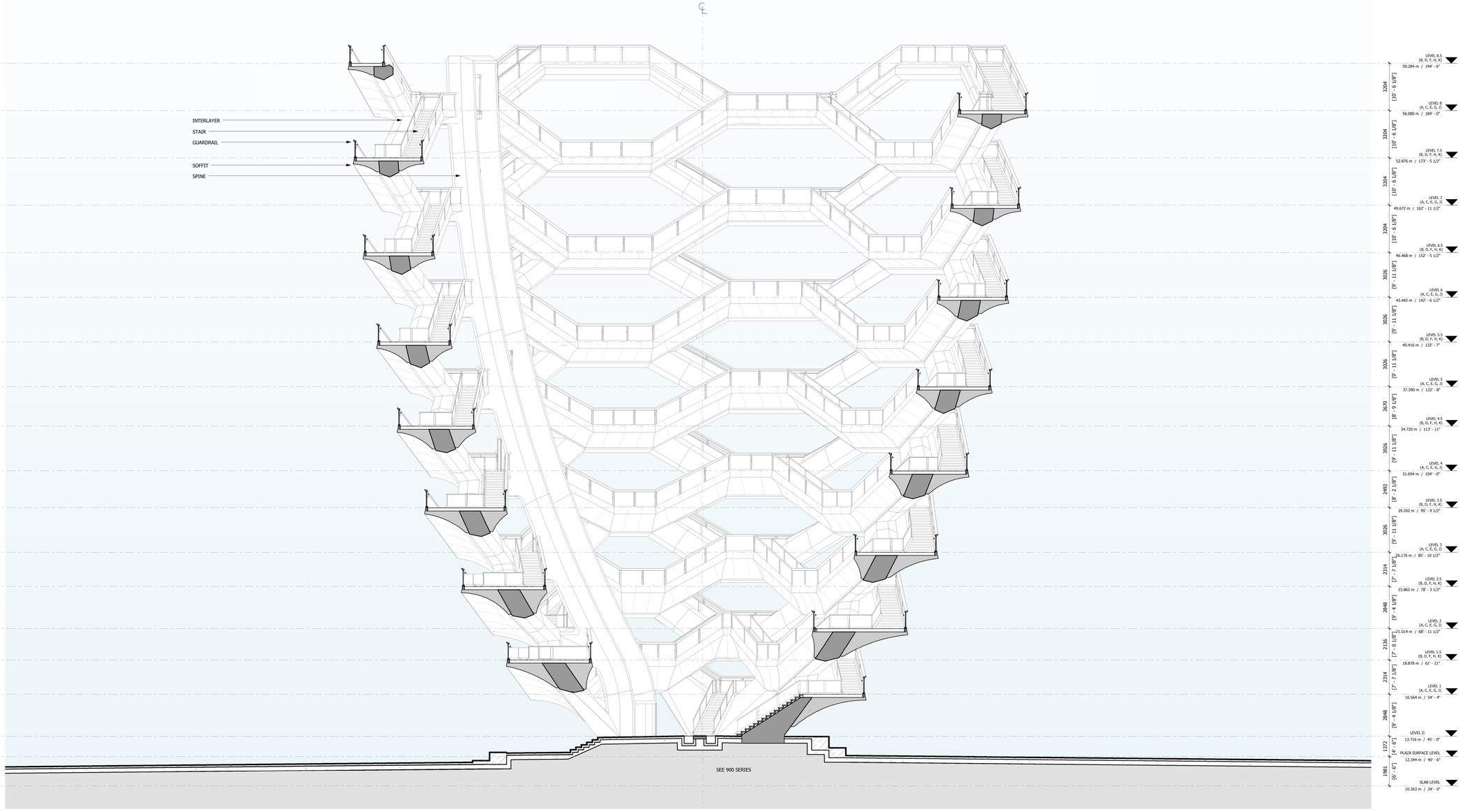

1 SECTION B-G

1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

Damian Titus
Architect
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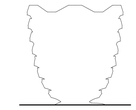
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

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320 Park Avenue, 17th Floor
New York, NY 10022
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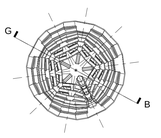

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Sheet Number

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DAMIAN TITUS
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STATE OF NEW YORK

HYE-VS-A-302

Drawing Title

SECTION B-G

Drawing Number
A-302.00

SHEET 28 OF 86

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SECTION B-G
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A-302
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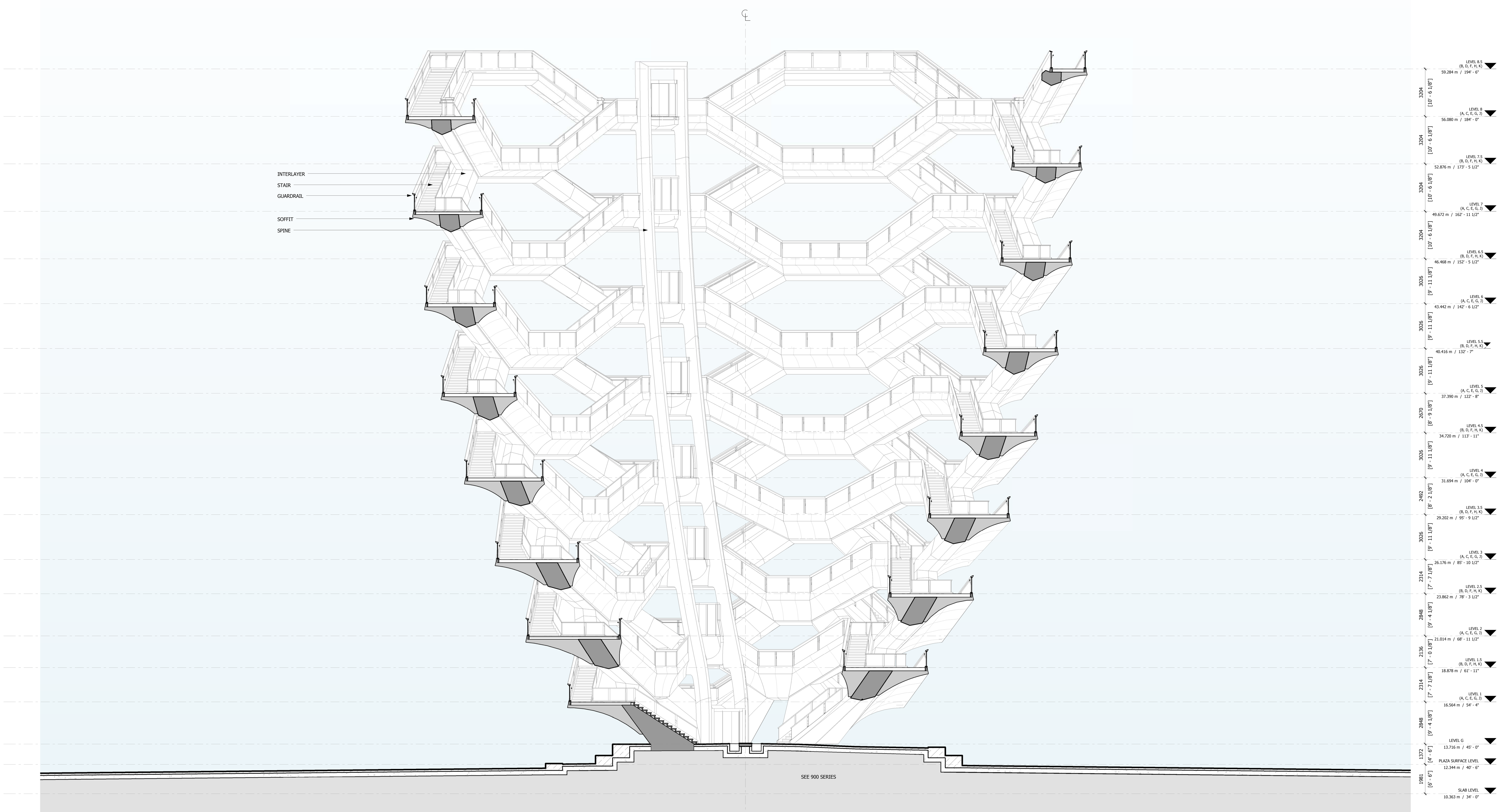

1 SECTION C-H

1 : 100

LEGEND

INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

Damian Titus
Buildings
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A-303
25/03/2016 18:55:24
SECTION C-H
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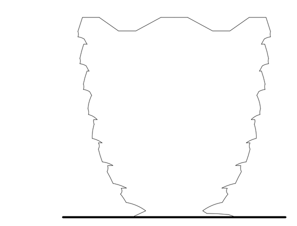
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
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Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
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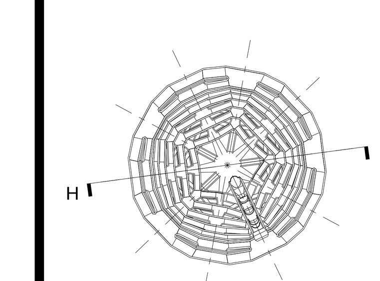

Date: 08/29/14
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MOSELLIE
022243-1
STATE OF NEW YORK

HYE-VS-A-303

Drawing Title

SECTION C-H

Drawing Number

A-303.00

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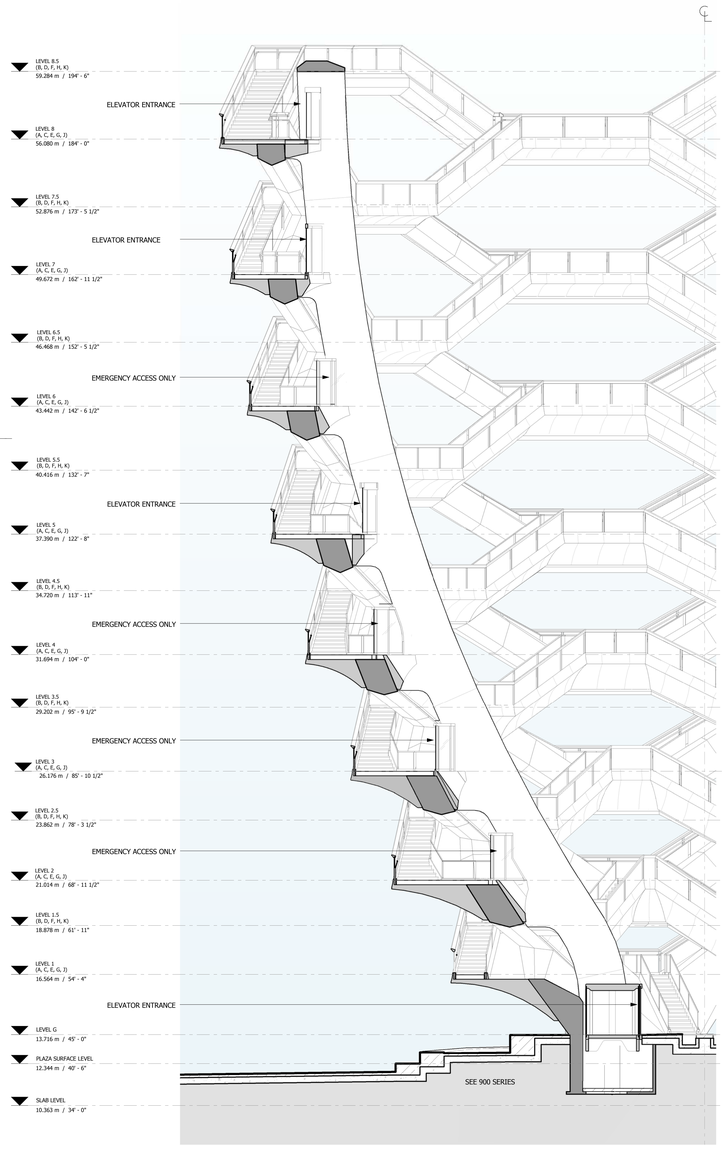
DEPT OF BUILDINGS 121121185 Job Number
E1211809051 Scan Code



1 ELEVATOR SPINE SECTION 01

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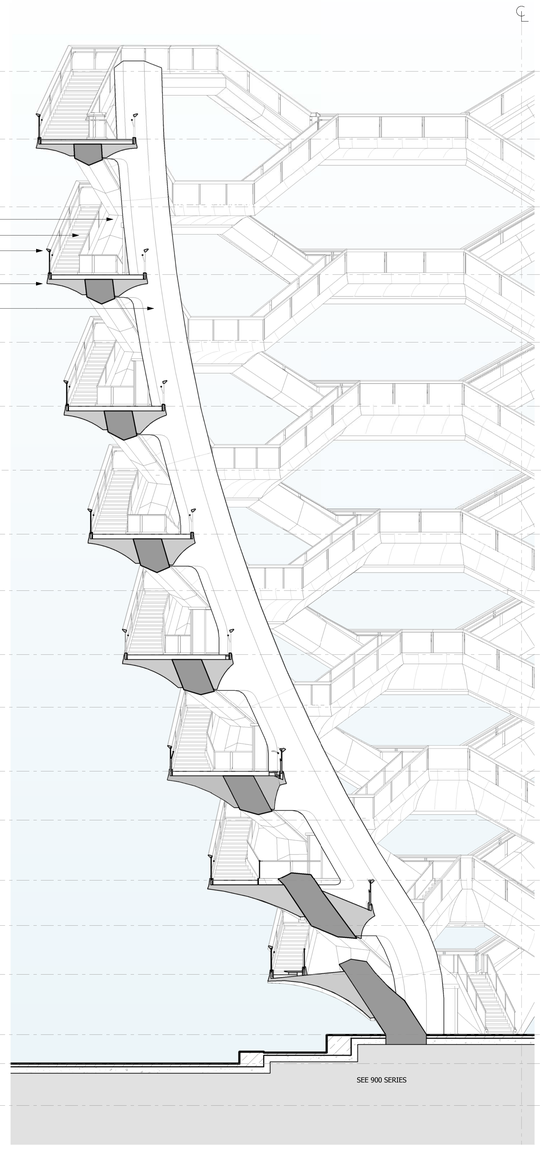

2 ELEVATOR SPINE SECTION 02

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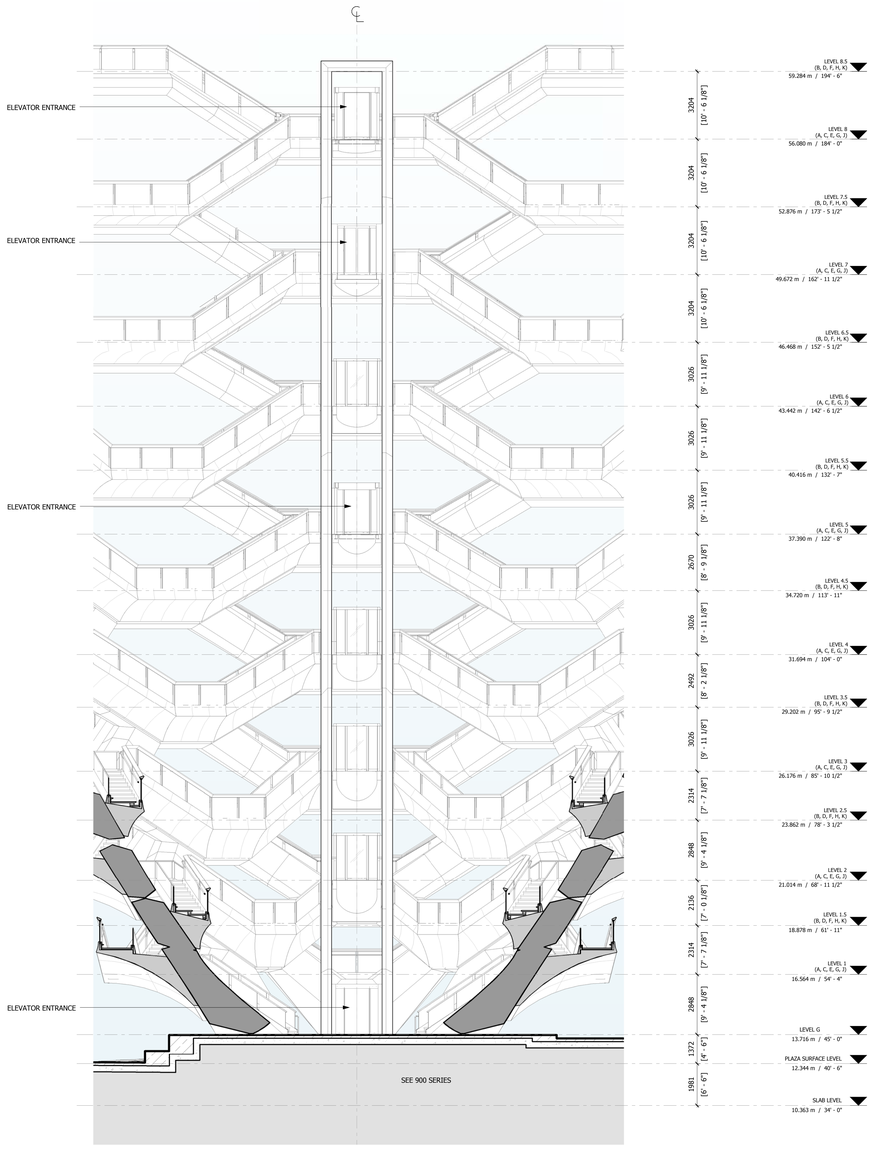

3 ELEVATOR SPINE SECTION 03

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LEGEND

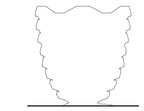
INTERLAYER

CAVITY BEHIND SOFFIT CLADDING

Damian Titus
Publisher
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
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100 Park Avenue
Tel: 212.708.6800

Executive Architect
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Architects & Planning Consultants
11 West 42nd Street
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Tel: 44(0)20 7833 8800

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Tel: 917.661.7800 Fax: 917.661.7801

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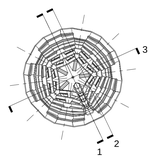
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2208.007
Drawn By
Sheet Number

REGISTERED ARCHITECT
ROBERT MAY MORRIS
No. 029453
STATE OF NEW YORK

HYE-VS-A-320

Drawing Title

SPINE SECTION

Drawing Number

A-320.00

SHEET 30 OF 86

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SPINE SECTION
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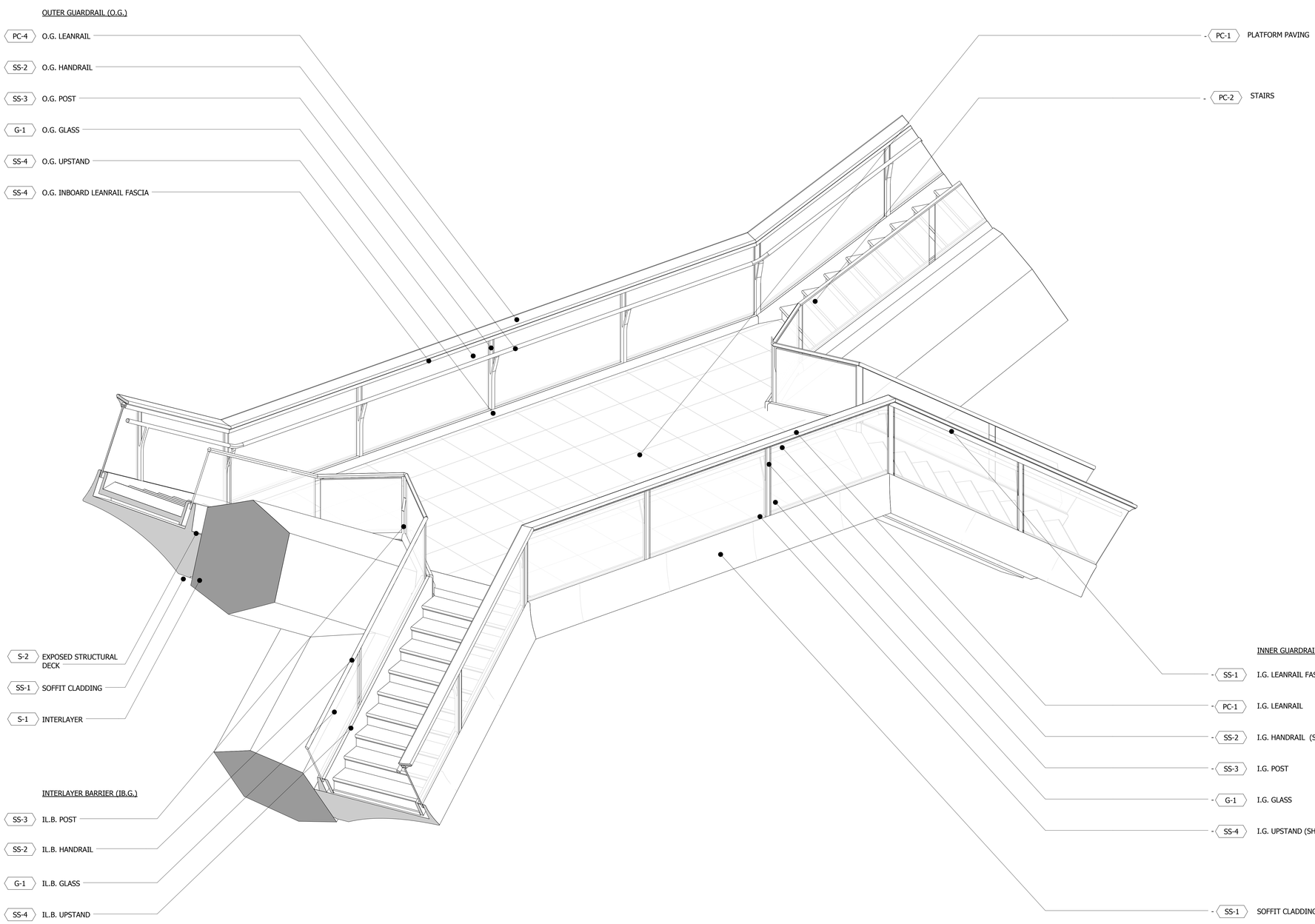
DEPT OF BUILDINGS 121121125 Job Number
E107267065 Scan Code



1 PLATFORM COMPONENT DIAGRAM

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
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Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
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No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan

Date: 05/29/15
Project No. 220807
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MICHELLI
026143
STATE OF NEW YORK

HYE-VS-A-400

Drawing Title

PLATFORM COMPONENT DIAGRAM

Drawing Number
A-400.00

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A-400
25/03/2016 19:29:56
PLATFORM COMPONENT DIAGRAM
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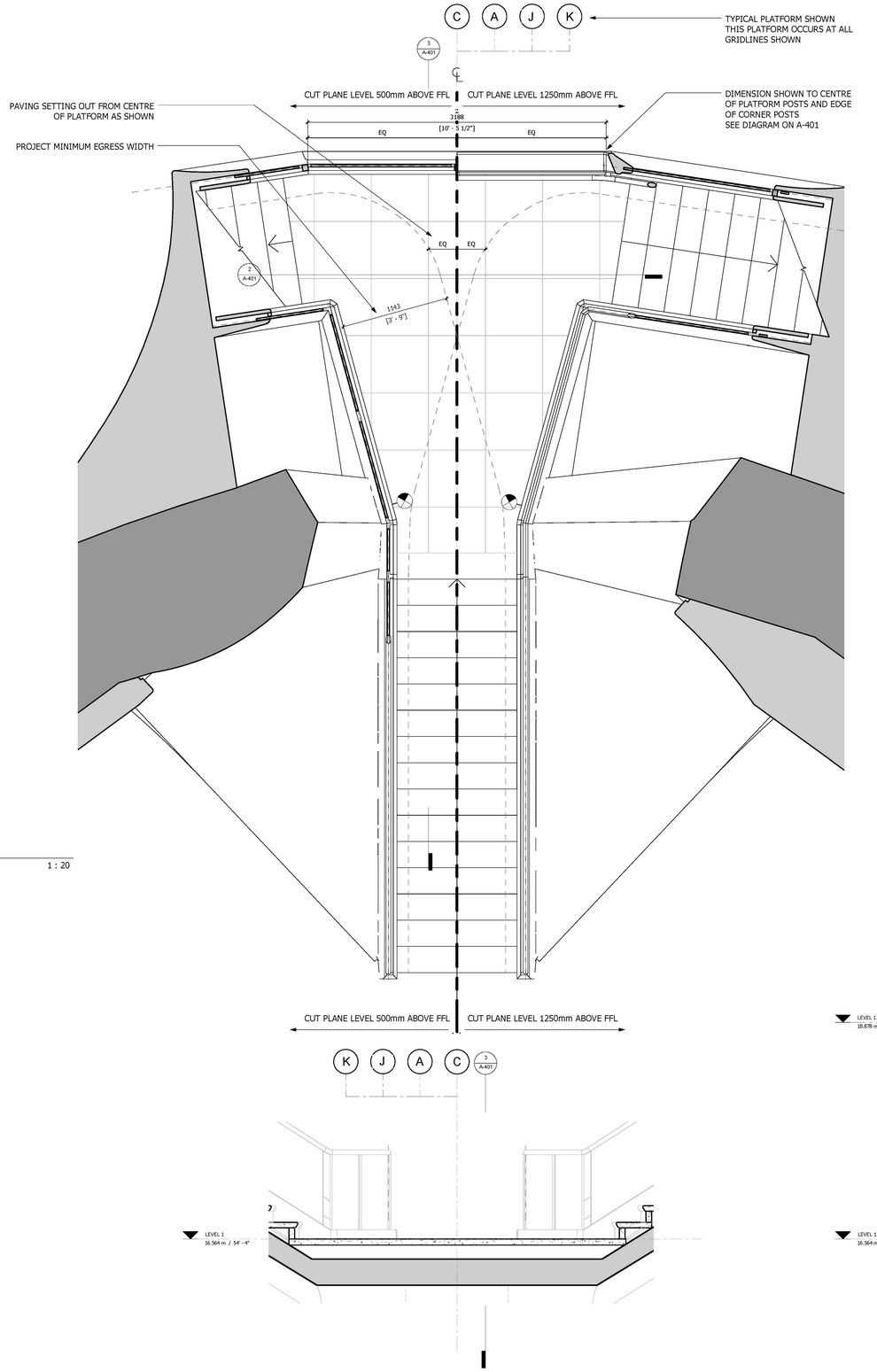
DEPT OF BLDGS 321191185 Job Number
B1609150099 Scan Code



1 PLAN

1 : 20

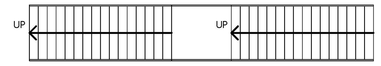
2 LONG SECTION

1 : 20

NOTES:

- OCCUPATION CAPACITY - BASED ON TIMED EGRESS ANALYSIS.
- POST DIMENSIONS GIVEN AS DIAGRAM BELOW:

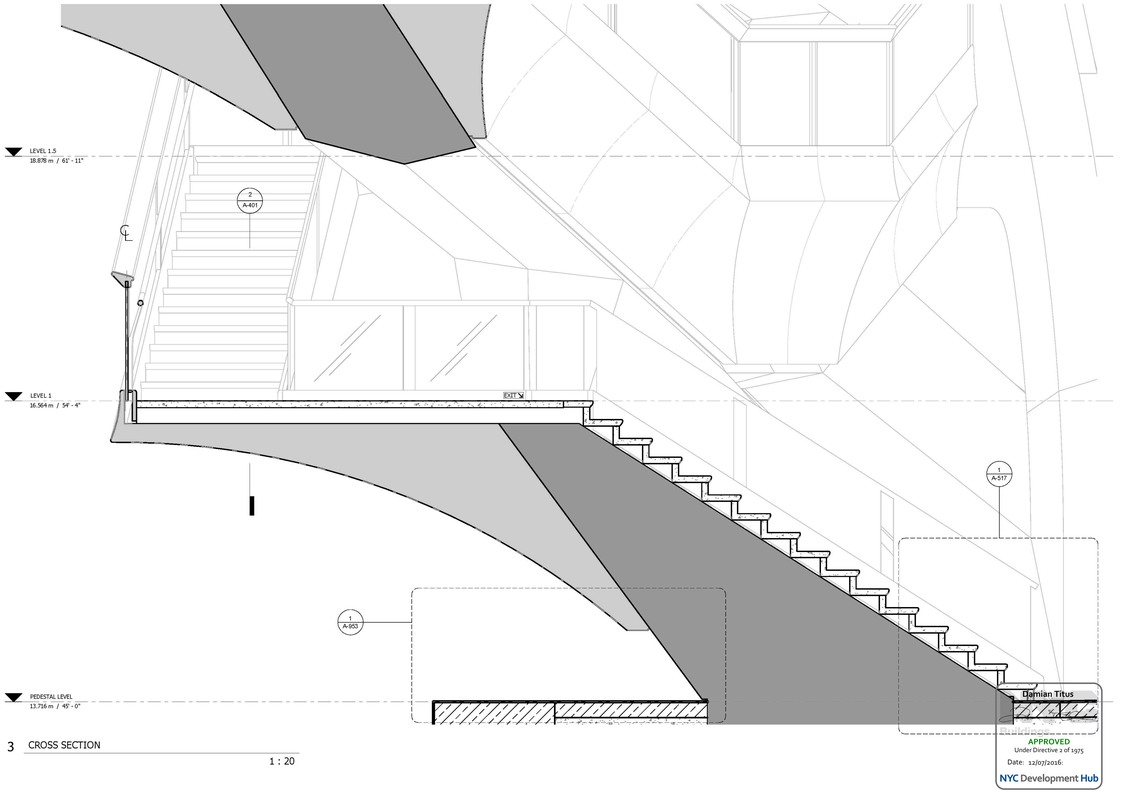
- STAIR DIRECTION ARROWS ALWAYS POINT IN THE "UP" DIRECTION:



KEY:

T EXIT SIGN PLAN VIEW.
MOUNTED FLUSH TO BASE.

EXIT EXIT SIGN ELEVATION VIEW

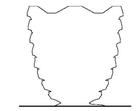


3 CROSS SECTION

1 : 20

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
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Architects & Planning Consultants
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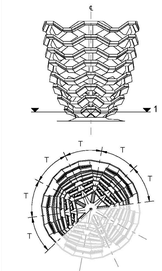
No.	Issue	Date
2	D.O.B. BUILDING PERMIT FILING	12/02/2016
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MOSCHETTI
No. 029193
STATE OF NEW YORK

HYE-VS-A-401

Drawing Title

TYPICAL PLATFORM LEVEL 1 (DISPLAY 1)

Drawing Number

A-401.00

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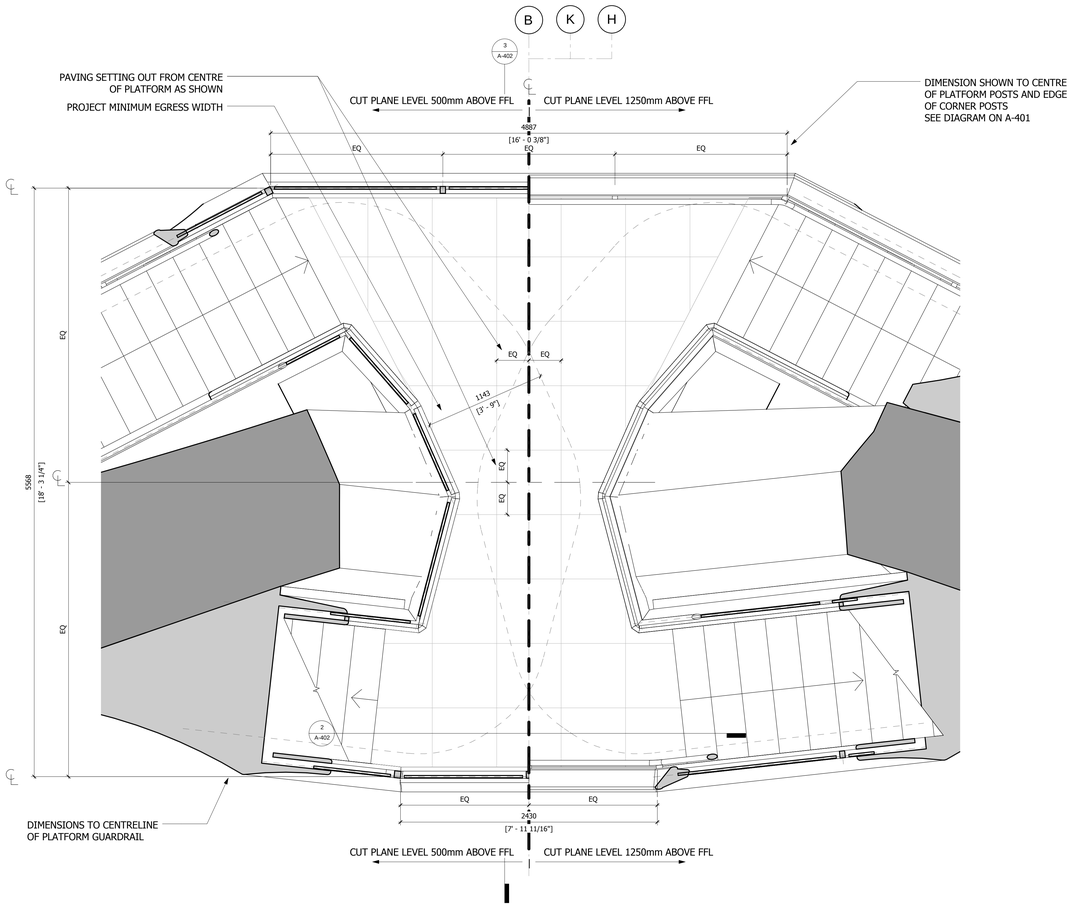

1 PLAN

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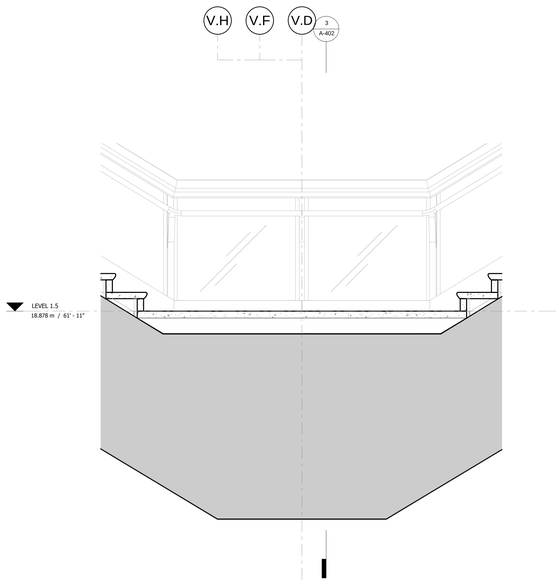

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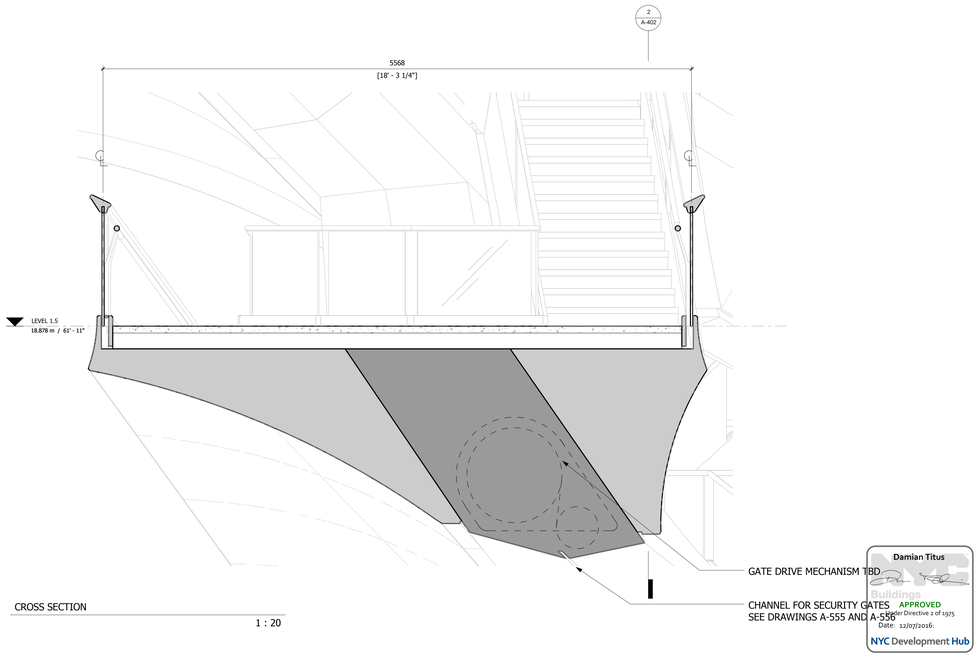

3 CROSS SECTION

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Damian Titus
Buildings
APPROVED
Chapter Directive 1 of 1975
Date: 12/07/2016
NYC Development Hub

BIN OF BLOCK 1019185 Job Number
ES1824574DN Scan Code

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

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No.	Issue	Date
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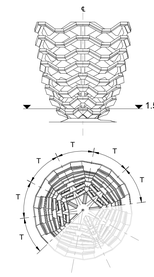
Key Plan



Date: 05/15/14
Project No. 229402
Drawn By
Sheet Number

REGISTERED ARCHITECT
JEREMY MICHAEL
SCOFIDIO
No. 031483
STATE OF NEW YORK

HYE-VS-A-402

Drawing Title

TYPICAL PLATFORM LEVEL 1.5 (DISPLAY 1)

Drawing Number

A-402.00

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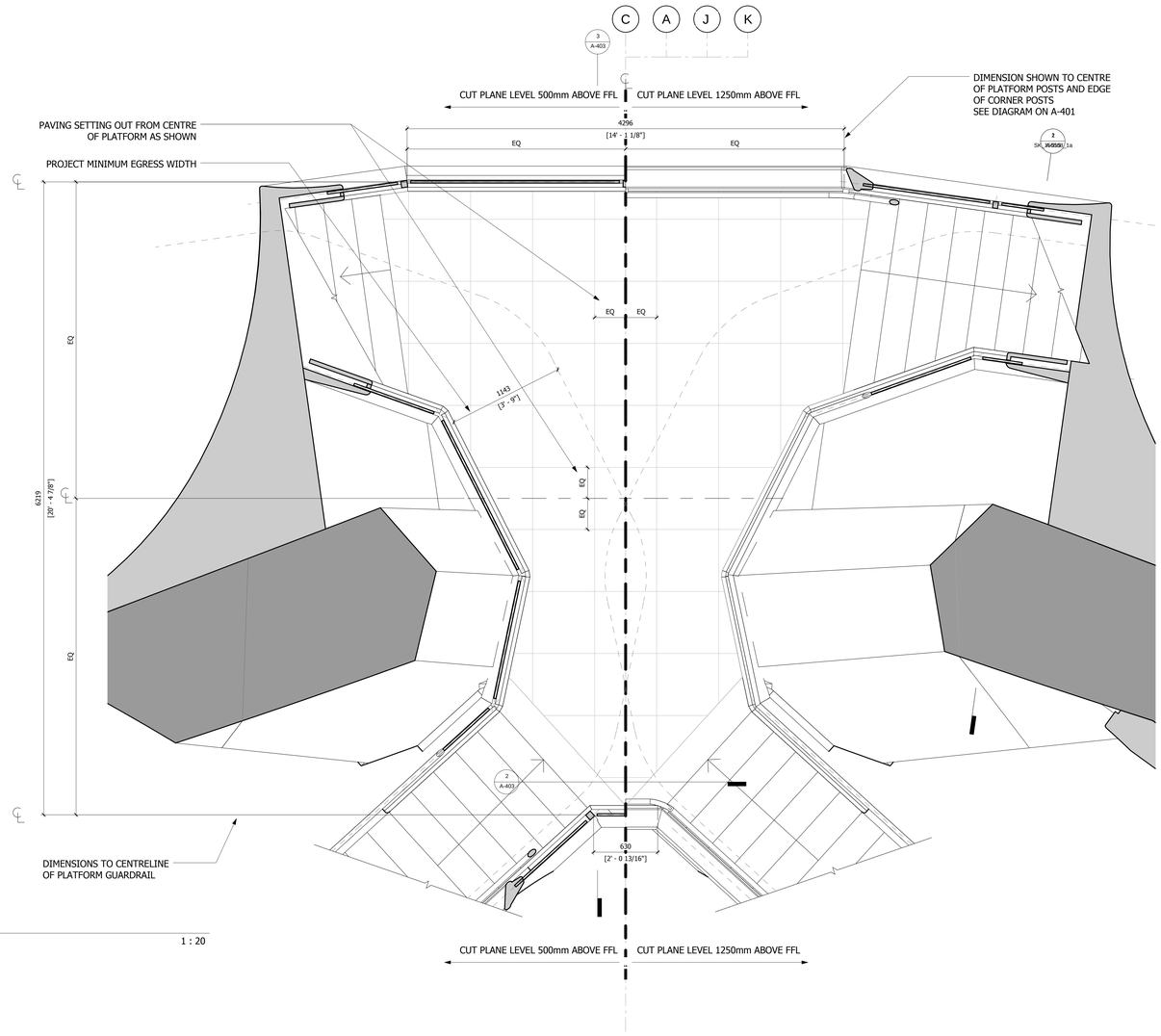

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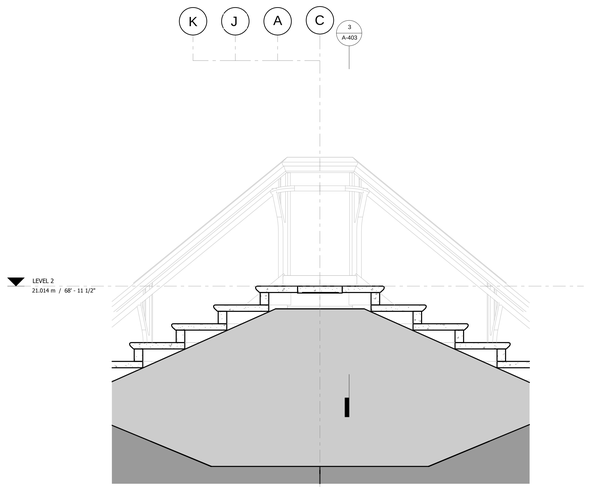

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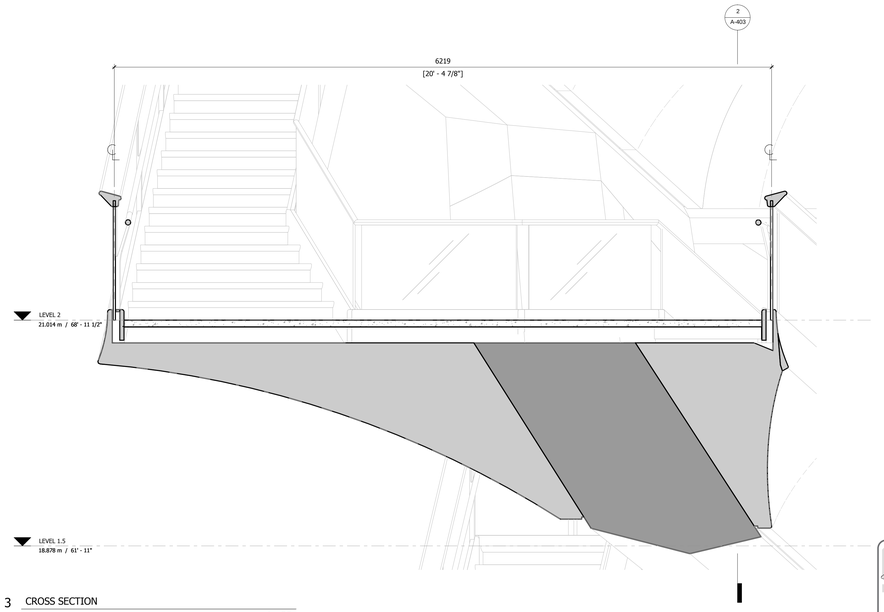

3 CROSS SECTION

1 : 20

Damian Titus
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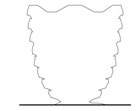
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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Tel: 212.708.6800

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Architects & Planning Consultants
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No.	Issue	Date
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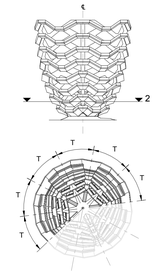
Key Plan



Date: 08/29/14
Project No. 220807
Drawn By
Sheet Number

HYE-VS-A-403

Drawing Title

TYPICAL PLATFORM LEVEL 2 (DISPLAY 2)

Drawing Number

A-403.00

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BKPF OF BLOCK 37 LOT 001 Job Number
B1604012.DWG Scan Code

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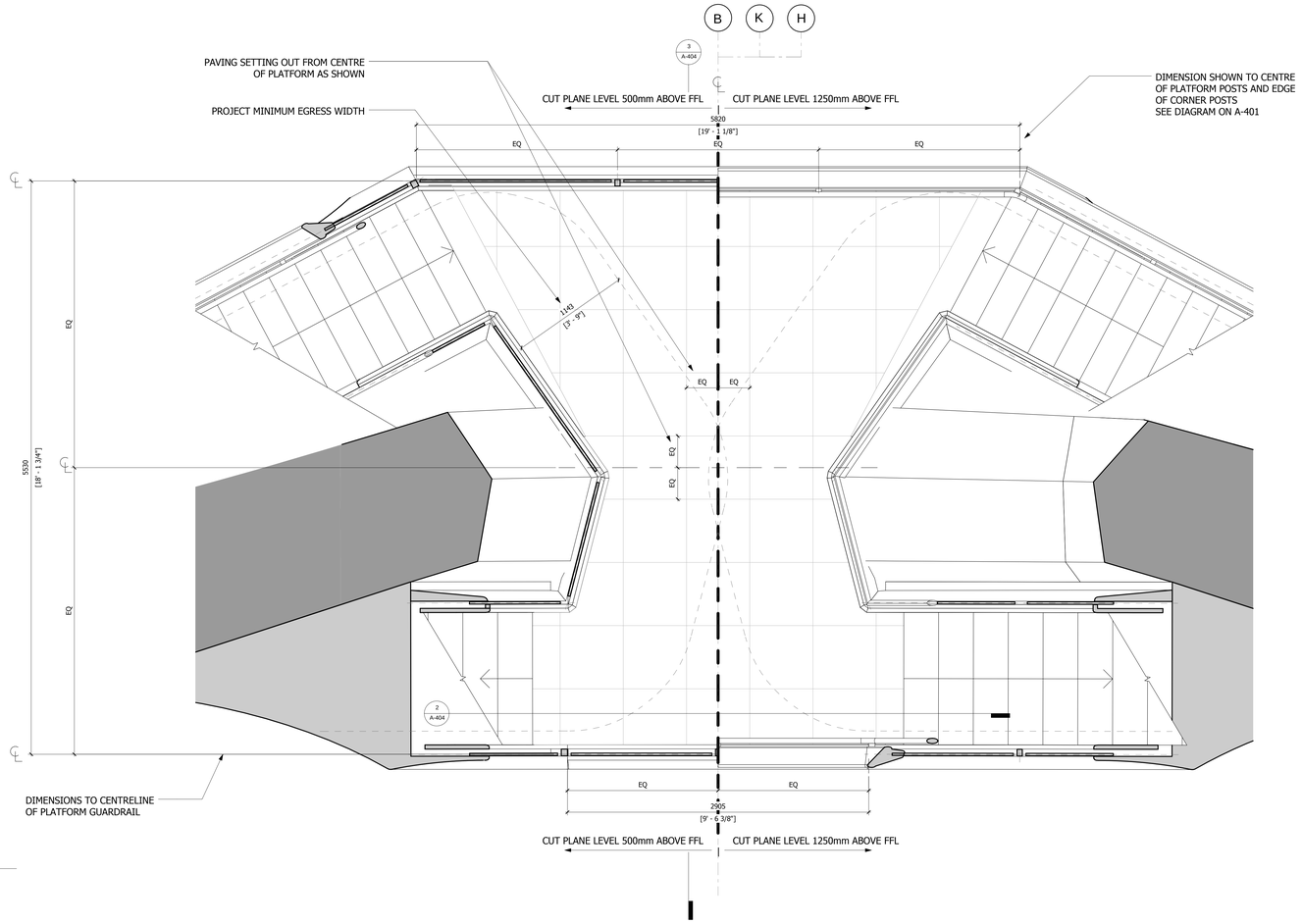

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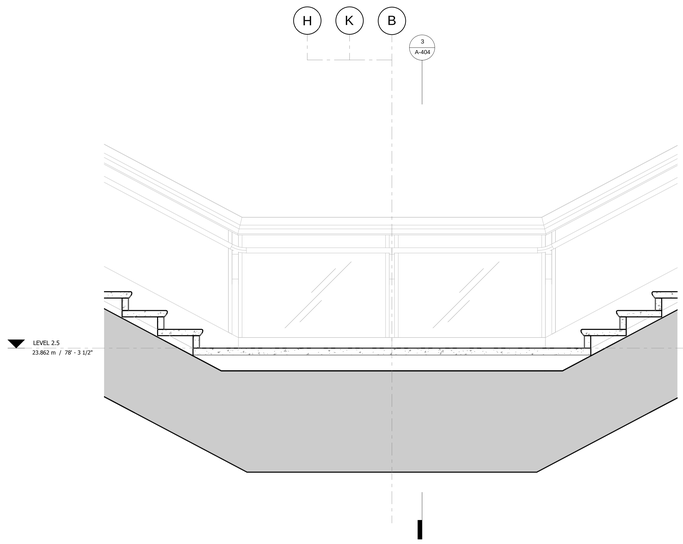

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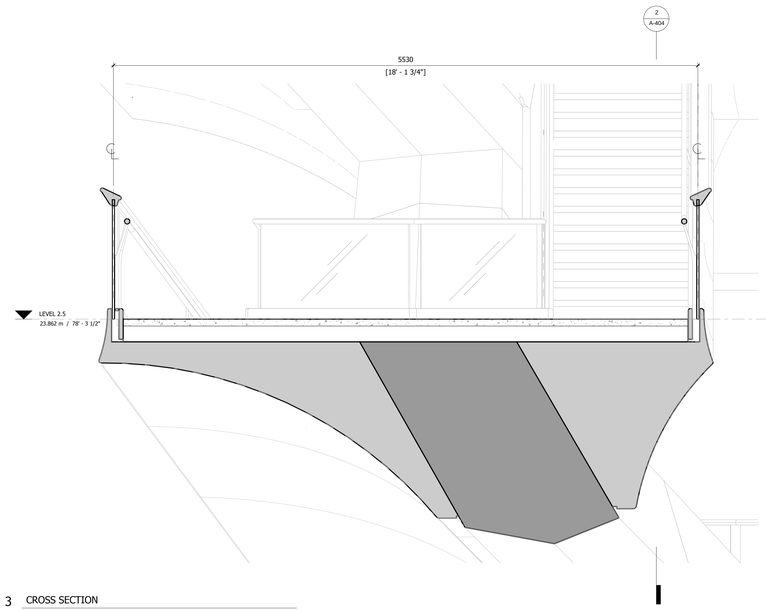

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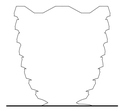
HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
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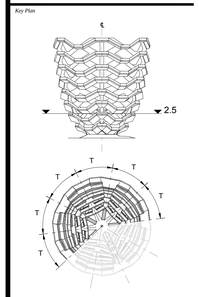
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

Date: 08/29/14
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MOSELLE
STATE OF NEW YORK

HYE-VS-A-404

Drawing Title

TYPICAL PLATFORM LEVEL 2.5 (DISPLAY 2)

Drawing Number
A-404.00

SHEET 35 OF 86

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TYPICAL PLATFORM LEVEL 04
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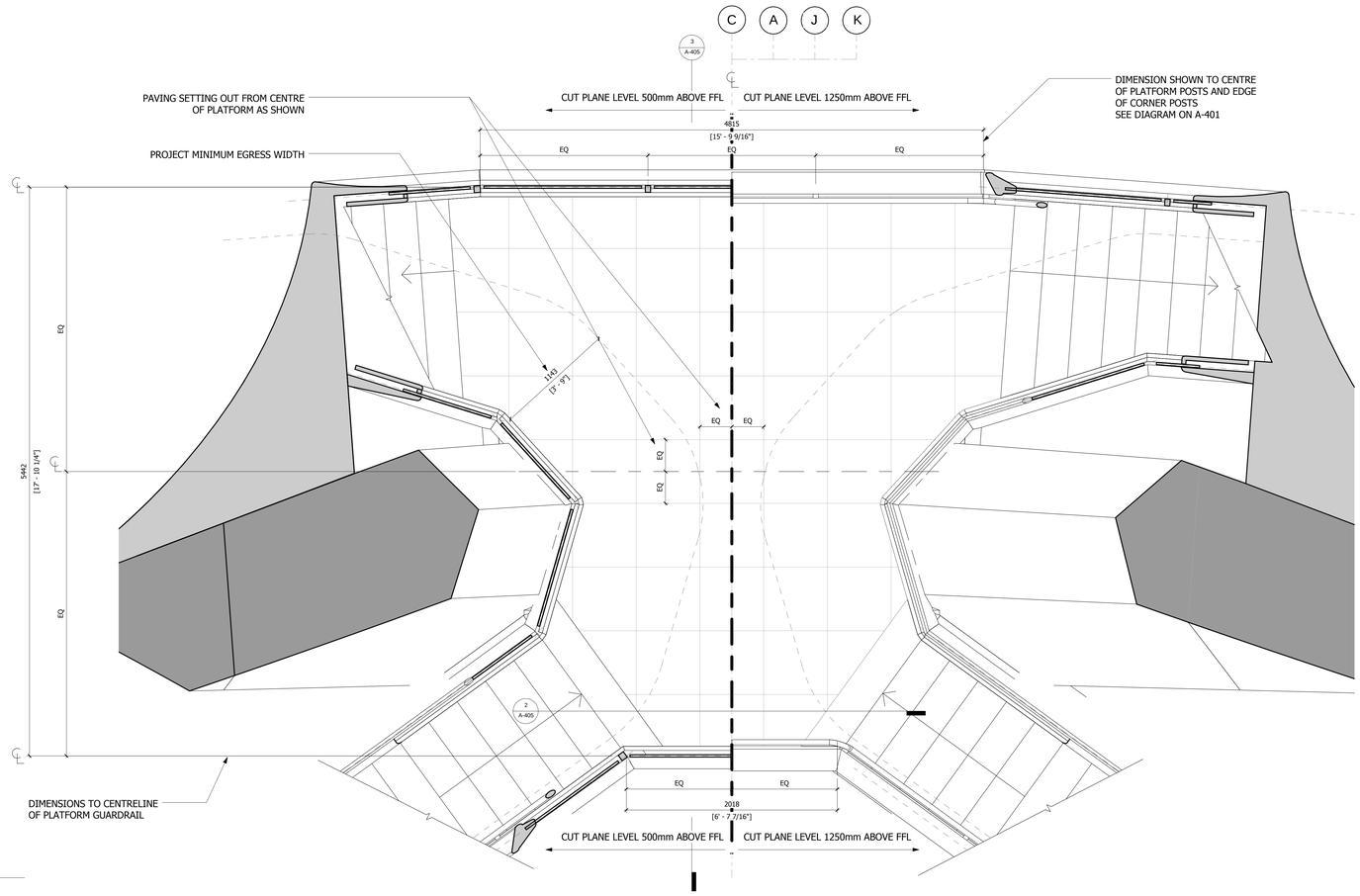
DEPT OF BUILDINGS 321191185 Job Number
B1190122 Scan Code



1 PLAN

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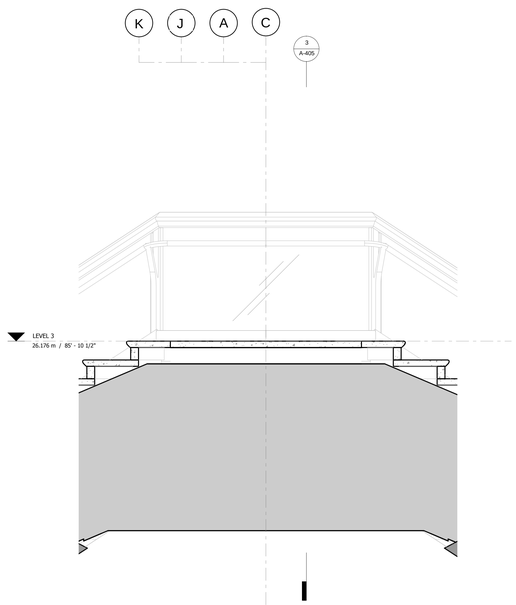

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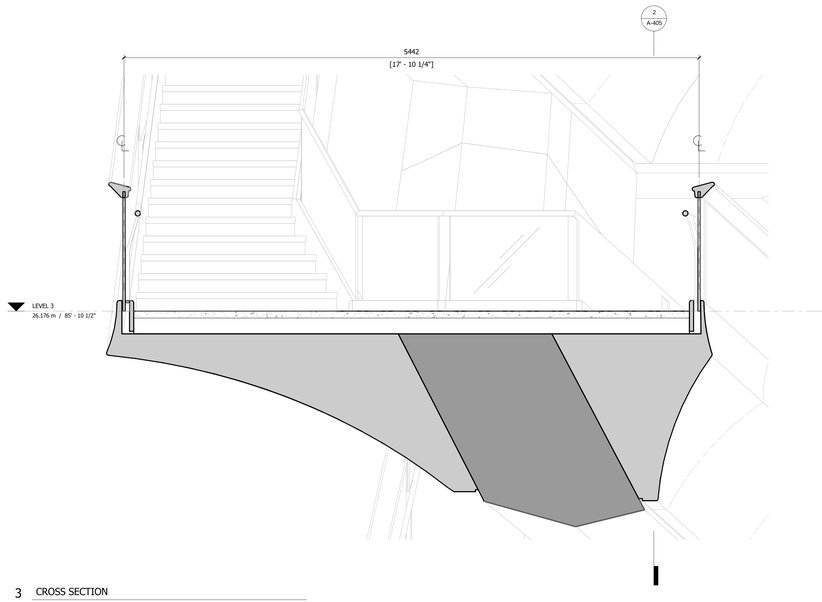

3 CROSS SECTION

1 : 20

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Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

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NEW YORK, NY

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Tel: 917.661.7800 Fax: 917.661.7801

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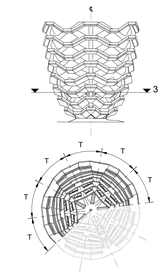
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298007
Drawn By
Sheet Number

REGISTERED ARCHITECT DOMINIQUE MICHEL 029453 STATE OF NEW YORK

HYE-VS-A-405

Drawing Title

TYPICAL PLATFORM LEVEL 3 (DISPLAY 3)

Drawing Number

A-405.00

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A-405
25/05/2016 18:59:32
TYPICAL PLATFORM LEVEL DS
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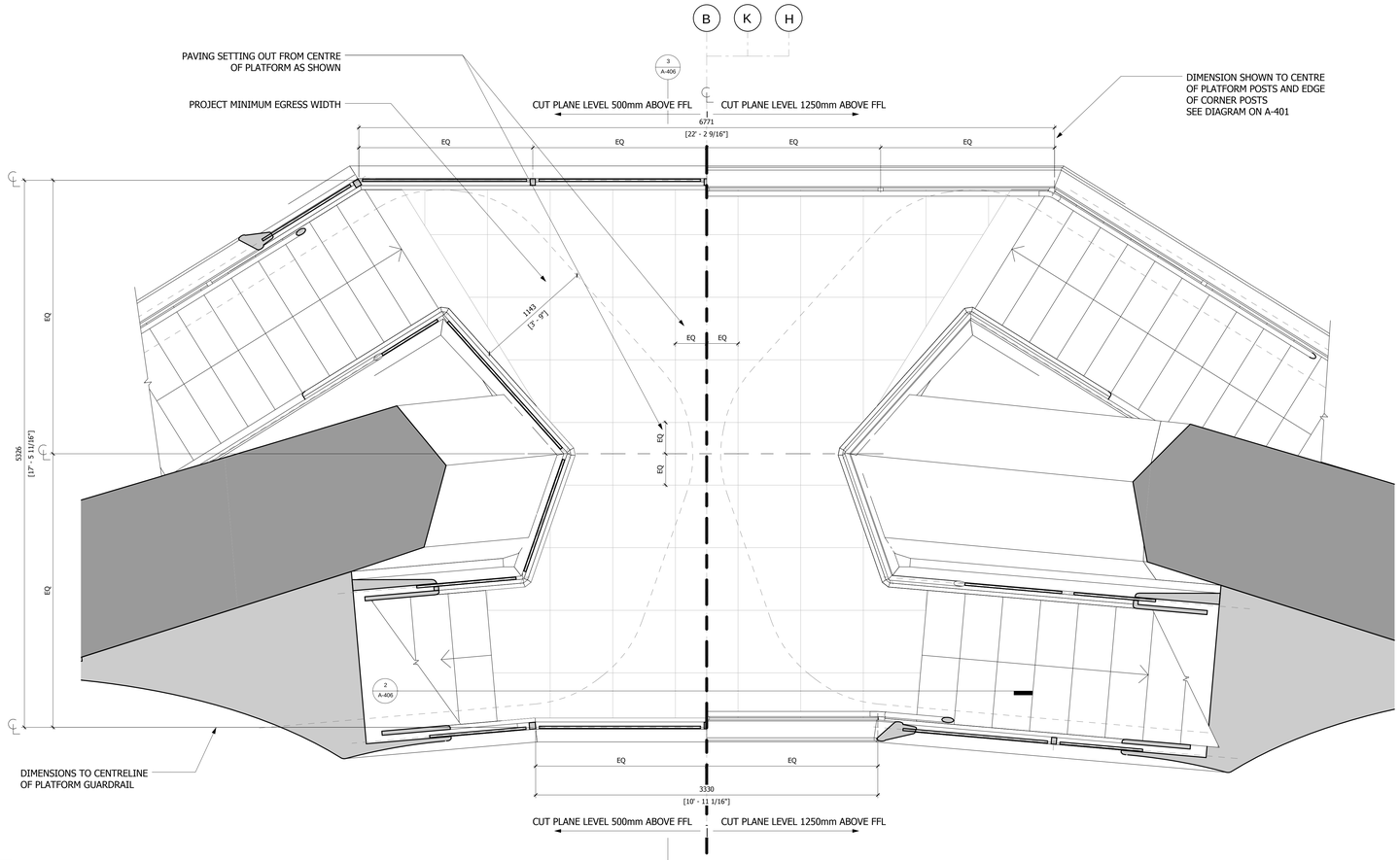
EXIT OF BLOCK 37191185 Job Number
E9453AW06 Scan Code



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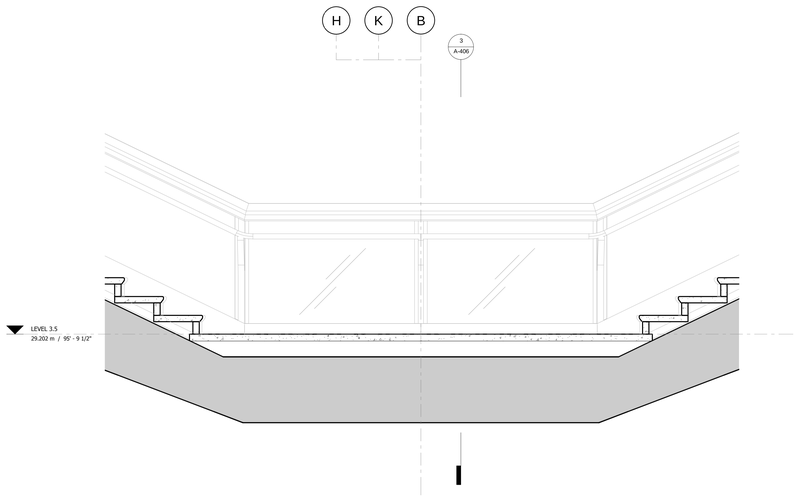

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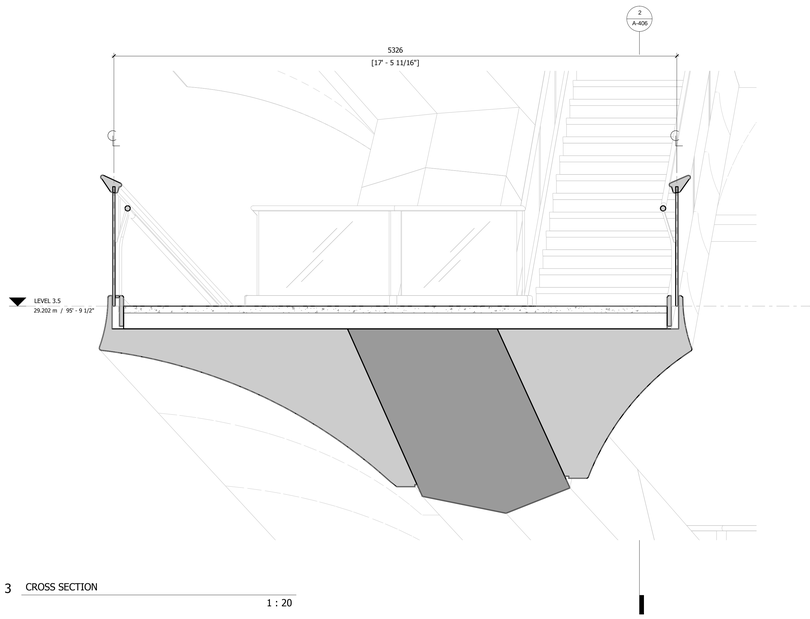


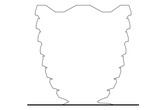
3 CROSS SECTION

1 : 20

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
Tishman Construction Corporation
100 Park Avenue
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Executive Architect
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Architects & Planning Consultants
11 West 42nd Street
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Design Architect
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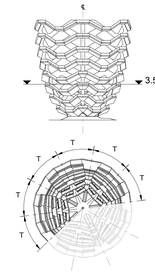
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.07
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHN MAY MICHAEL
026473
STATE OF NEW YORK

HYE-VS-A-406

Drawing Title

TYPICAL PLATFORM LEVEL 3.5 (DISPLAY 3)

Drawing Number
A-406.00

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A-406
25/03/2016 19:00:07
TYPICAL PLATFORM LEVEL 06
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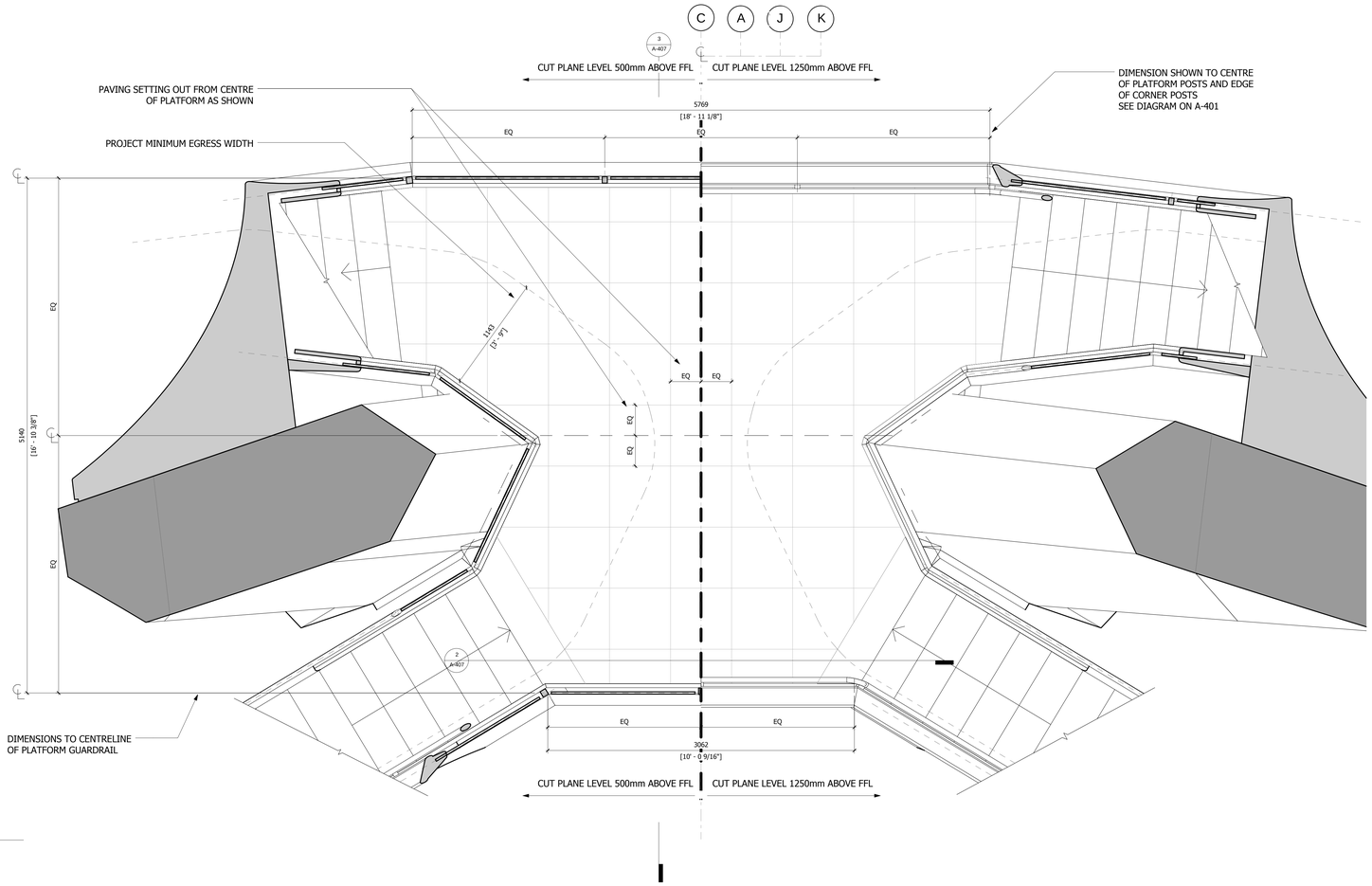
DEPT OF BUILDINGS 321191185 Job Number
ES2877160US Scan Code



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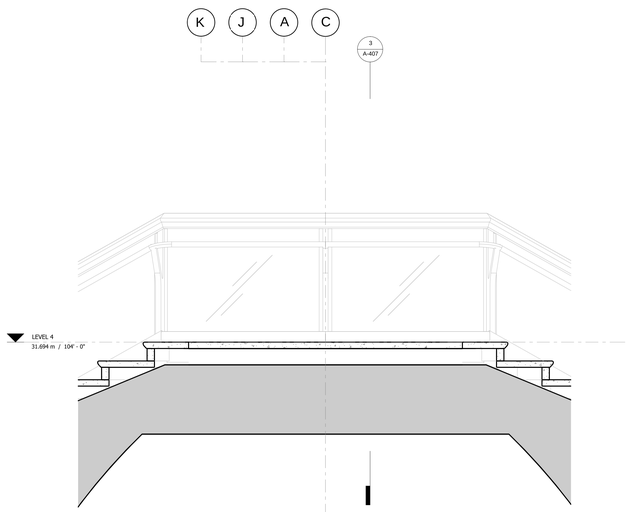

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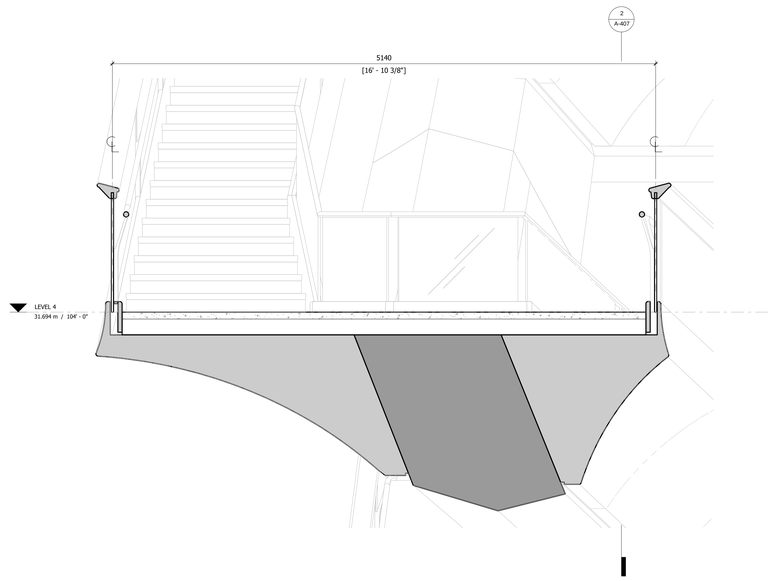


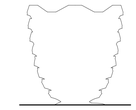
3 CROSS SECTION

1 : 20

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
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100 Park Avenue
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Executive Architect
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Architects & Planning Consultants
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Structural Engineer
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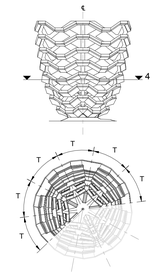
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 22900.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORRELLI
No. 026443
STATE OF NEW YORK

HYE-VS-A-407

Drawing Title

TYPICAL PLATFORM LEVEL 4 (DISPLAY 4)

Drawing Number

A-407.00

SHEET 38 OF 86

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A-407
25/07/2016 19:00:34
TYPICAL PLATFORM LEVEL 07
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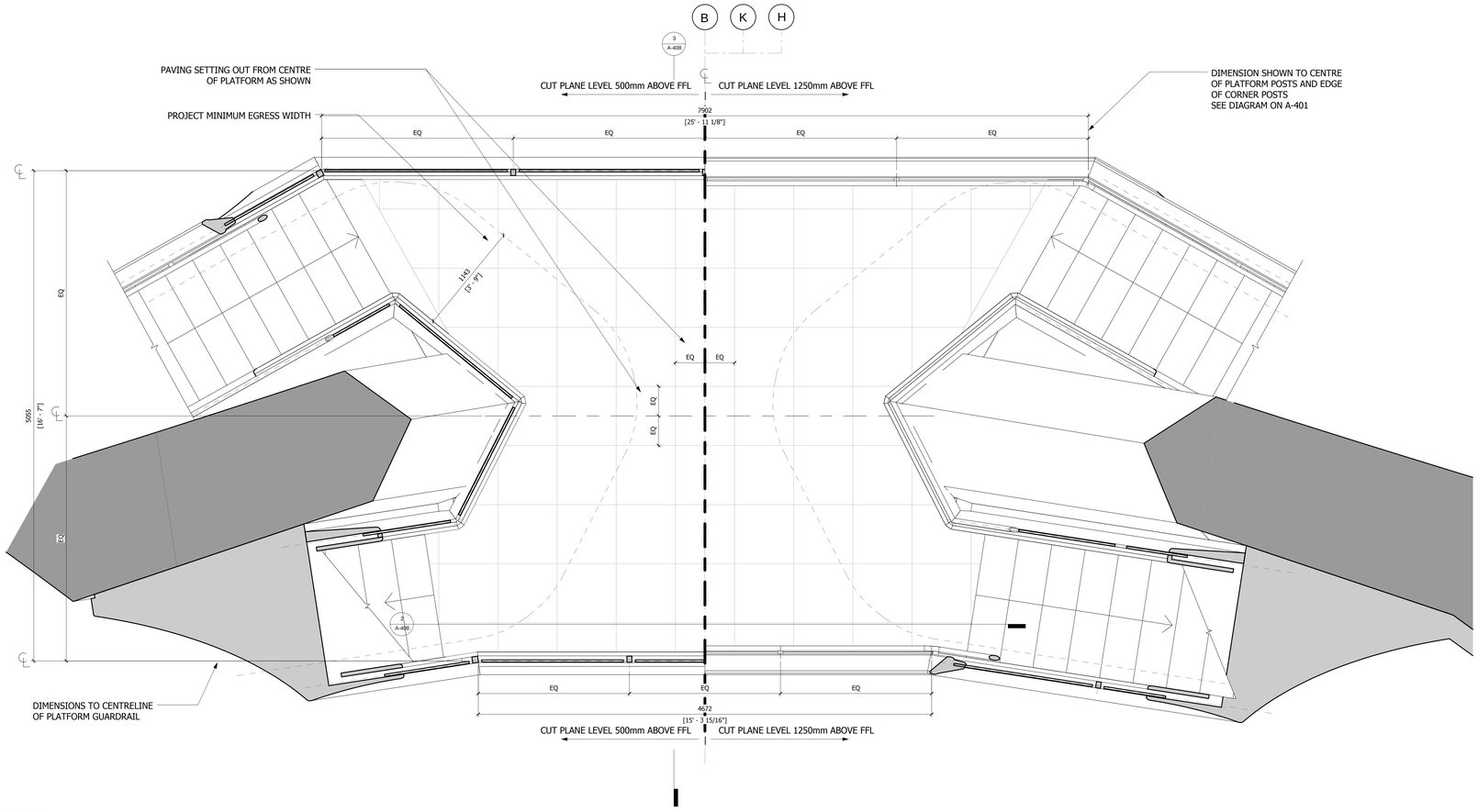
DEPT OF BUILDINGS 121191185 Job Number
E-DOB-EBAMS Scan Code



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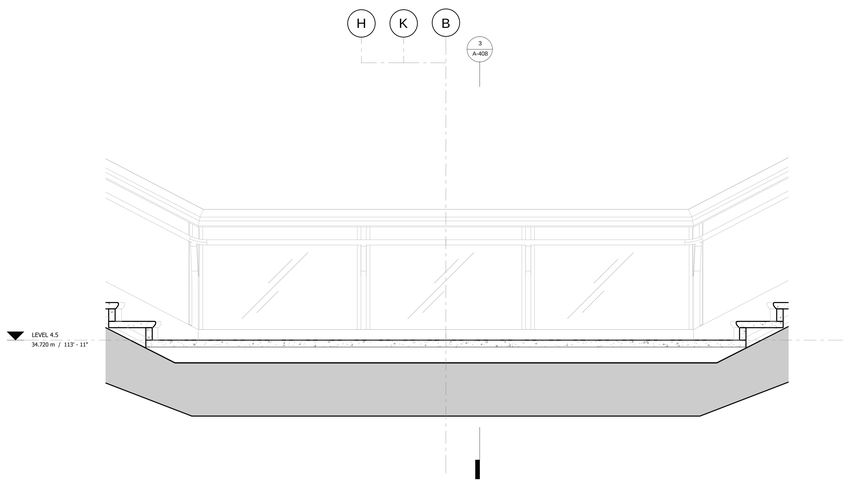

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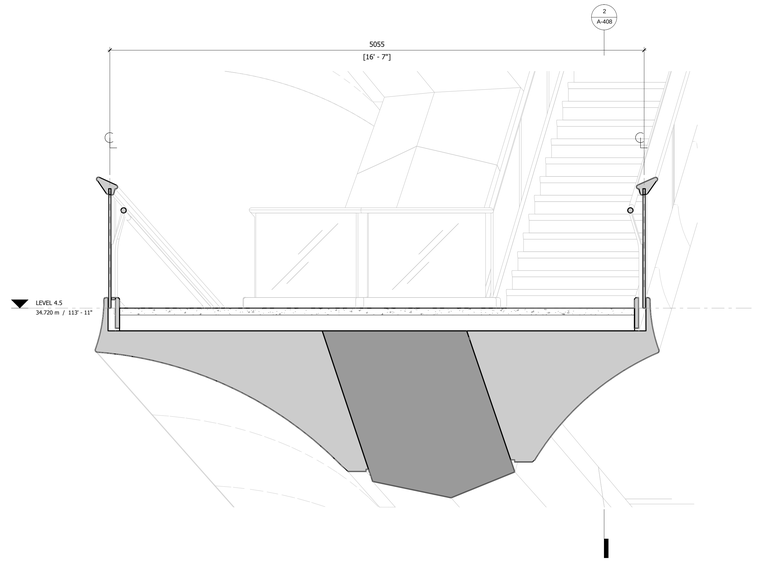


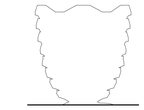
3 CROSS SECTION

1 : 20

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
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Tel: 212.708.6800

Executive Architect
Kohn Pedersen Fox Associates PC
Architects & Planning Consultants
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United Kingdom
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Structural Engineer
Thornton Tomasetti, Inc.
51 Madison Avenue
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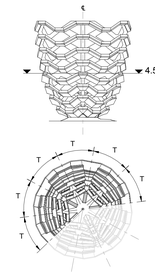
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2298.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
DAMIAN TITUS
026473
STATE OF NEW YORK

HYE-VS-A-408

Drawing Title

TYPICAL PLATFORM LEVEL 4.5 (DISPLAY 4)

Drawing Number
A-408.00

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TYPICAL PLATFORM LEVEL 08
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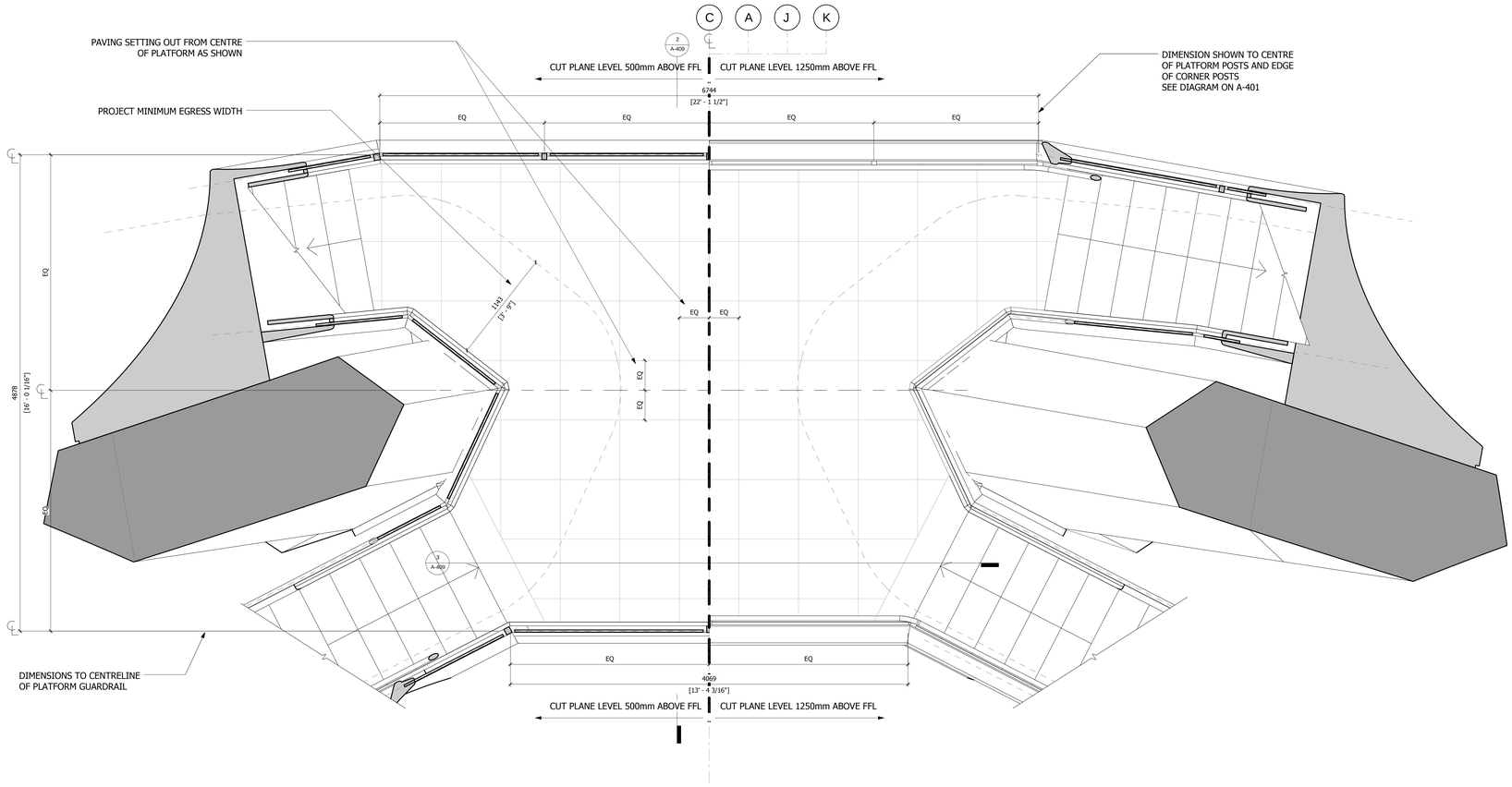

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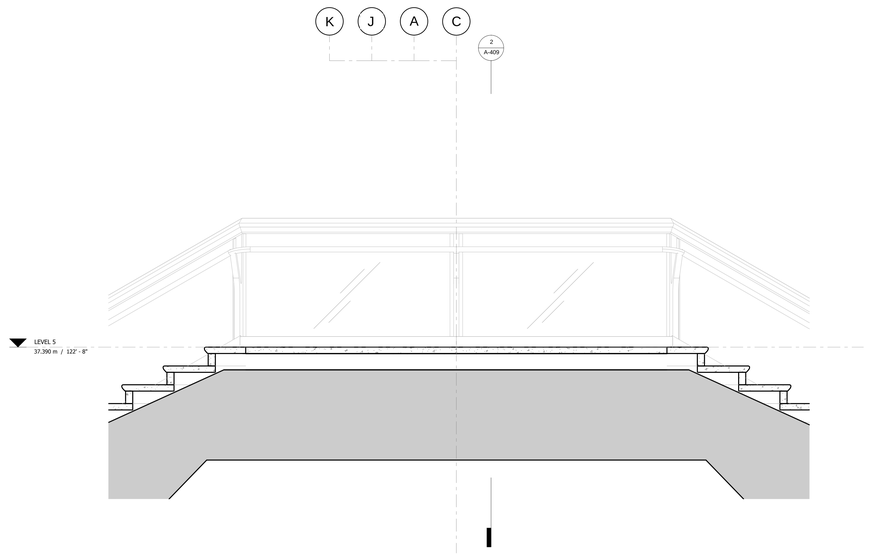

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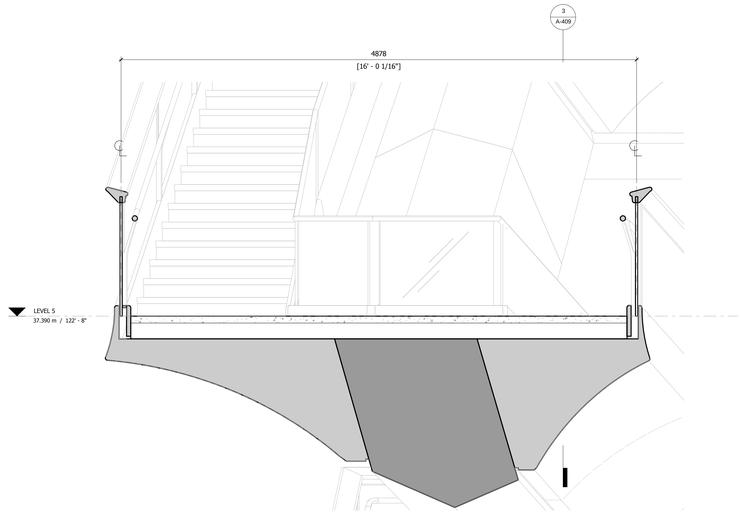

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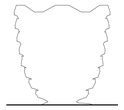
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
Tishman Construction Corporation
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Executive Architect
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Architects & Planning Consultants
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United Kingdom
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New York, NY 10010
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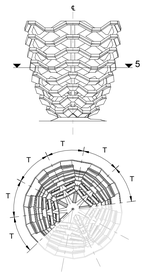
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.02
Drawn By
Sheet Number

HYE-VS-A-409

Drawing Title

TYPICAL PLATFORM LEVEL 5 (DISPLAY 5)

Drawing Number
A-409.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
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SHEET 40 OF 86

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TYPICAL PLATFORM LEVEL 09
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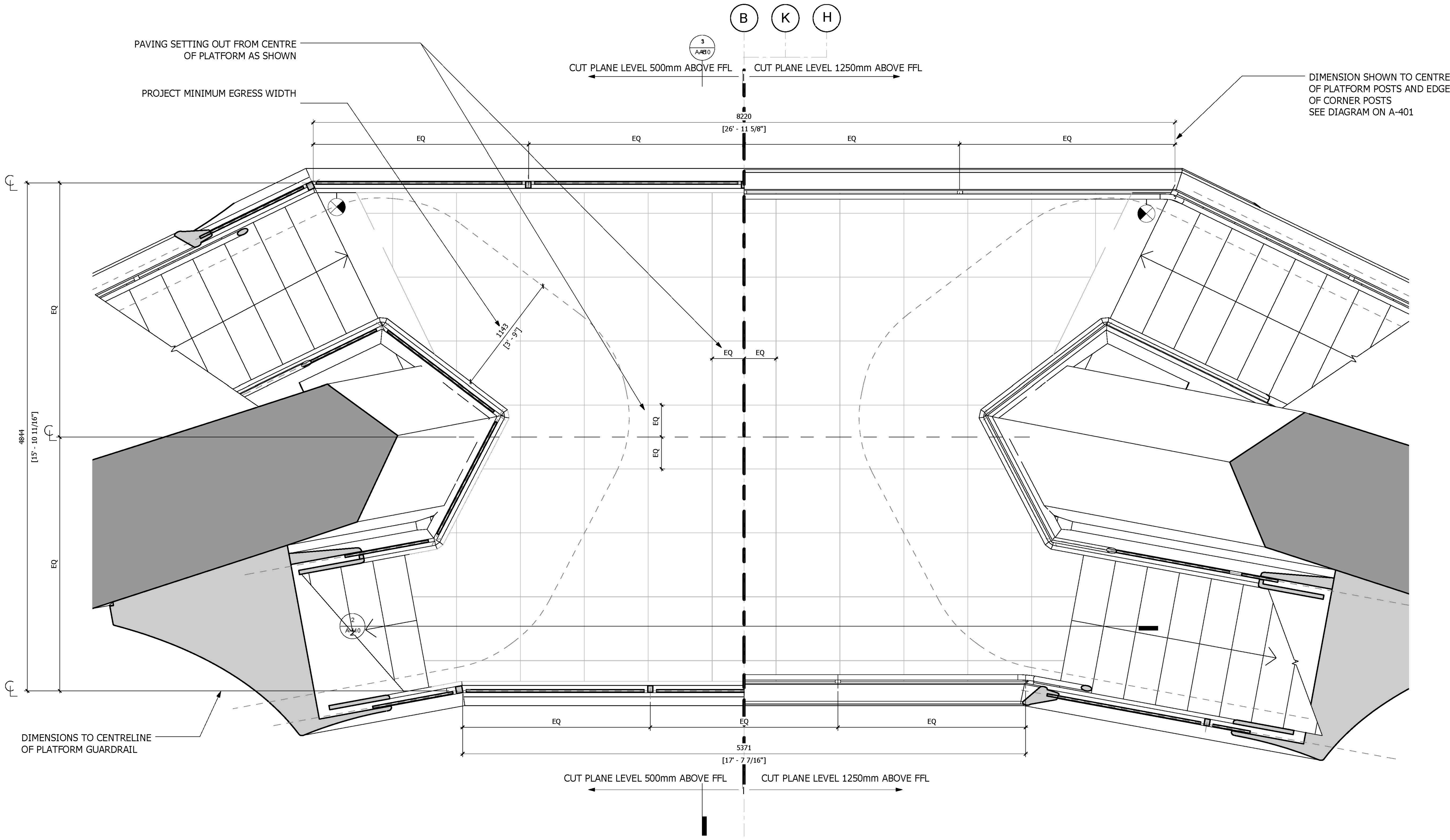
A-409
25/03/2016 19:01:35

KEY:

EXIT SIGN PLAN VIEW. MOUNTED FLUSH TO BASE.

EXIT ↘ — EXIT SIGN ELEVATION VIEW



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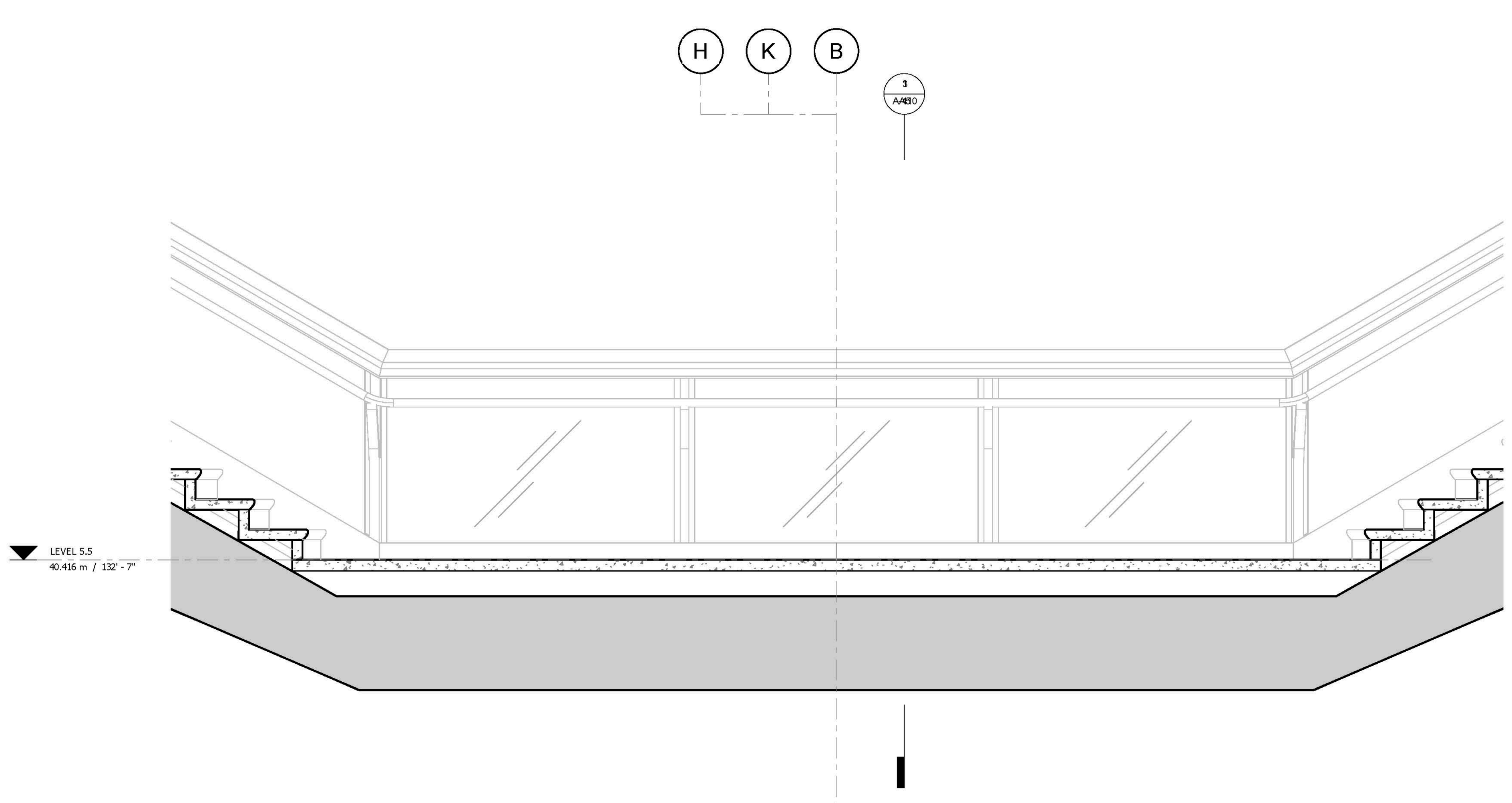

2 LONG SECTION
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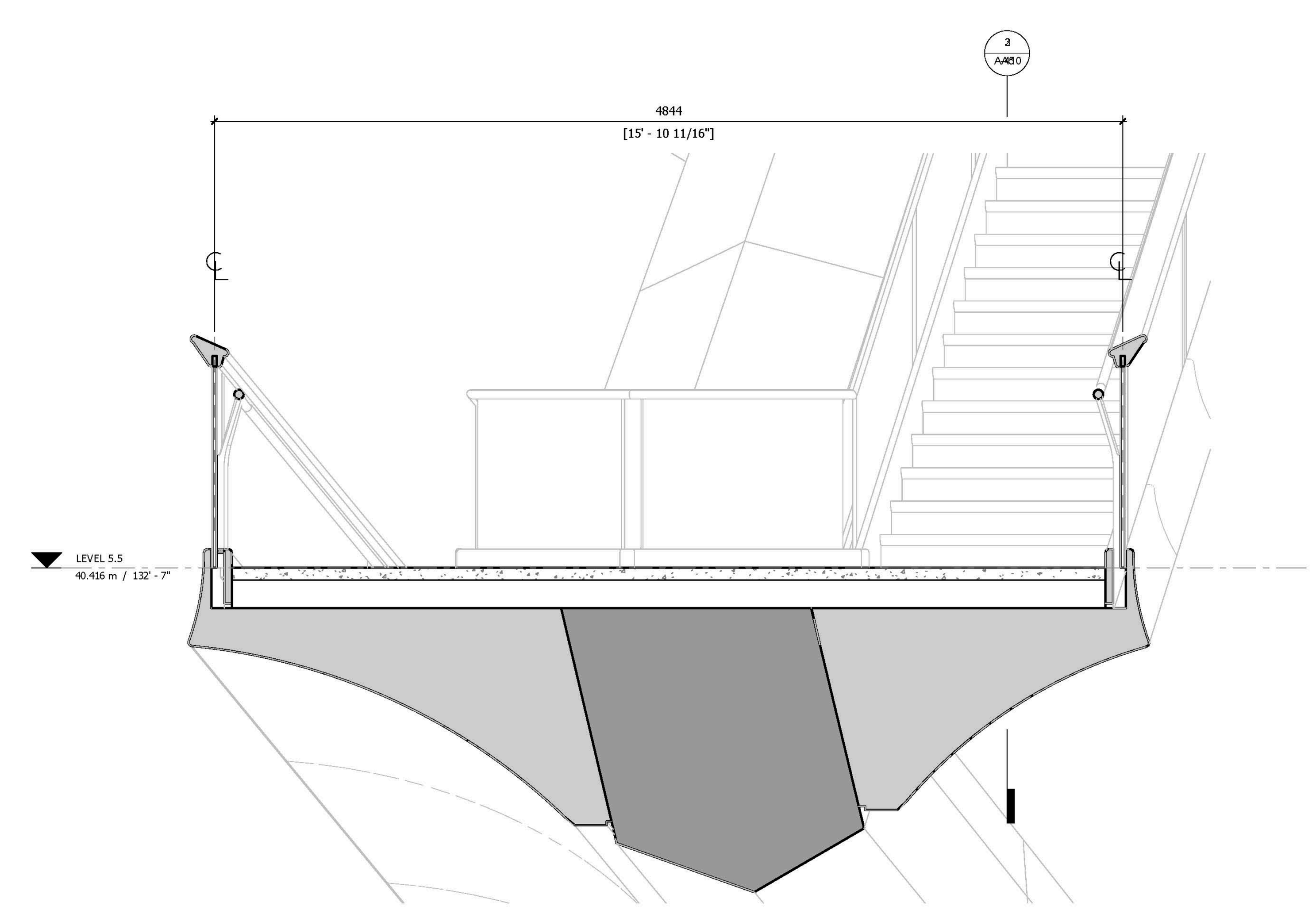

3 CROSS SECTION
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TYPICAL PLATFORM LEVEL 10
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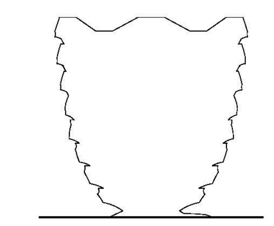
DEPT OF BLDGS 121191183 Job Number
ES497511461 Scan Code

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
Tishman Construction Corporation
100 Park Avenue
Tel: 212.708.6800

Executive Architect
Kohn Pedersen Fox Associates PC
Architects & Planning Consultants
11 West 42nd Street
Tel: 212.977.6500 Fax: 212.956.2526

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United Kingdom
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Structural Engineer
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51 Madison Avenue
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Tel: 917.661.7800 Fax: 917.661.7801

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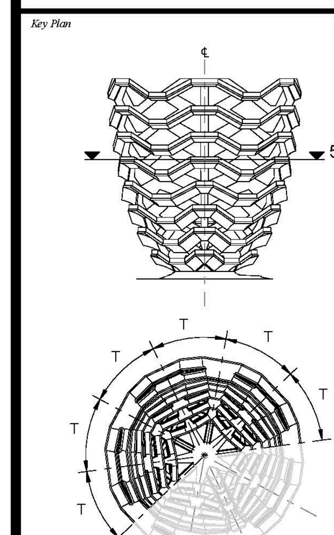
No.	Issue	Date
2	D.O.B. BUILDING PERMIT FILING	12/02/2016
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT ANTHONY MOSELLIE 022243-1 STATE OF NEW YORK

HYE-VS-A-410

Drawing Title

TYPICAL PLATFORM LEVEL 5.5 (DISPLAY 5)

Damian Titus
NYC Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

Drawing Number
A-410.00

SHEET 41 OF 86

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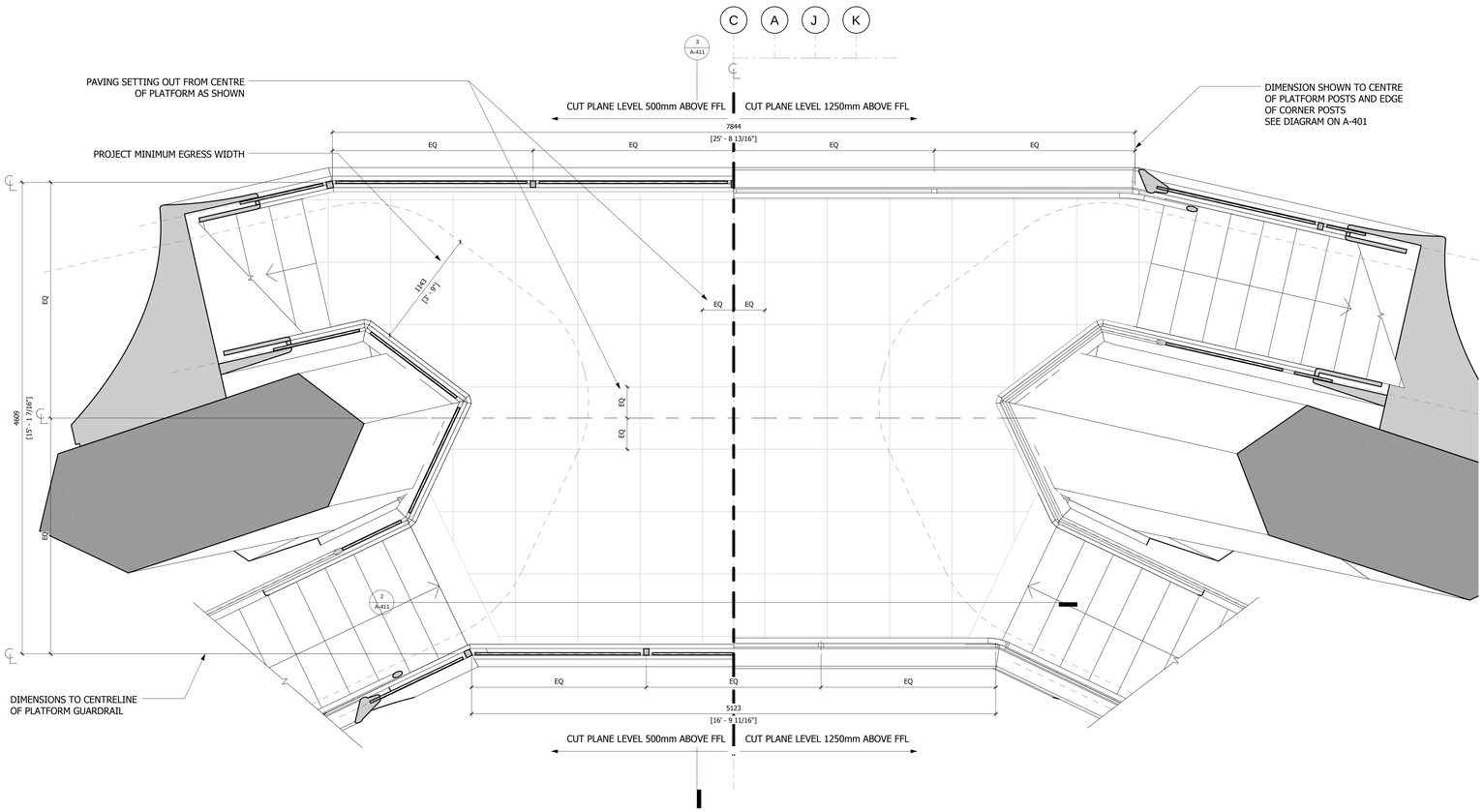
DEPT OF BLDGS 321191185 Job Number
ES1996929543 Scan Code



1 PLAN

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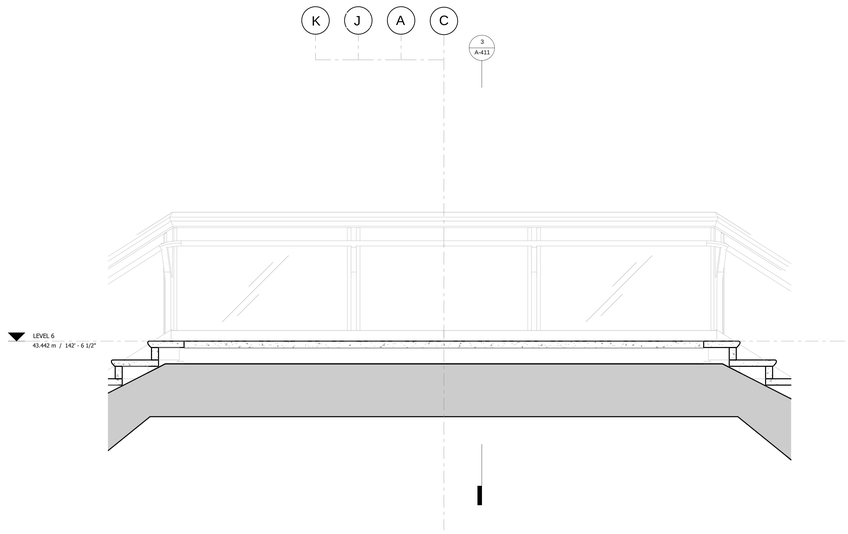
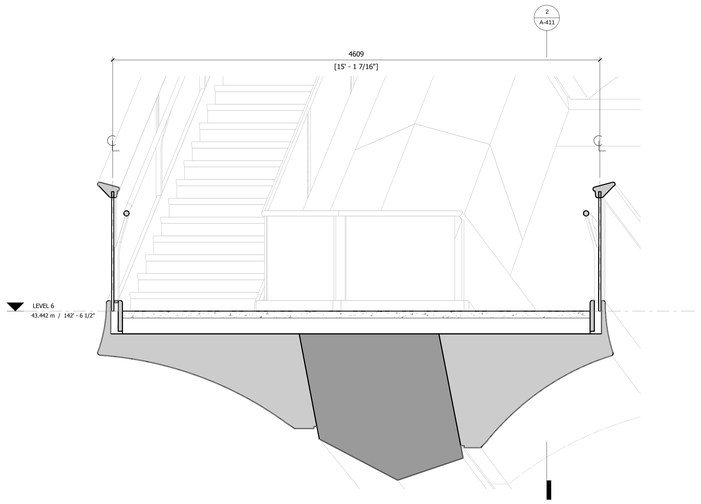


2 LONG SECTION

1 : 20



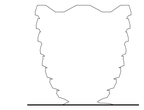
3 CROSS SECTION

1 : 20

Damian Titus
Buildings
APPROVED
Under Directive 1 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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Architects & Planning Consultants
11 West 42nd Street
Tel: 212.977.6500 Fax: 212.956.2526

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New York, NY 10010
Tel: 917.661.7800 Fax: 917.661.7801

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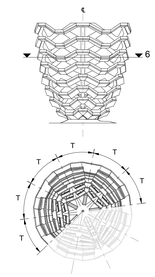
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHN MAY MICHAEL
028445
STATE OF NEW YORK

HYE-VS-A-411

Drawing Title

TYPICAL PLATFORM LEVEL 6 (DISPLAY 6)

Drawing Number

A-411.00

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A-411
25/03/2016 19:02:33
TYPICAL PLATFORM LEVEL 11
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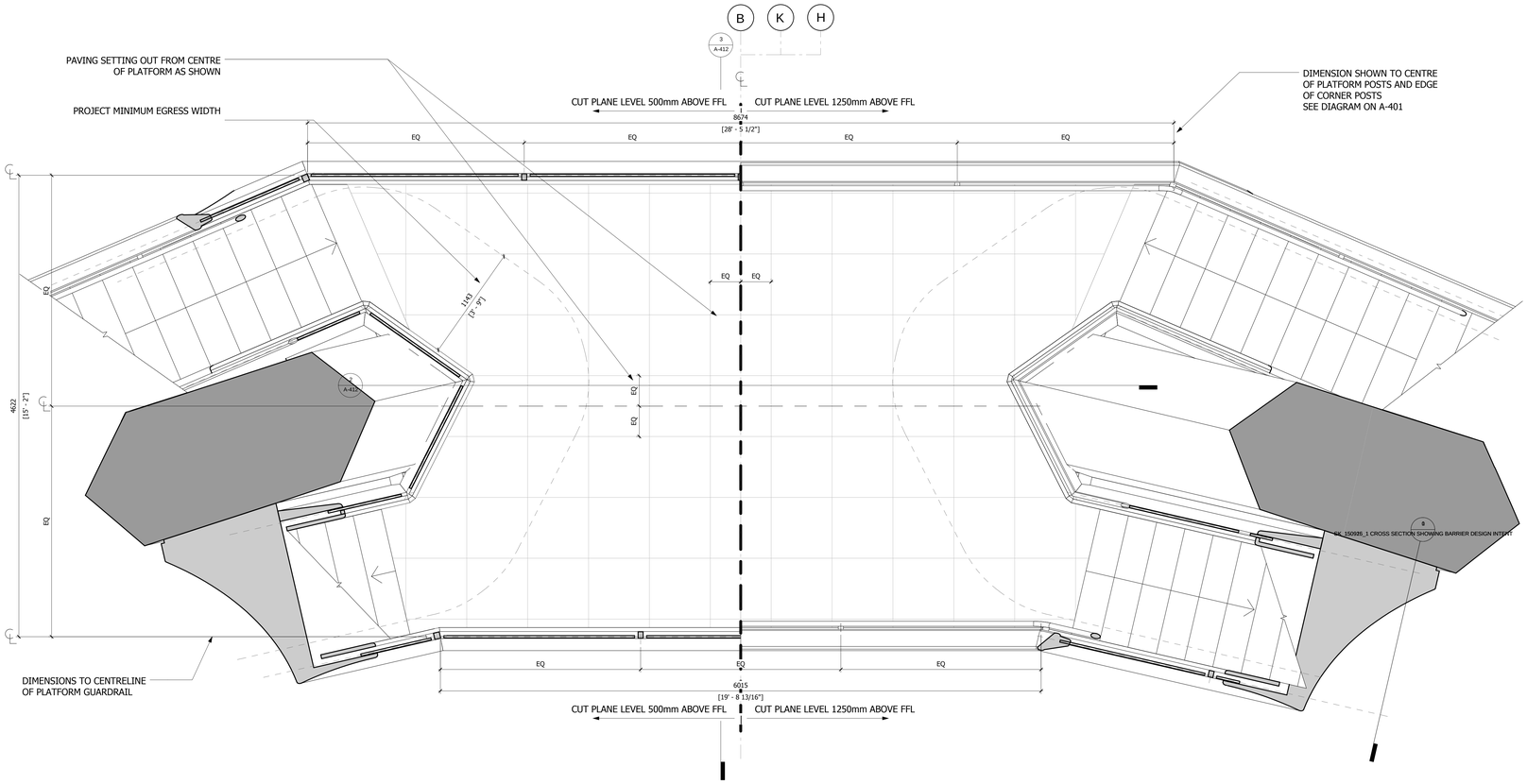
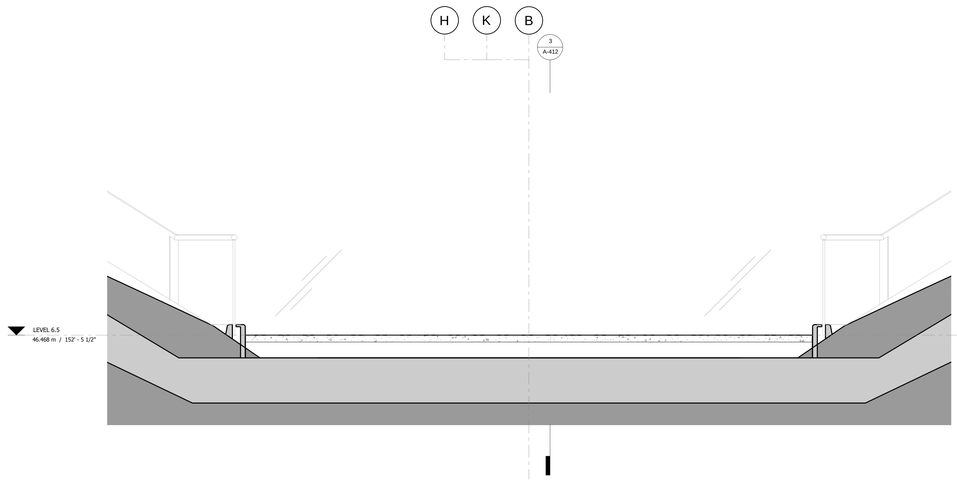
DEPT OF BLDGS 421191185 Job Number
ES 4500609 Scan Code



1 PLAN

1 : 20



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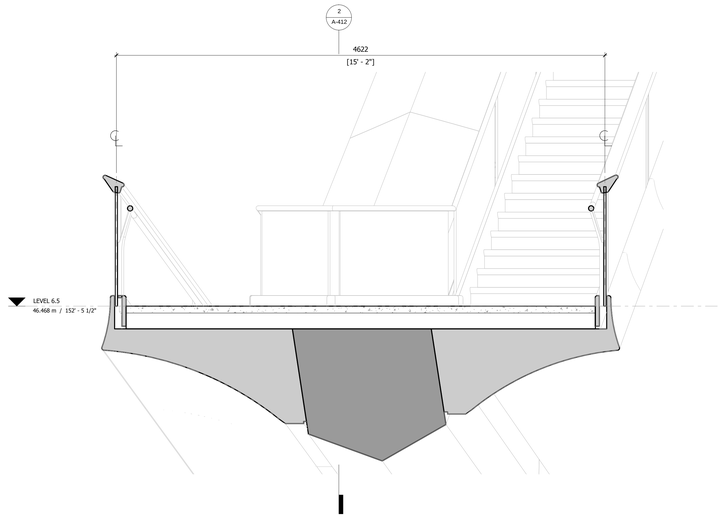


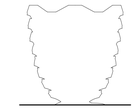
3 CROSS SECTION

1 : 20

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
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Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
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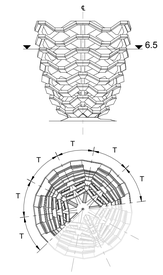
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.00
Drawn By
Sheet Number

HYE-VS-A-412

Drawing Title

TYPICAL PLATFORM LEVEL 6.5 (DISPLAY 6)

Drawing Number

A-412.00

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A-412
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TYPICAL PLATFORM LEVEL 12
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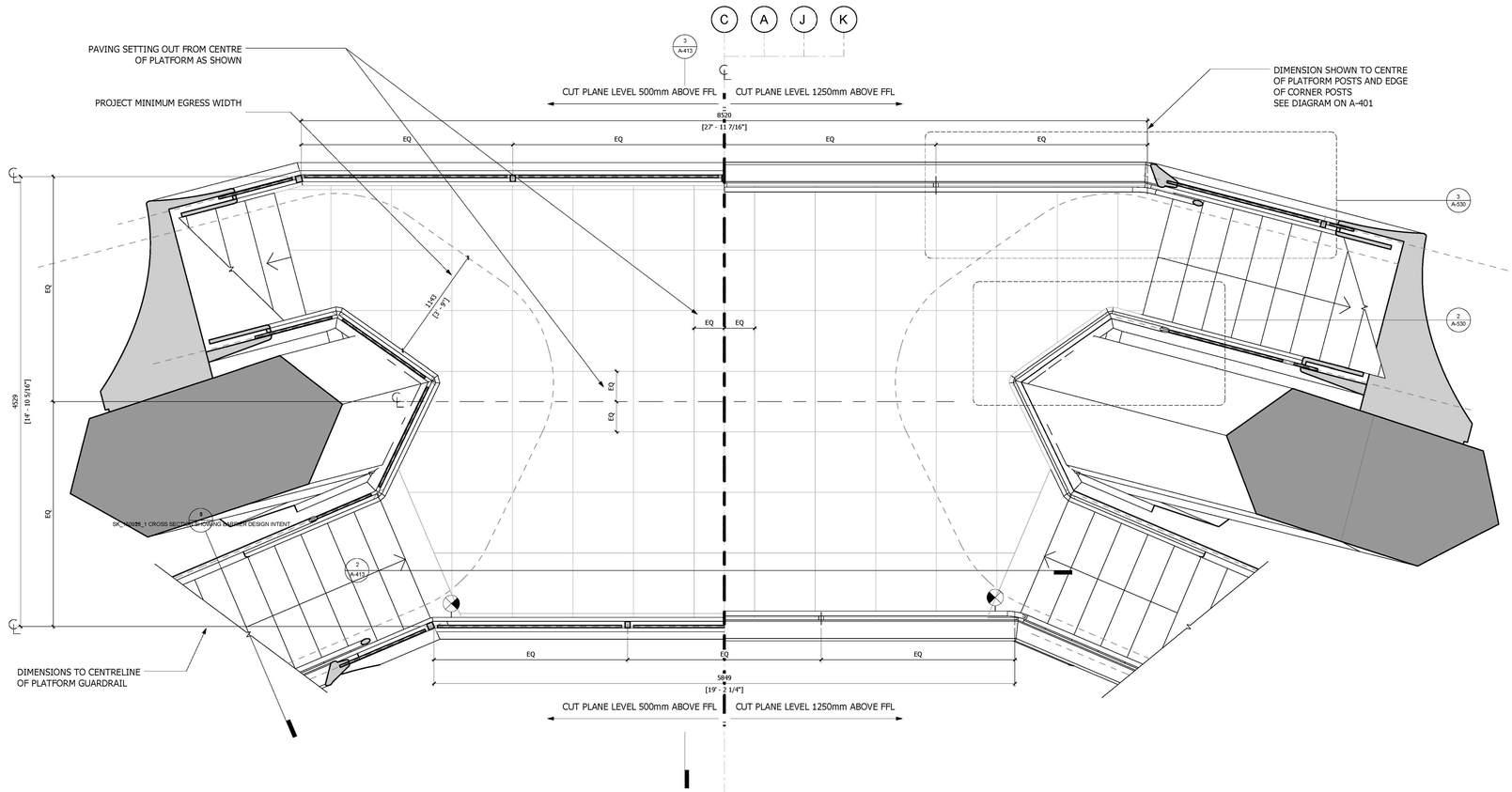
EXIT OF BLOCK 3731/135 Job Number
ES2951524IN Scan Code



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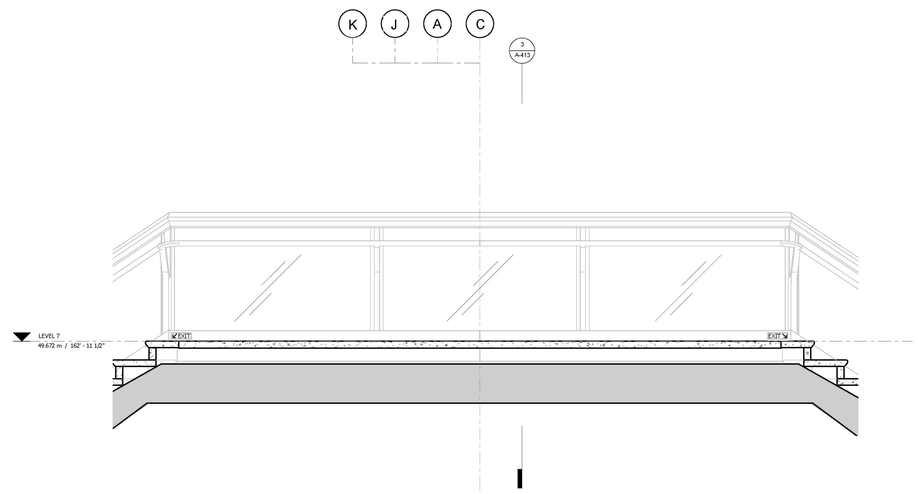

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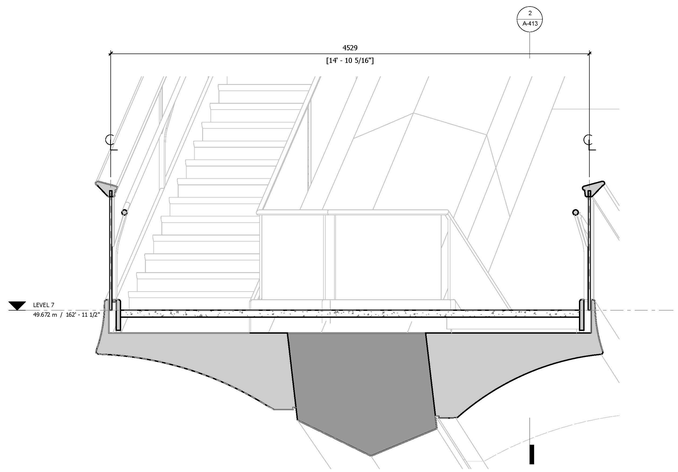


3 CROSS SECTION

1 : 20

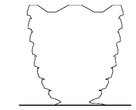
KEY:

EXIT SIGN PLAN VIEW.
MOUNTED FLUSH TO BASE.

EXIT EXIT SIGN ELEVATION VIEW

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
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Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
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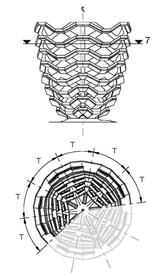
No	Issue	Date
2	D.O.B. BUILDING PERMIT FILING	12/02/2016
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.02
Drawn By
Sheet Number

HYE-VS-A-413

Drawing Title

TYPICAL PLATFORM LEVEL 7 (DISPLAY 7)

Drawing Number

A-413.00

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APPROVED
Under Directive 1 of 1975
Date: 12/07/2016
NYC Development Hub

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A-413
26/07/2016 19:03:27
TYPICAL PLATFORM LEVEL 15
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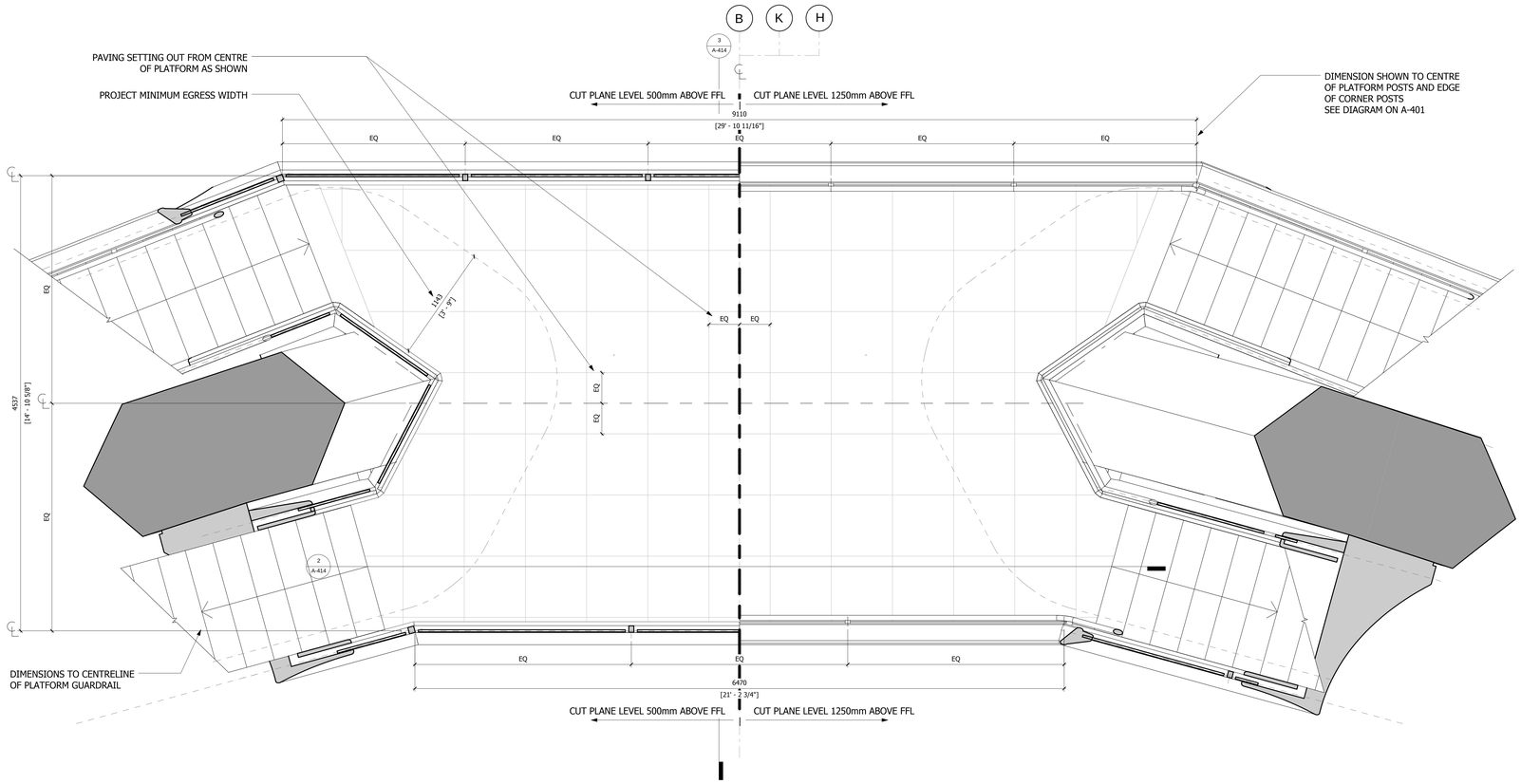
DEPT OF BUILDINGS 121191185 Job Number
E109812003J Scan Code



1 PLAN

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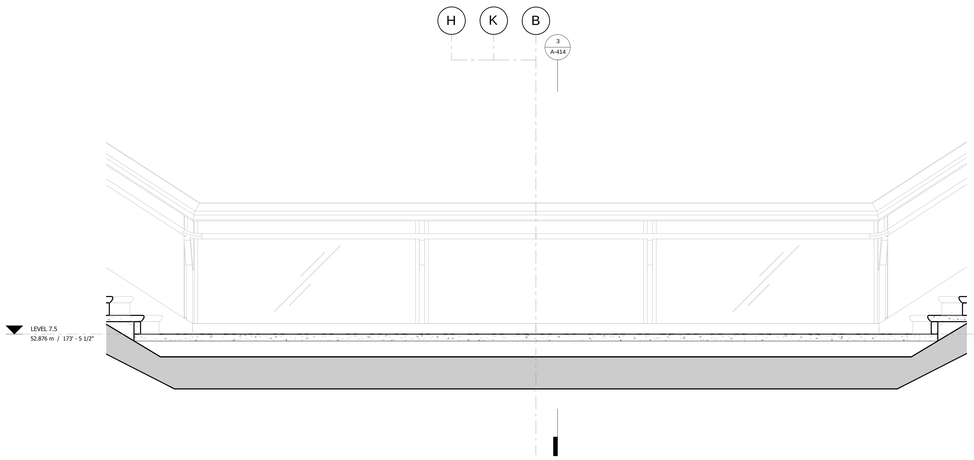

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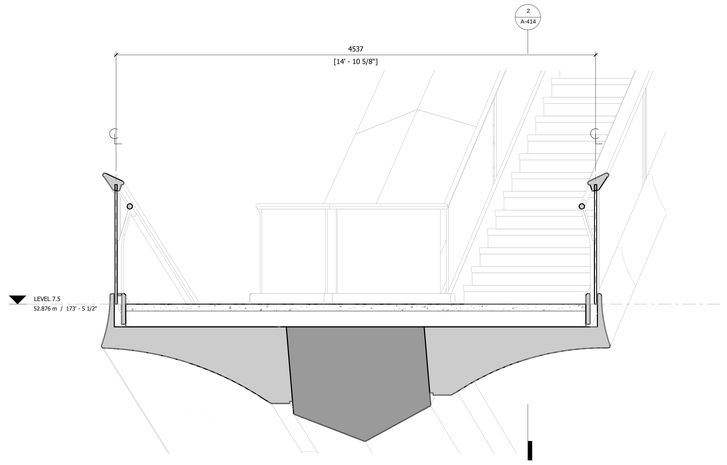

3 CROSS SECTION

1 : 20

Damian Titus
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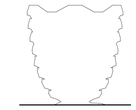
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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Executive Architect
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Architects & Planning Consultants
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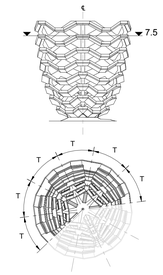
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2208.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHN MYERS
026345
STATE OF NEW YORK

HYE-VS-A-414

Drawing Title

TYPICAL PLATFORM LEVEL 7.5 (DISPLAY 7)

Drawing Number
A-414.00

SHEET 45 OF 86

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A-414
25/03/2016 19:03:55
TYPICAL PLATFORM LEVEL 14
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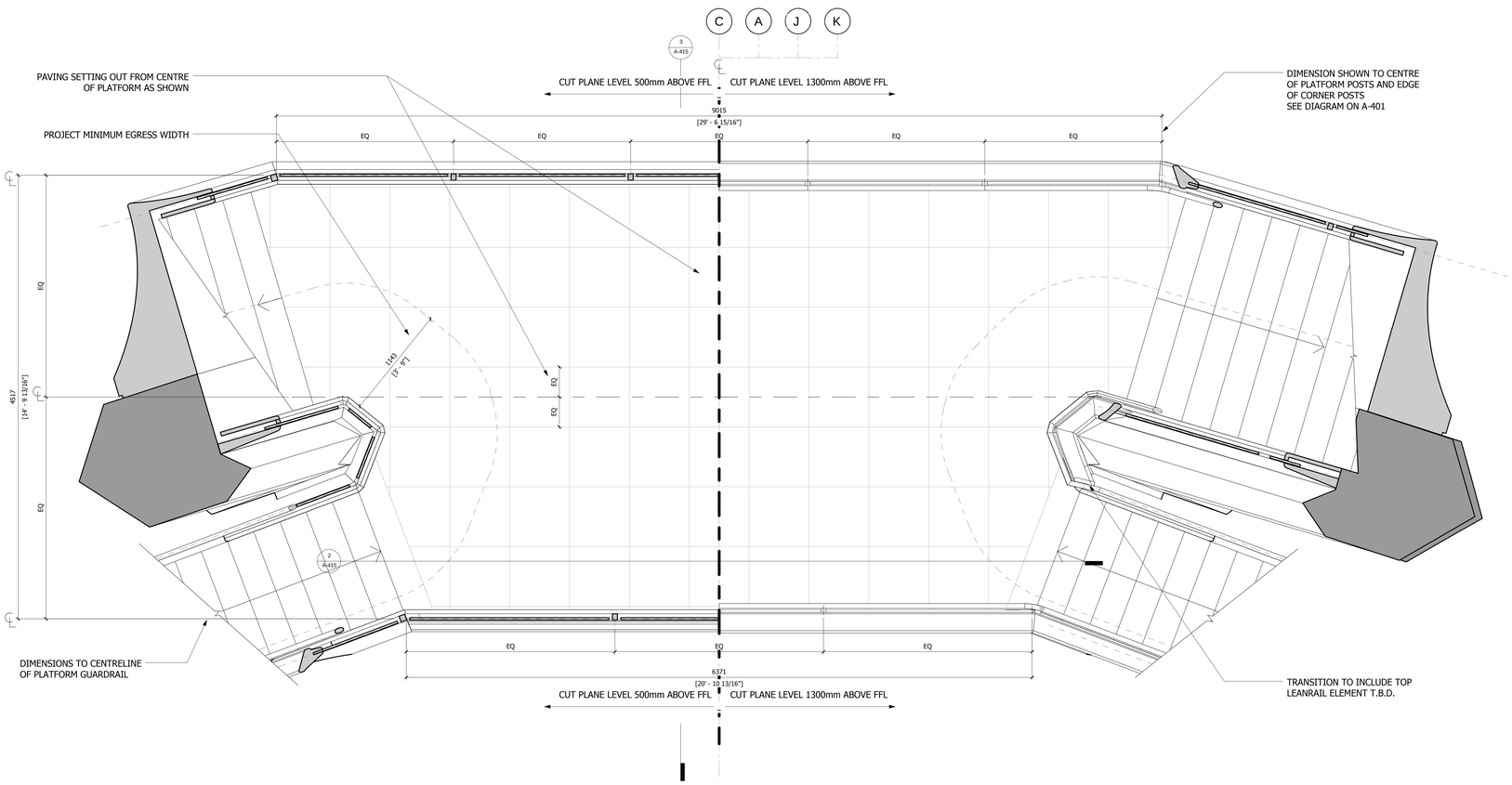

1 PLAN

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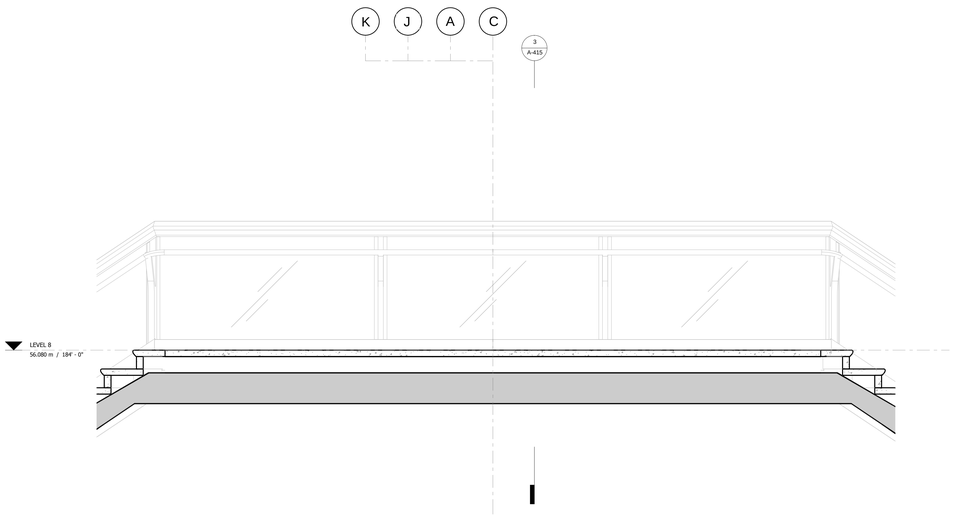

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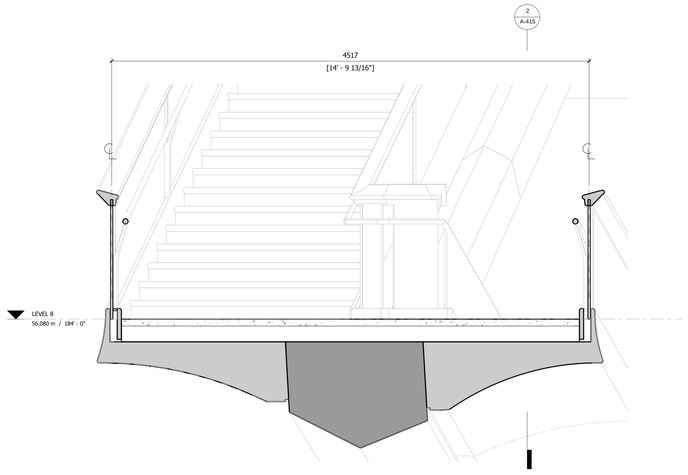

3 CROSS SECTION

1 : 20

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Under Directive 1 of 1975
Date: 12/07/2016
NYC Development Hub

A-415 TYPICAL PLATFORM LEVEL 15
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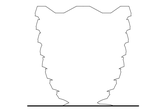
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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100 Park Avenue
Tel: 212.708.6800

Executive Architect
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Architects & Planning Consultants
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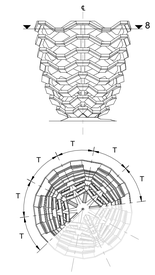
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHN MAX BOSSE
027945
STATE OF NEW YORK

HYE-VS-A-415

Drawing Title

TYPICAL PLATFORM LEVEL 8 (DISPLAY 8)

Drawing Number

A-415.00

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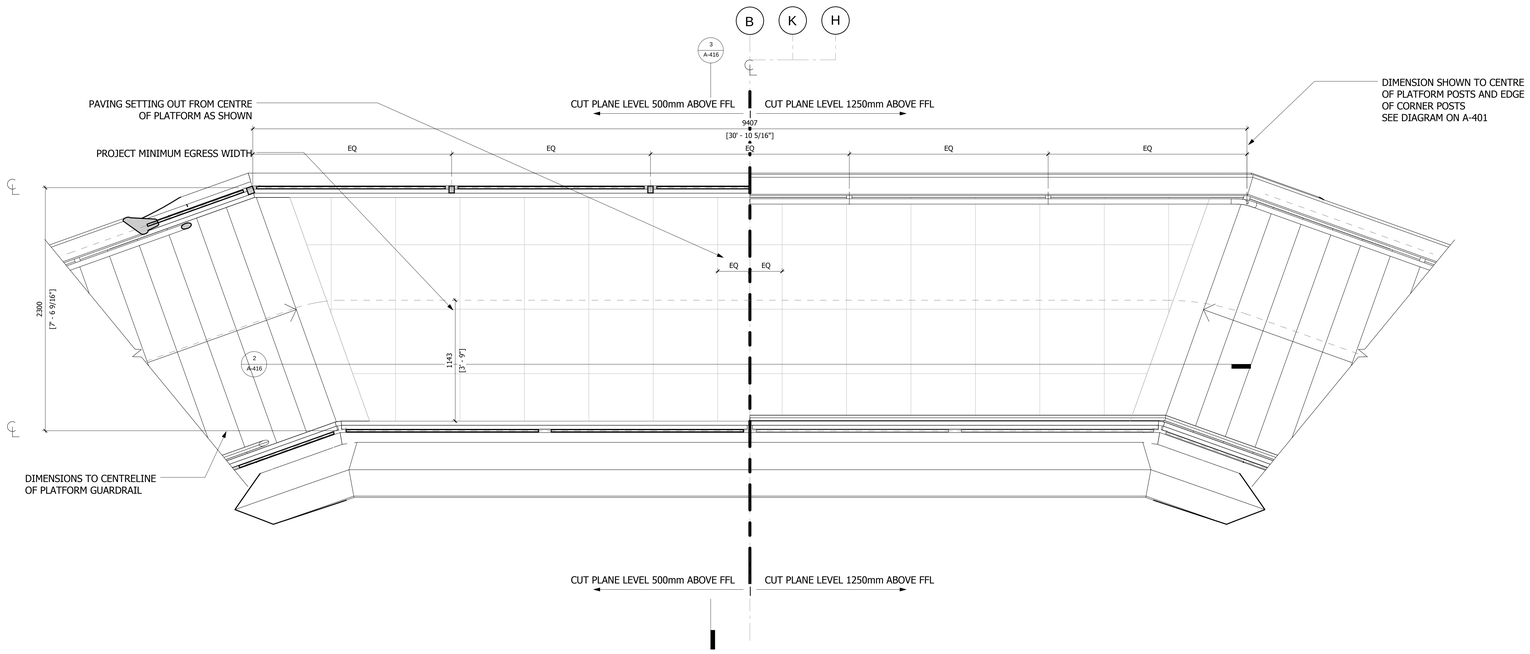

1 PLAN

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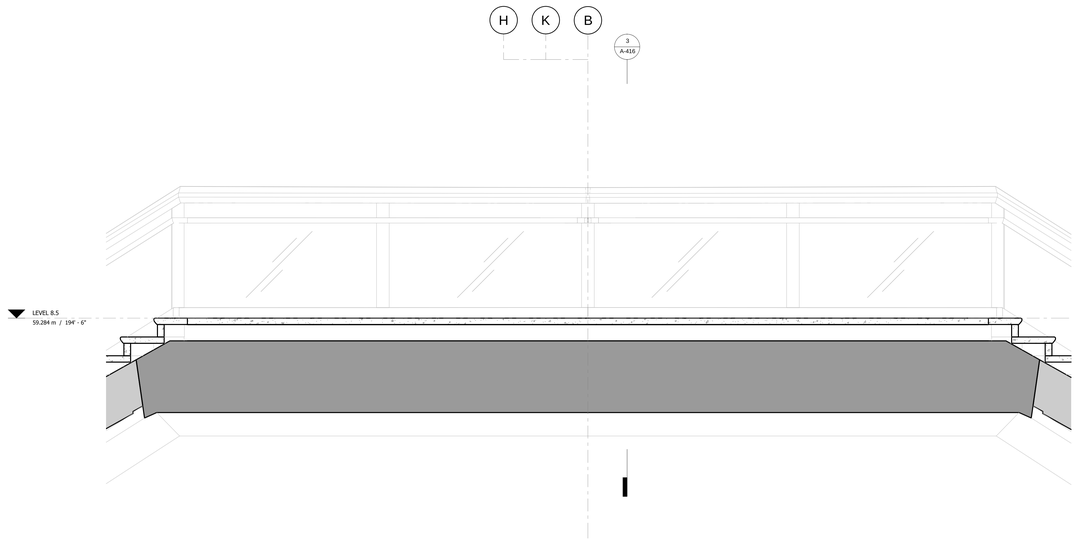

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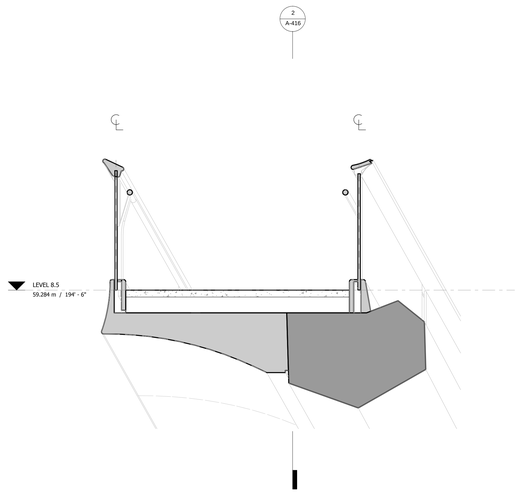

3 CROSS SECTION

1 : 20

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Under Directive 2 of 1975
Date: 12/07/2016:
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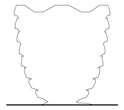
HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
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New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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Executive Architect
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Architects & Planning Consultants
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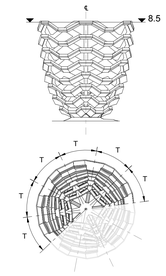
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.02
Drawn By
Sheet Number

HYE-VS-A-416

Drawing Title

TYPICAL PLATFORM LEVEL 8.5 (DISPLAY 8)

Drawing Number

A-416.00

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TYPICAL PLATFORM LEVEL 16
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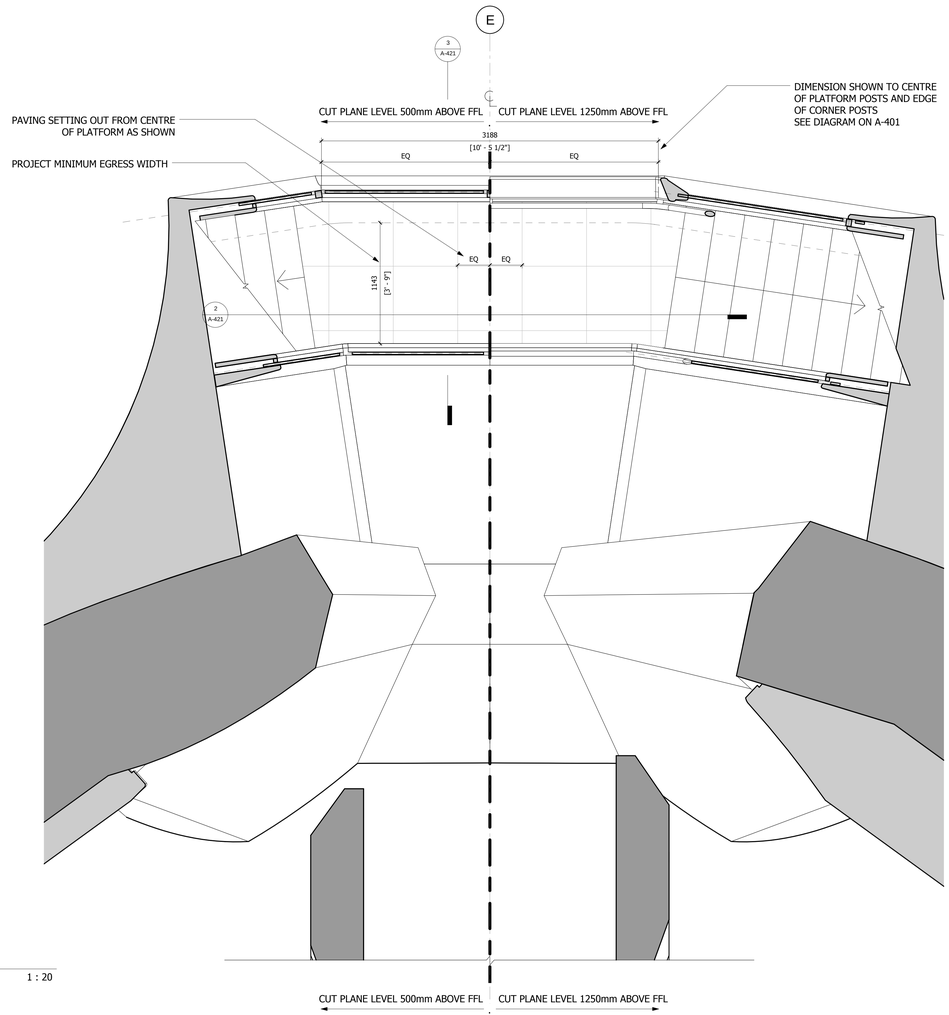
A-416
25/03/2016 19:27:14

EXIT OF BLOCK 3719/185 Job Number
BS1409/173 Scan Code



1 PLAN

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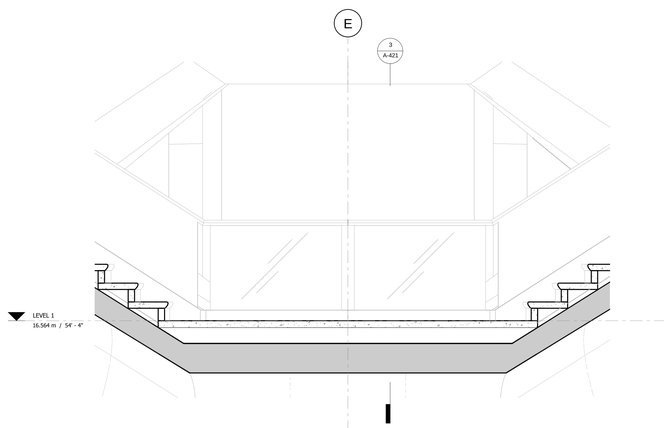

2 LONG SECTION

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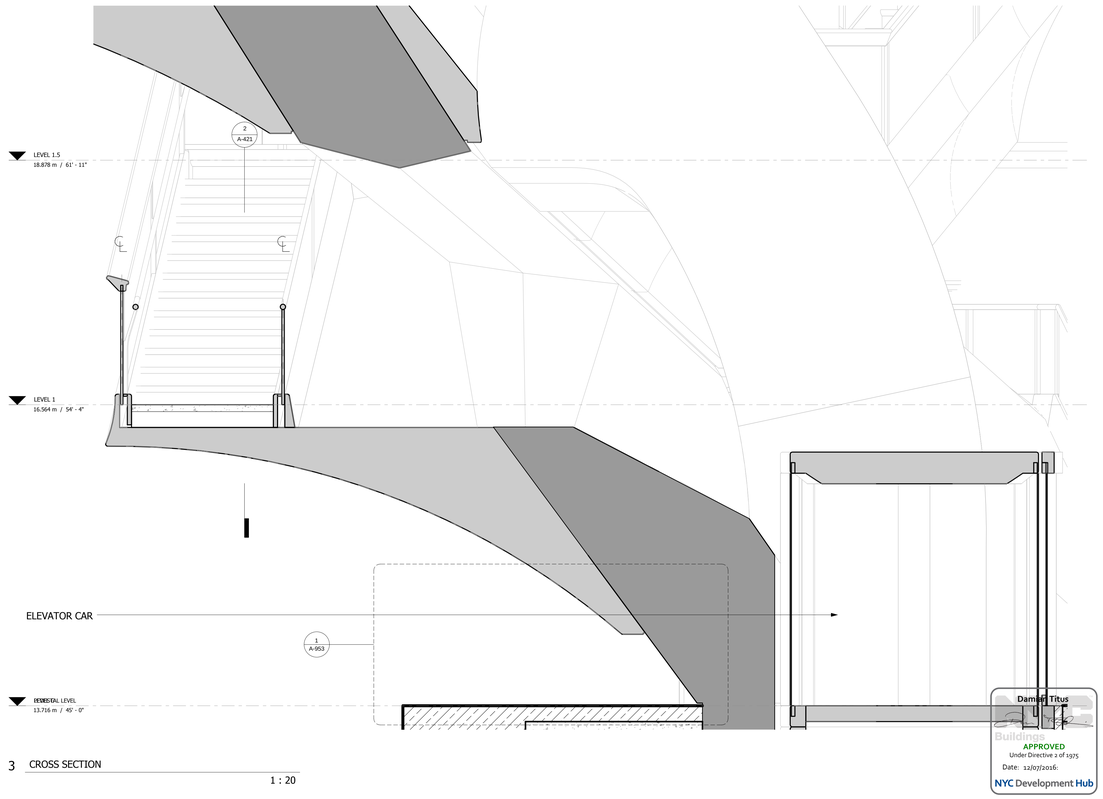

3 CROSS SECTION

1 : 20

NOTES:

ACCESS TO THIS PLATFORM RESTRICTED BY A BARRIER AT TOP OF STAIRS LEADING TO PLATFORM (SEE A-422).
OPENABLE ONLY BY AUTHORIZED PERSONNEL FOR THEIR MAINTENANCE OR CLEANING ACCESS TO THIS AREA.

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

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New York, NY 10022
Tel: 212.986.7514 Fax: 212.863.7510

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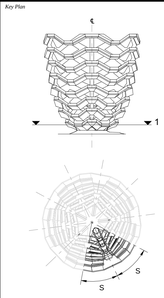
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 22960
Drawn By
Sheet Number

HYE-VS-A-421

Drawing Title

SPINE PLATFORM LEVEL 1 (DISPLAY 1)

Drawing Number

A-421.00

SHEET 48 OF 86

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A-421
25/05/2016 19:05:45
SPINE PLATFORM LEVEL 01
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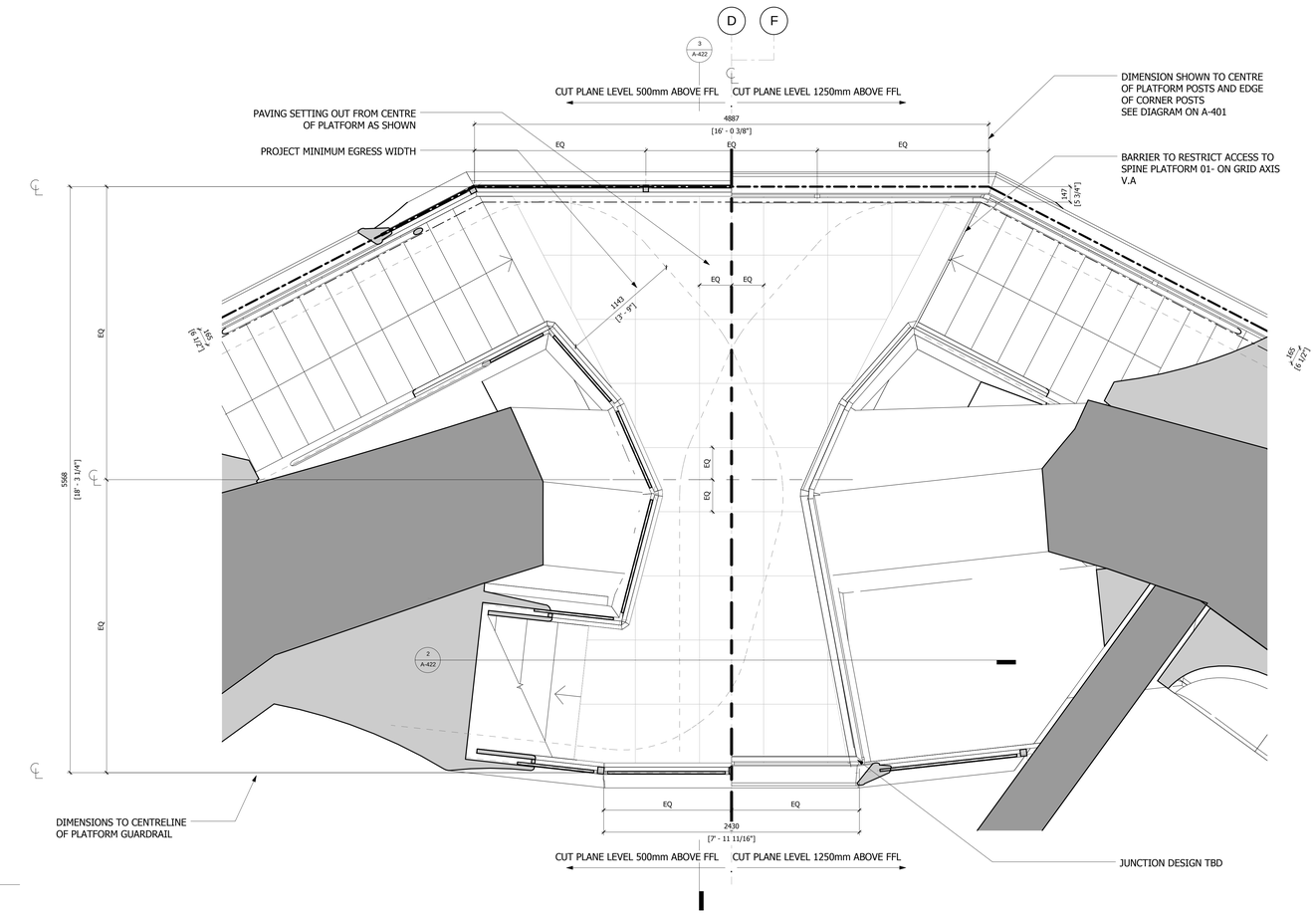
DEPT OF BUILDINGS 321191185 Job Number
E581954456 Scan Code



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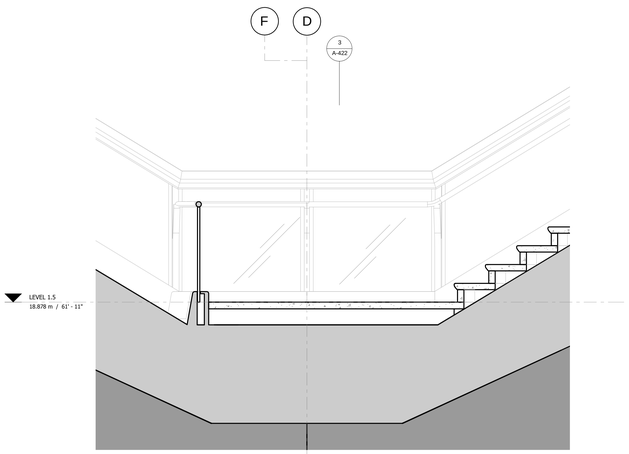

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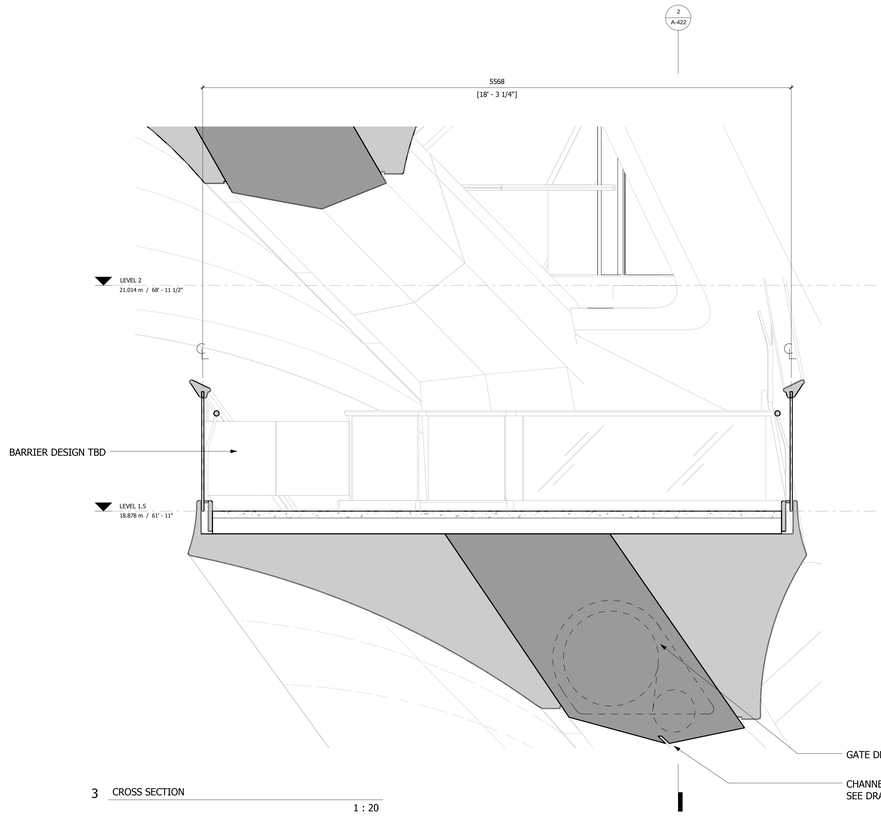

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A-422
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TRANSITION PLATFORM LEVEL 02
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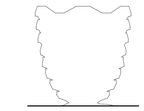
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
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Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
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100 Park Avenue
Tel: 212.708.6800

Executive Architect
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Architects & Planning Consultants
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Civil, Mechanical, Electrical, Plumbing, Fire Alarm, Fire Protection, Security
Ove Arup & Partners P.C.
77 Water Street
New York, NY 10005
Tel: 212.896.3000

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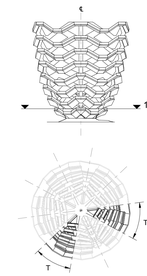
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/29/15
Project No. 2298.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHN MARK BUNNOCK
026443
STATE OF NEW YORK

HYE-VS-A-422

Drawing Title

TRANSITION PLATFORM LEVEL 1.5 (DISPLAY 1)

Drawing Number
A-422.00

SHEET 49 OF 86

Damian Titus
Buildings
APPROVED
Fire Directive 1 of 1975
Date: 12/07/2016
NYC Development Hub

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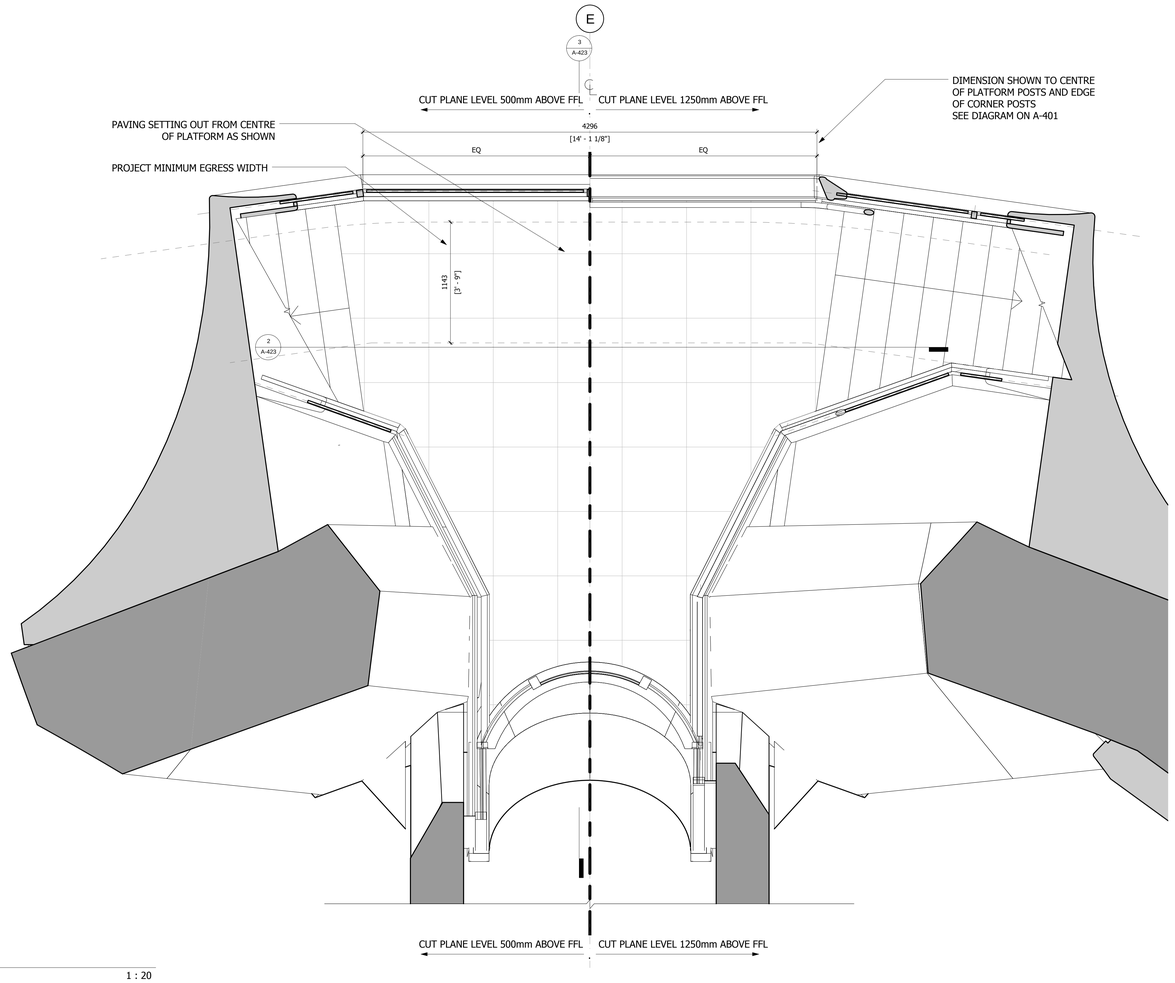
EXIT OF BLOCK 37191185 Job Number
ES0040837P0 Scan Code



1 PLAN

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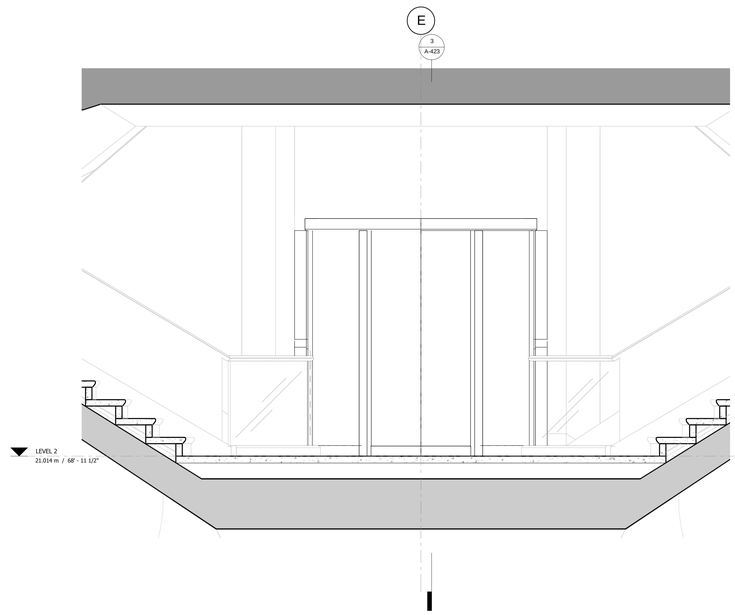

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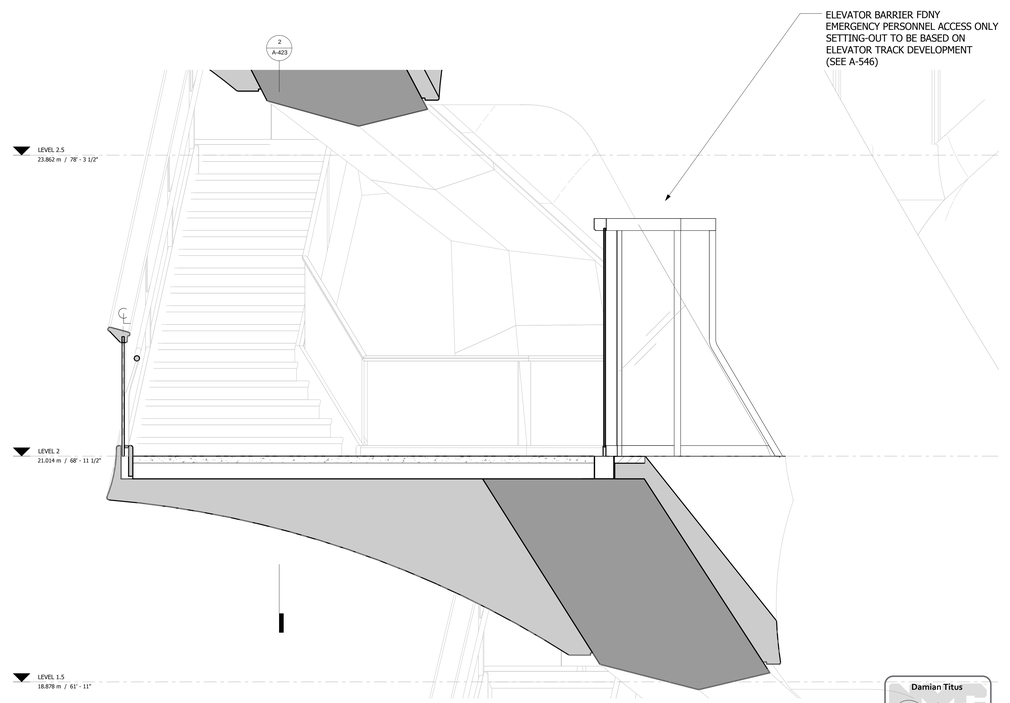

3 CROSS SECTION

1 : 20

NOTES:

ACCESS TO THIS PLATFORM RESTRICTED BY A BARRIER AT TOP OF STAIRS LEADING TO PLATFORM (SEE A-422).
OPENABLE ONLY BY AUTHORIZED PERSONNEL FOR THEIR MAINTENANCE OR CLEANING ACCESS TO THIS AREA.

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

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Related Companies
60 Columbus Circle
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Architects & Planning Consultants
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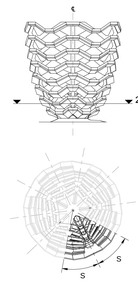
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 22800.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORRELLO
No. 026345-1
STATE OF NEW YORK

HYE-VS-A-423

Drawing Title

SPINE PLATFORM LEVEL 2 (DISPLAY 2)

Drawing Number

A-423.00

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A-423
25/07/2016 19:07:03
SPINE_01_ANTENNA LEVEL 03
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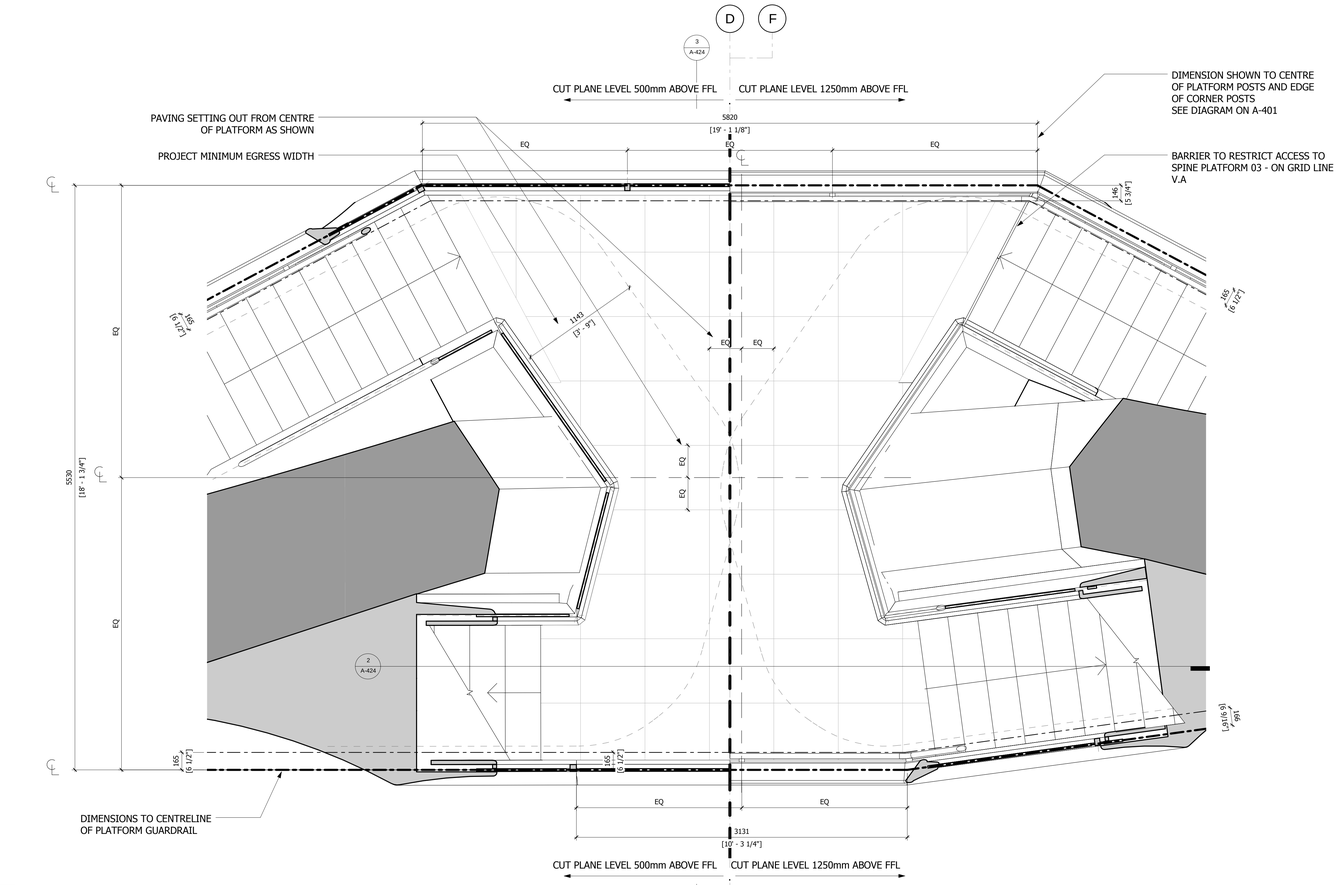
DEPT OF BUILDINGS 121191185 Job Number
E507A484689 Scan Code



1 PLAN

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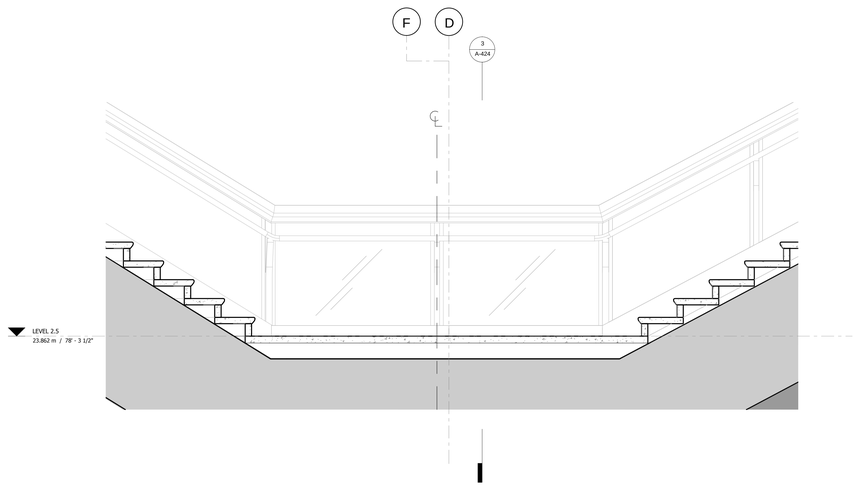

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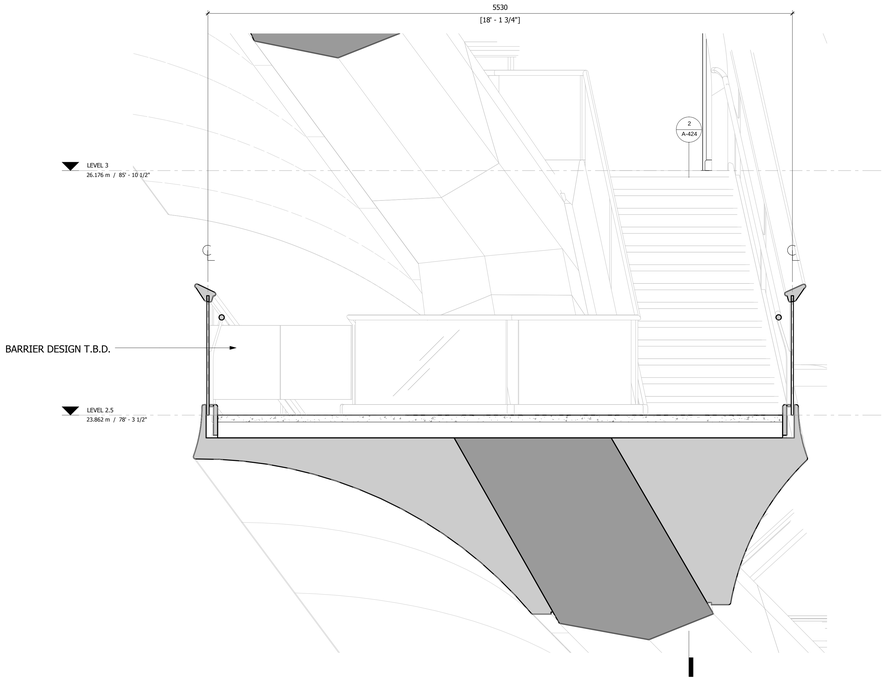

3 TYPICAL TRANSITION PLATFORM 04 SECTION 1

1 : 20

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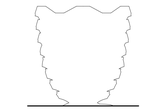
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016.
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
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Tel: 212.801.1000 Fax: 212.801.1048

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320 Park Avenue, 17th Floor
New York, NY 10022
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Architects & Planning Consultants
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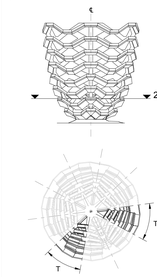
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/29/15
Project No. 220[illegible]
Drawn By SC
Sheet Number

REGISTERED ARCHITECT
DAMIAN TITUS
028445
STATE OF NEW YORK

HYE-VS-A-424

Drawing Title

TRANSITION PLATFORM LEVEL 2.5 (DISPLAY 2)

Drawing Number
A-424.00

SHEET 51 OF 86

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A-424
25/05/2016 19:07:39
TRANSITION PLATFORM LEVEL 04
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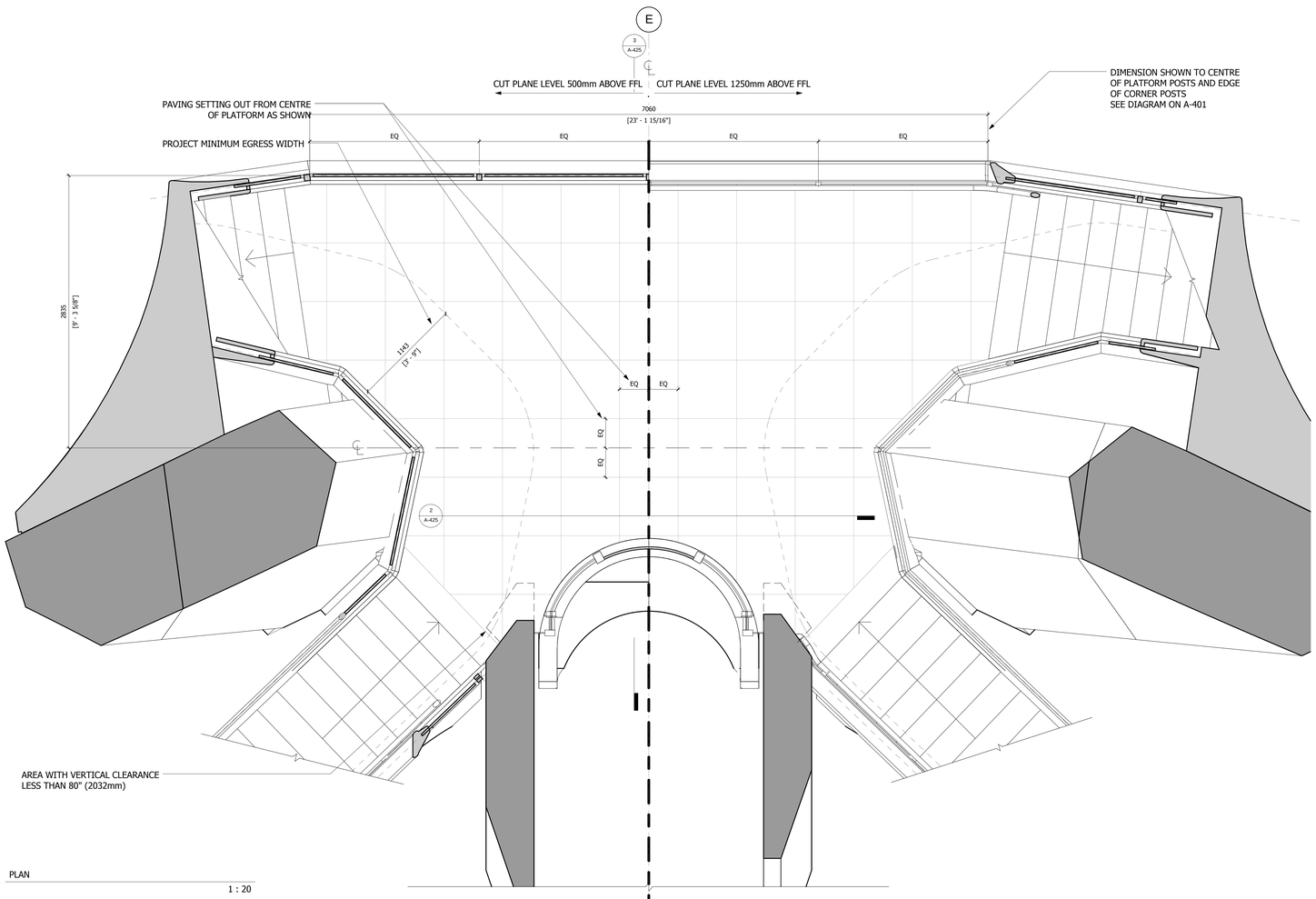
B100652978 Scan Code



1 PLAN

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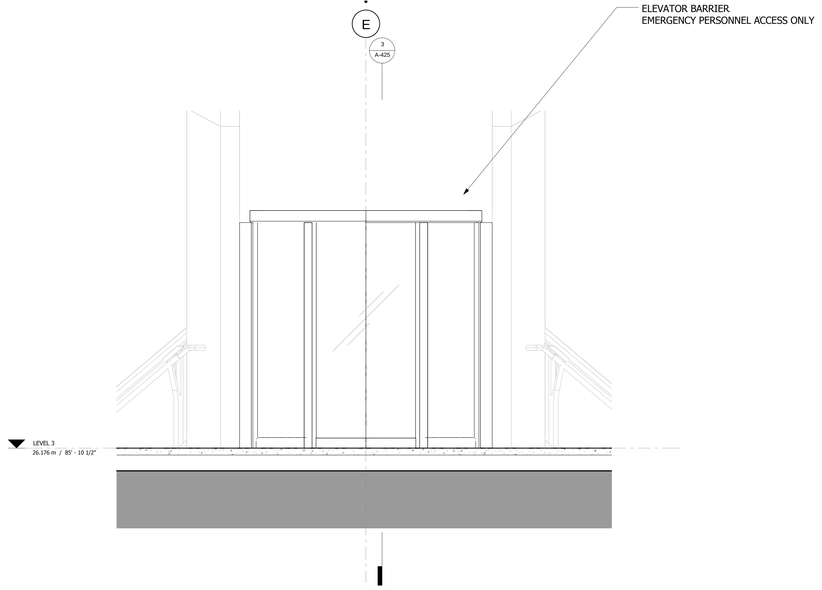

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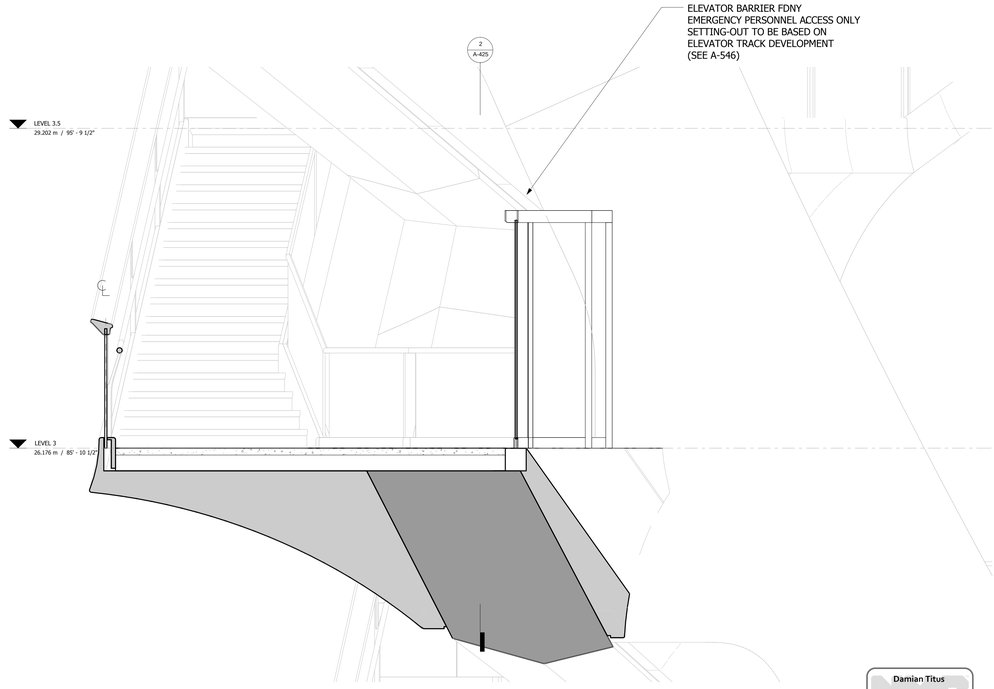


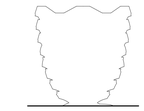
3 CROSS SECTION

1 : 20

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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Executive Architect
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Architects & Planning Consultants
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Design Architect
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United Kingdom
Tel: 44(0)20 7833 8800

Structural Engineer
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51 Madison Avenue
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Tel: 212.896.3000

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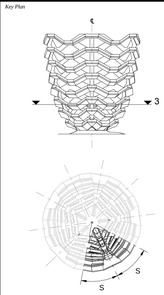
Key Plan



Date: 05/15/14
Project No. 22000
Drawn By
Sheet Number

REGISTERED ARCHITECT
DAMIAN TITUS
026453
STATE OF NEW YORK

HYE-VS-A-425

Drawing Title

SPINE PLATFORM LEVEL 3 (DISPLAY 3)

Drawing Number
A-425.00

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A-425
25/03/2016 19:08:22
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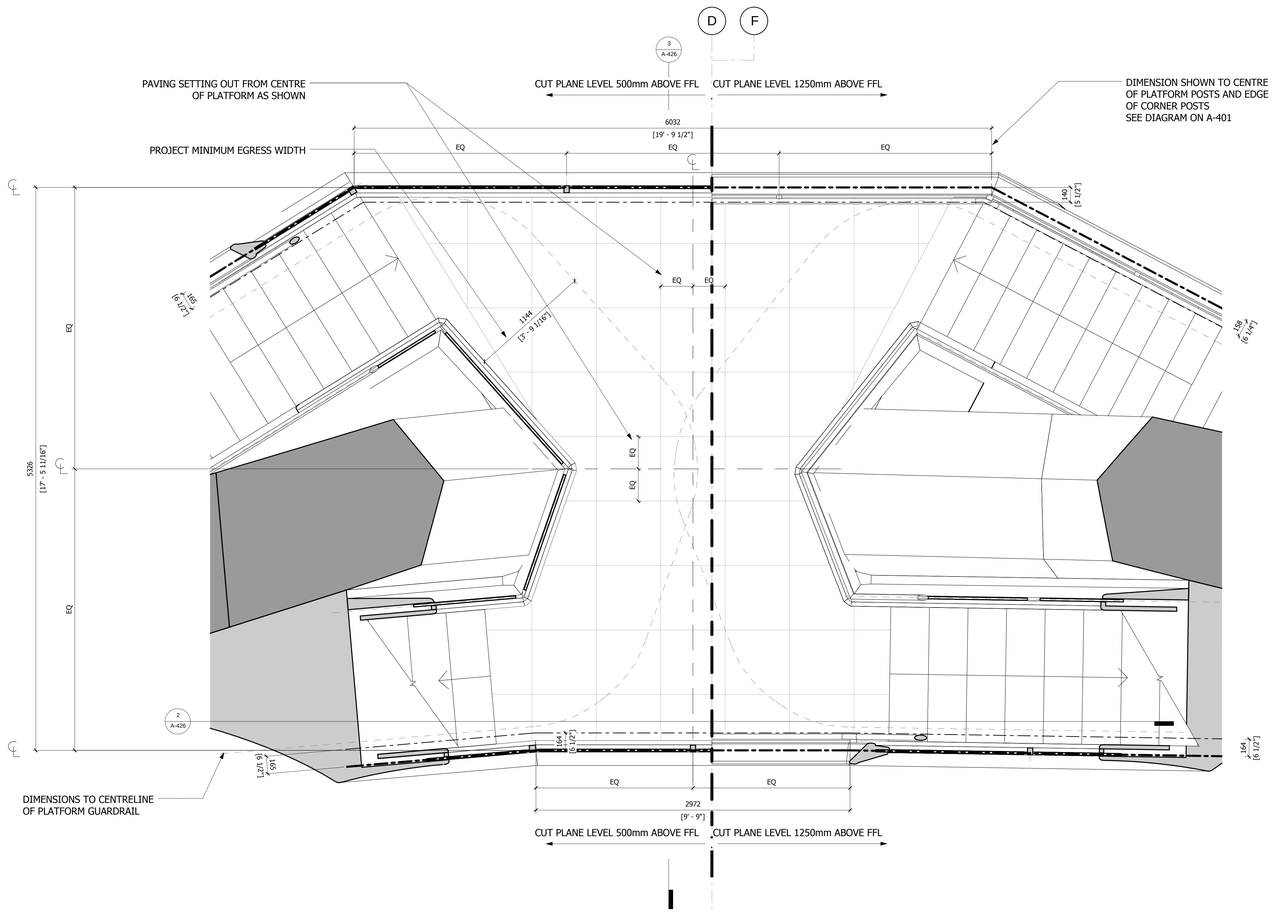
DEPT OF BUILDINGS 421191185 Job Number
ES2977829MN Scan Code



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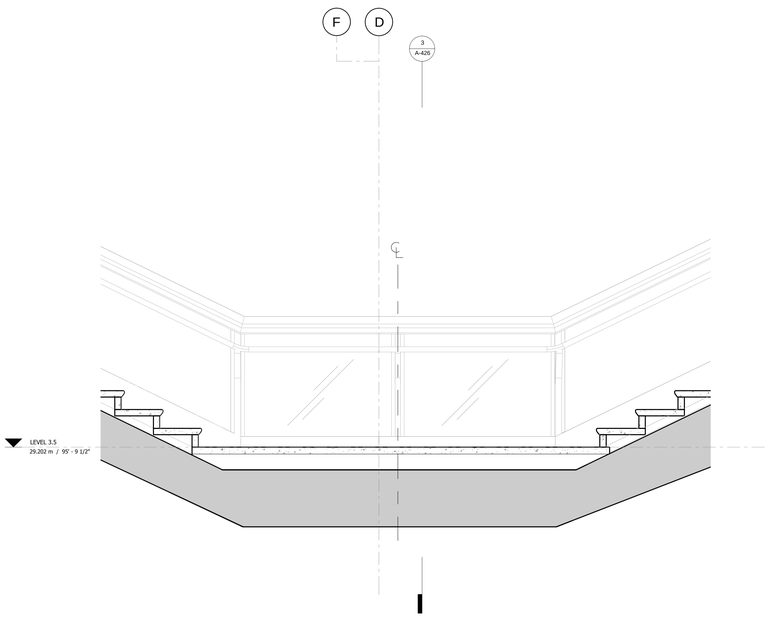

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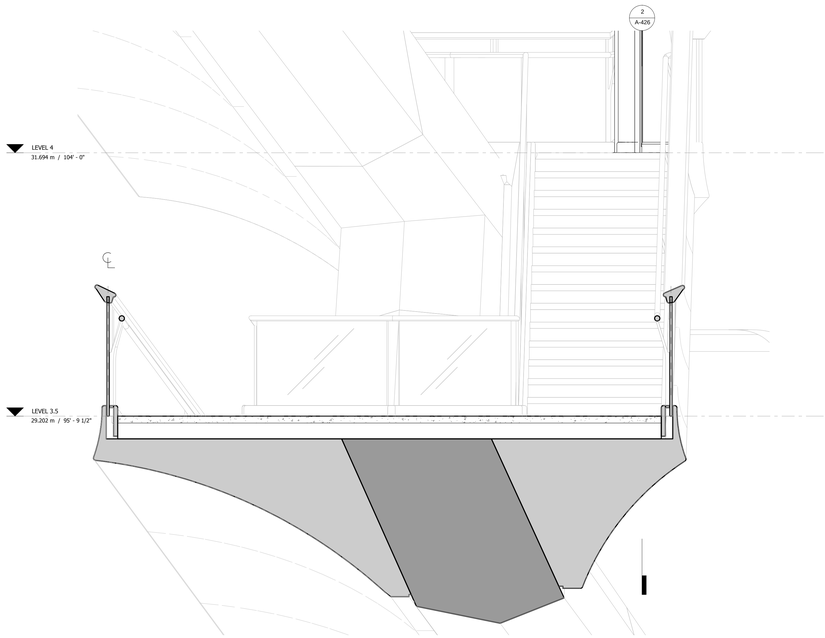

3 CROSS SECTION

1 : 20

Damian Titus
Buildings
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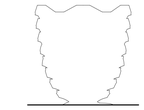
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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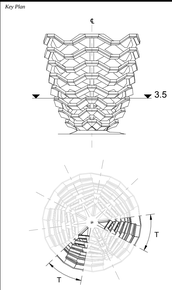
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/29/15
Project No. 22960
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORELLO
029343
STATE OF NEW YORK

HYE-VS-A-426

Drawing Title

TRANSITION PLATFORM LEVEL 3.5 (DISPLAY 3)

Drawing Number

A-426.00

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A-426
25/05/2016 19:08:56
TRANSITION PLATFORM LEVEL 3.5
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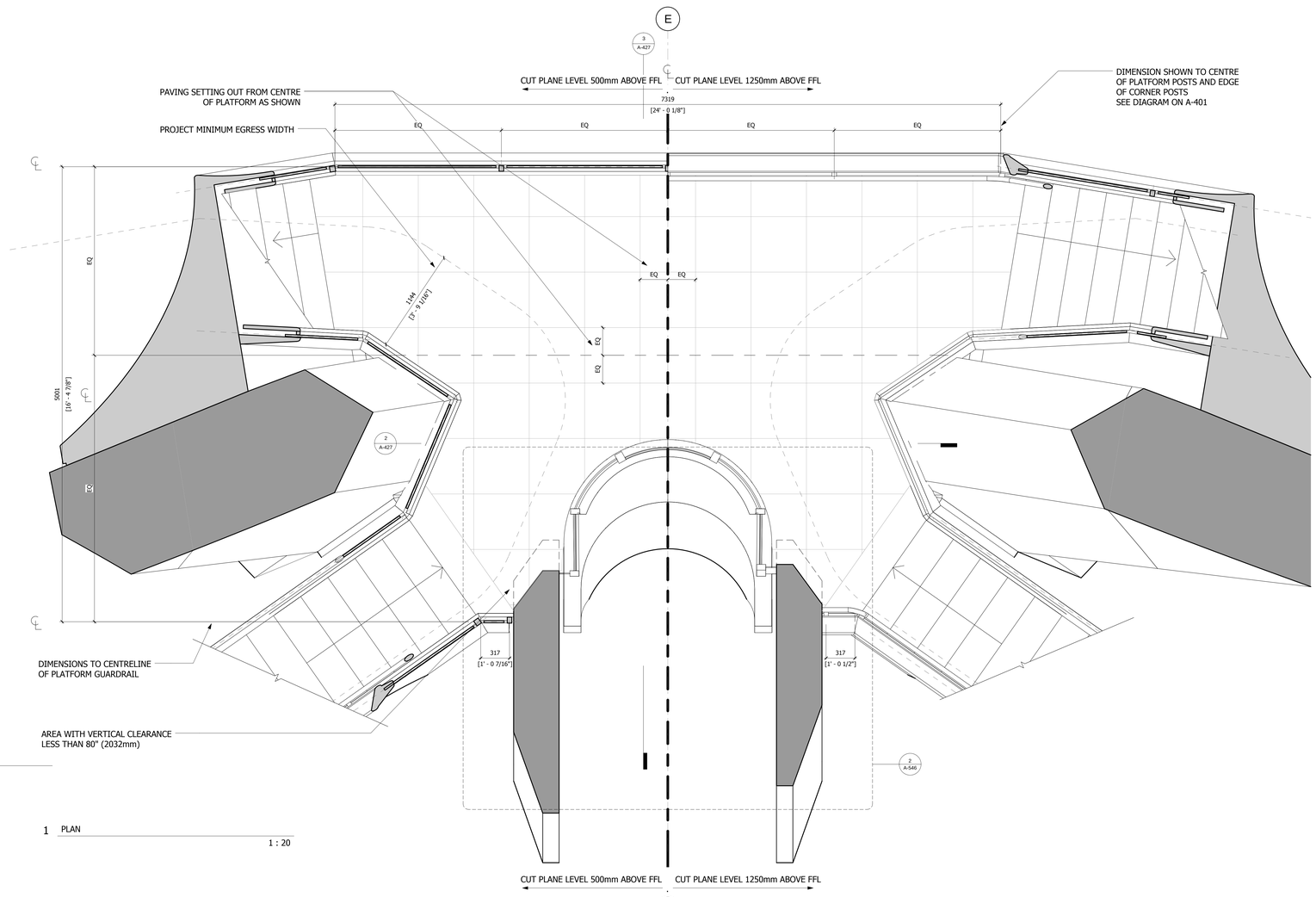
DEPT OF BUILDINGS 121121183 Job Number
E1627615N/S1 Scan Code



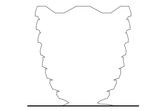
1 PLAN
1 : 20

2 LONG SECTION
1 : 20

3 CROSS SECTION
1 : 20

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
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Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.983.7510

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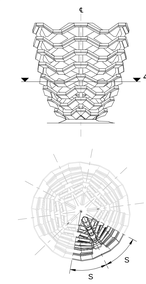
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 22800
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORRELLI
No. 026745
STATE OF NEW YORK

HYE-VS-A-427

Drawing Title

SPINE PLATFORM LEVEL 4 (DISPLAY 4)

Drawing Number
A-427.00

SHEET 54 OF 86

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
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A-427
25/09/2016 19:09:30
SPINE_DLANTERNA LEVEL 07
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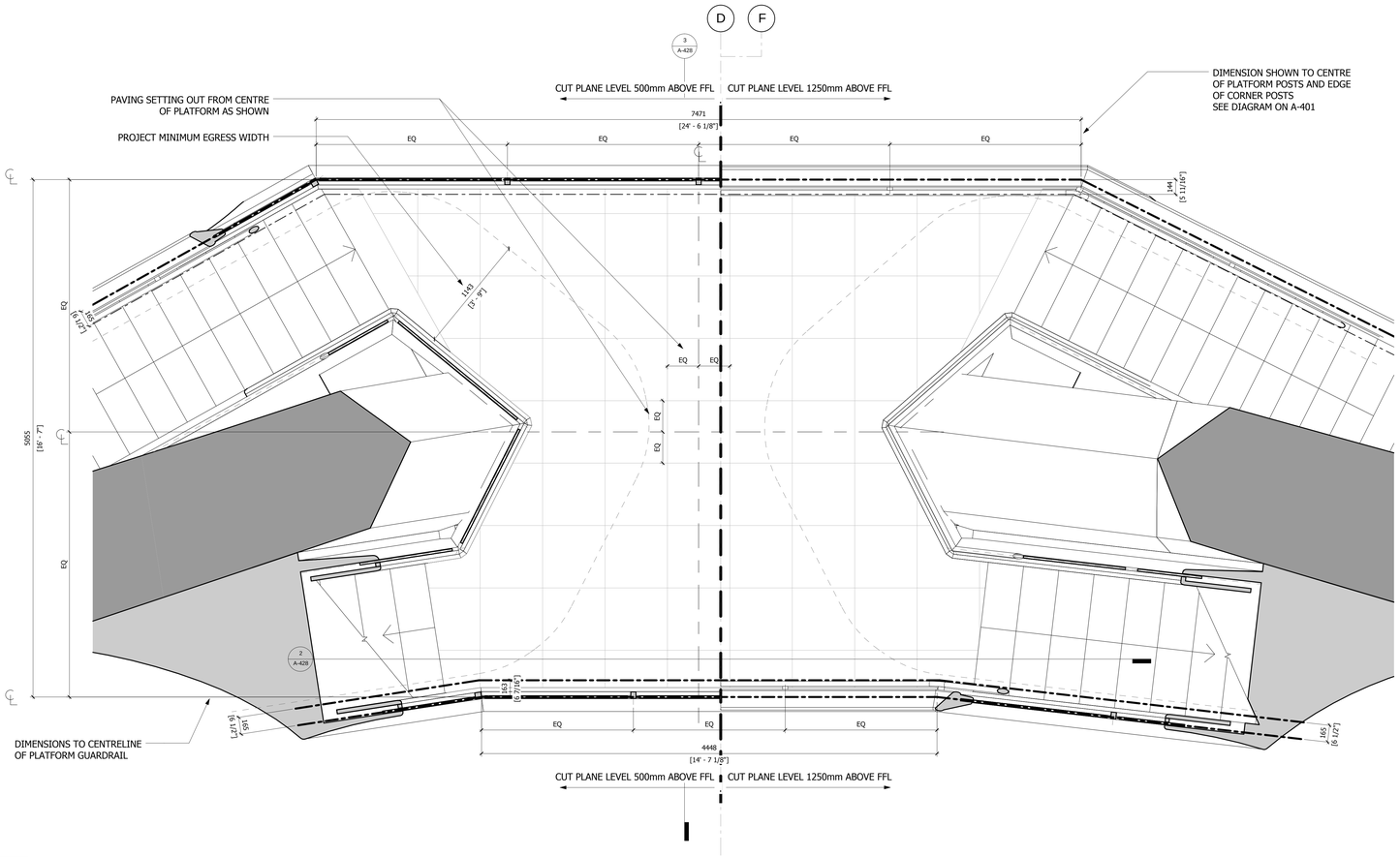
DEPT OF BUILDINGS 321191185 Job Number
ES4142.70000 Scan Code



1 PLAN

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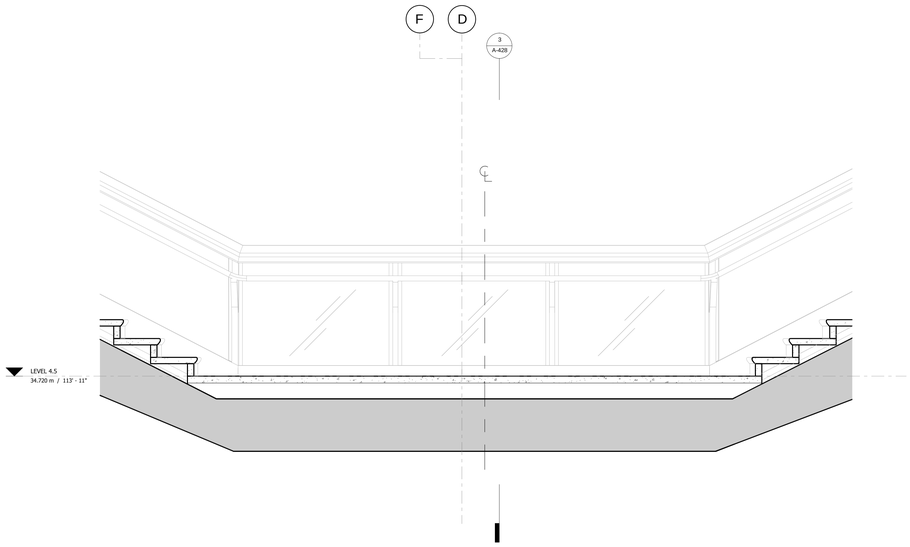

2 LONG SECTION

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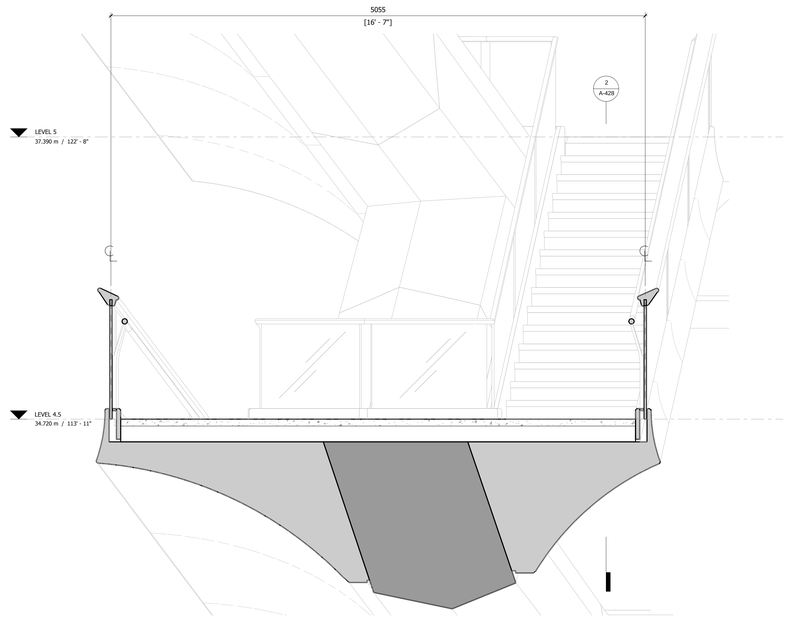

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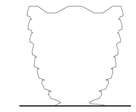
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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100 Park Avenue
Tel: 212.708.6800

Executive Architect
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Architects & Planning Consultants
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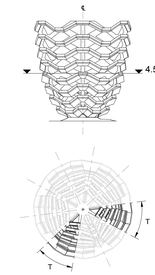
Key Plan



Date: 05/29/15
Project No. 2298.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHN MAY MORRIS
027845
STATE OF NEW YORK

HYE-VS-A-428

Drawing Title

TRANSITION PLATFORM LEVEL 4.5 (DISPLAY 4)

Drawing Number

A-428.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

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A-428
25/03/2016 19:28:22
TRANSITION PLATFORM LEVEL 08
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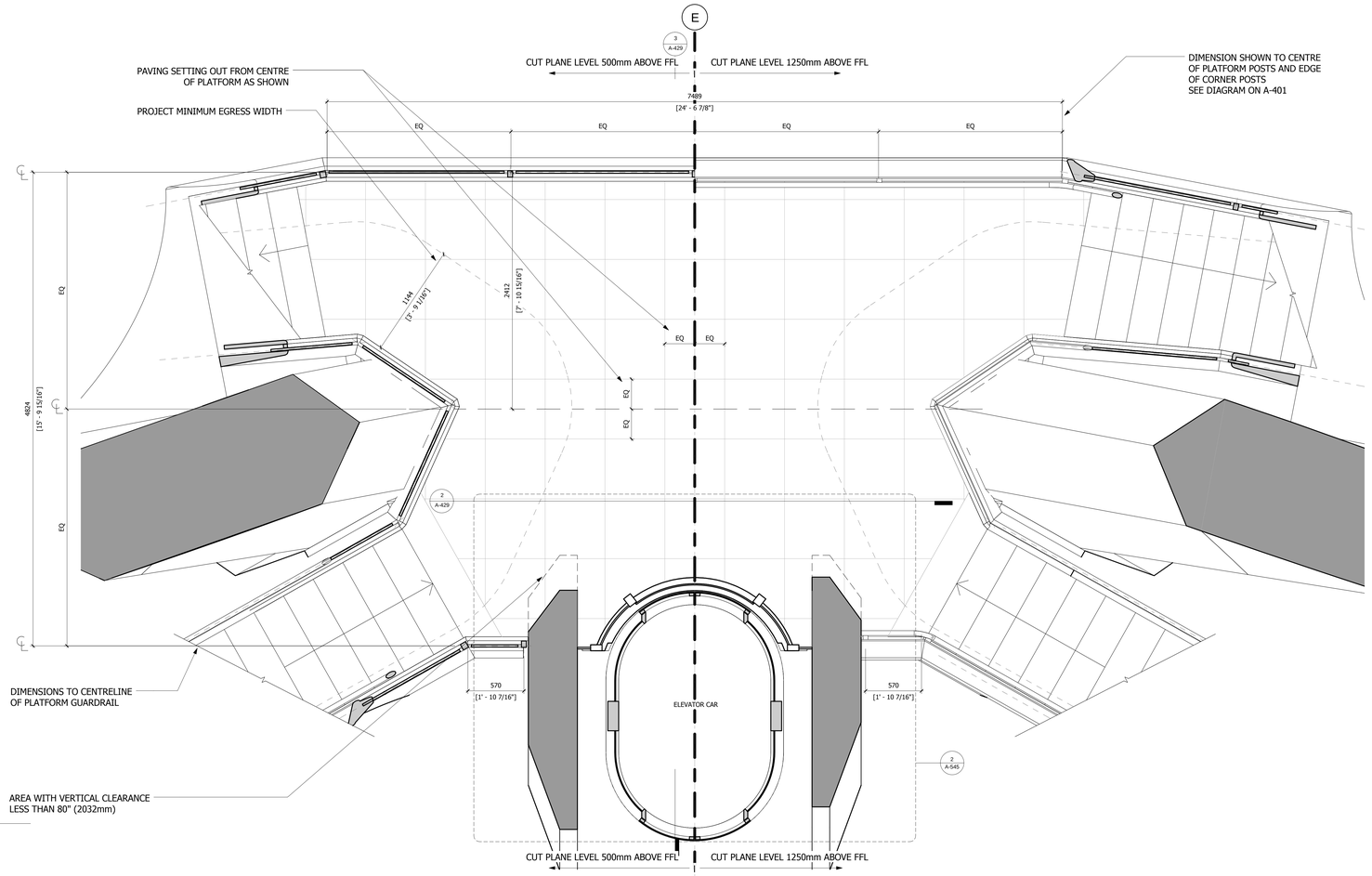
DEPT OF BUILDINGS 121191185 Job Number
ES1995769Y Scan Code



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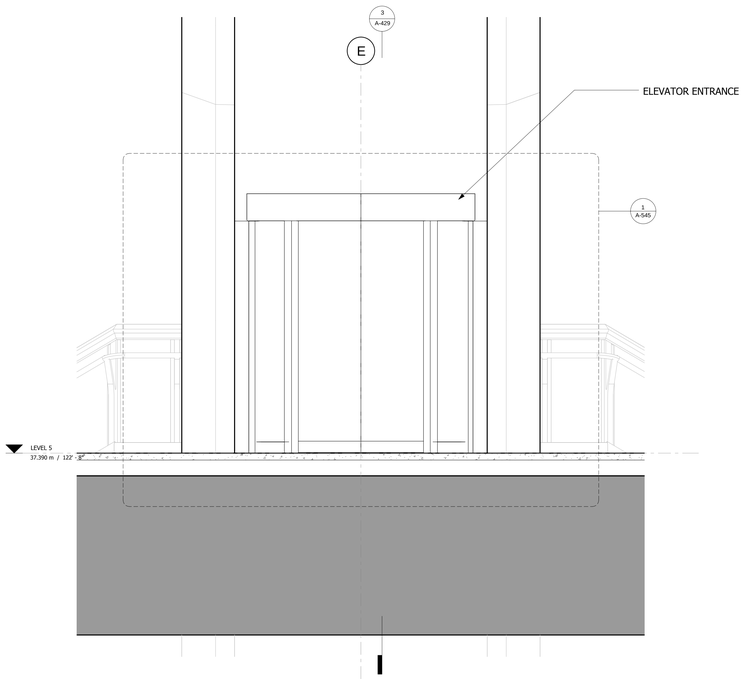

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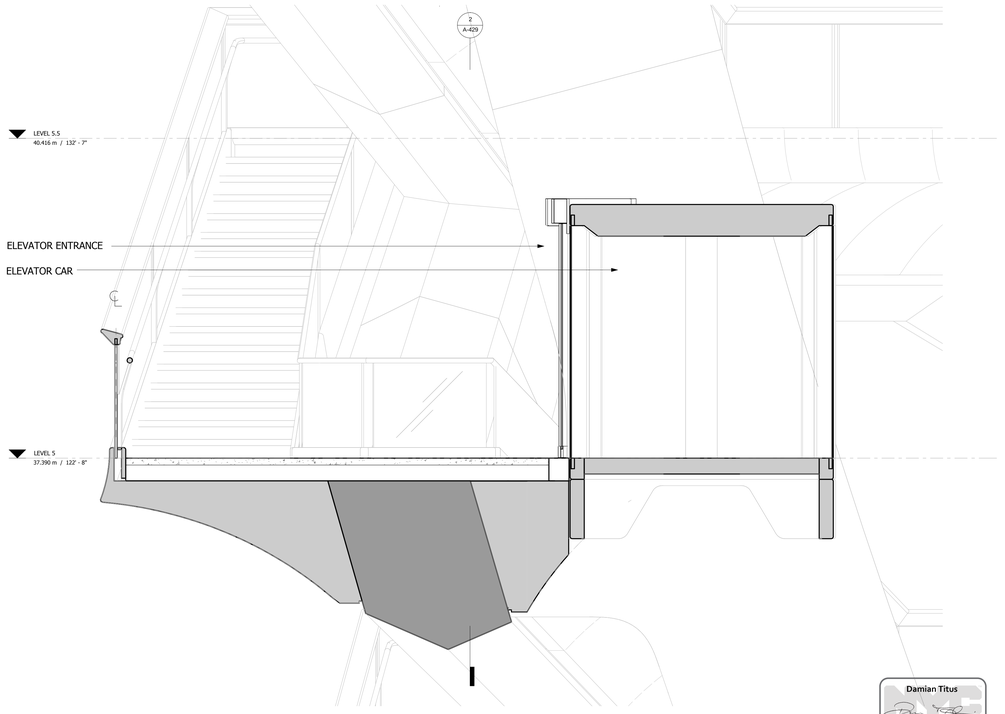

3 CROSS SECTION

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Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016.
NYC Development Hub

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530 WEST 33RD STREET
NEW YORK, NY

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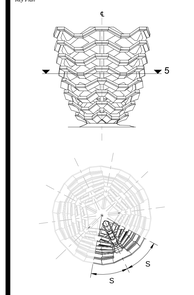
Key Plan



Date: 05/15/14
Project No. 220107
Drawn By SC
Sheet Number

REGISTERED ARCHITECT
JOHN MICHAEL MORRIS
No. 026453
STATE OF NEW YORK

HYE-VS-A-429

Drawing Title

SPINE PLATFORM LEVEL 5 (DISPLAY 5)

Drawing Number
A-429.00

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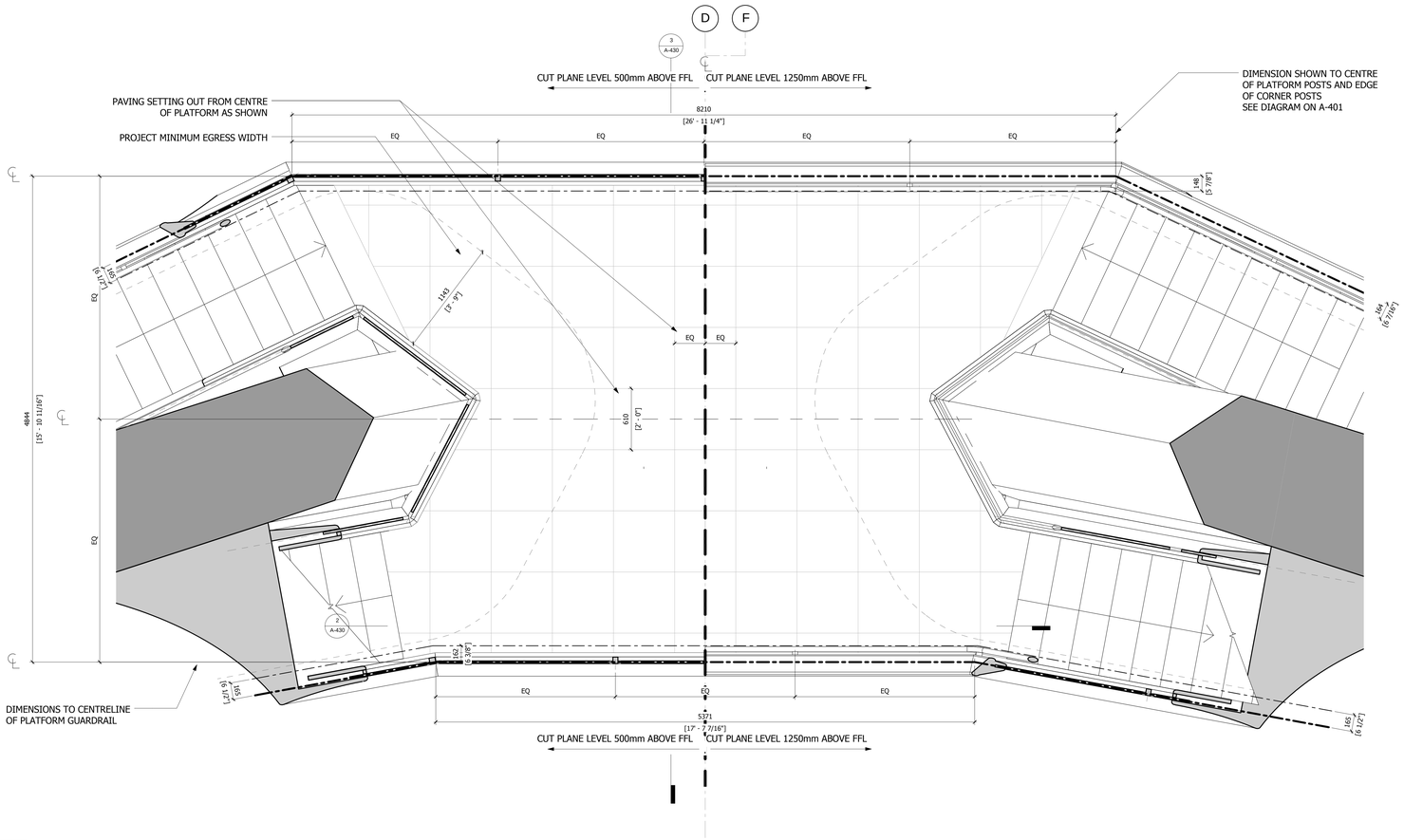

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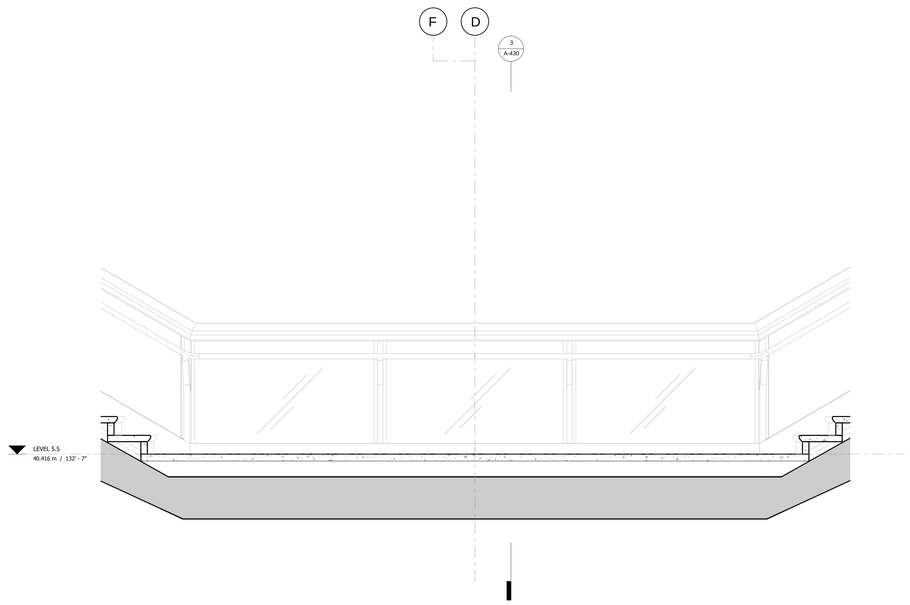

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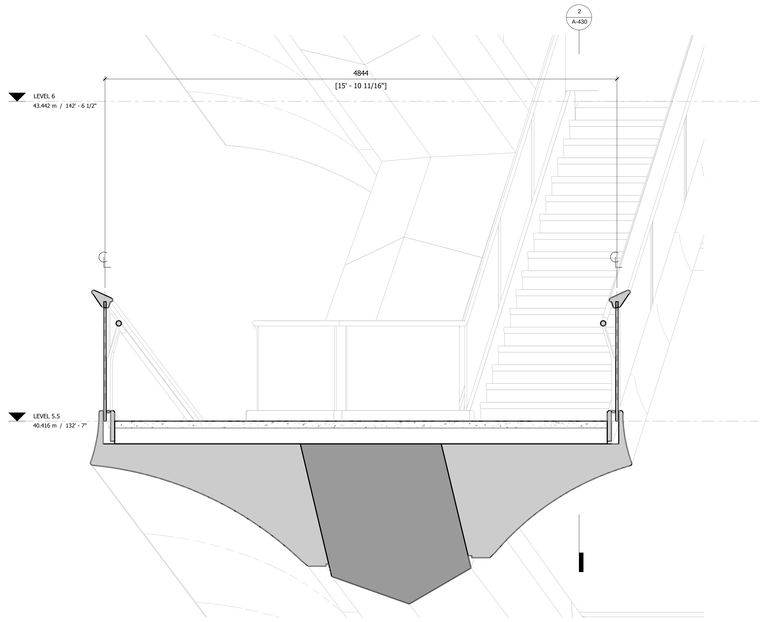

3 CROSS SECTION

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NOTES:

TRANSITION PLATFORMS 5.5B (SHOWN HERE) AND 5.5K ARE IDENTICAL TO TYPICAL PLATFORMS 5.5D, 5.5F AND 5.5H

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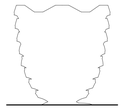
530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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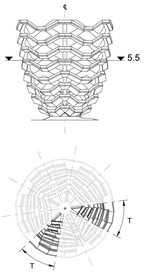
Key Plan



Date: 05/29/15
Project No. 2298.02
Drawn By
Sheet Number

HYE-VS-A-430

Drawing Title

TRANSITION PLATFORM LEVEL 5.5 (DISPLAY 5)

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

Drawing Number

A-430.00

SHEET 57 OF 86

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TRANSITION PLATFORM LEVEL 10
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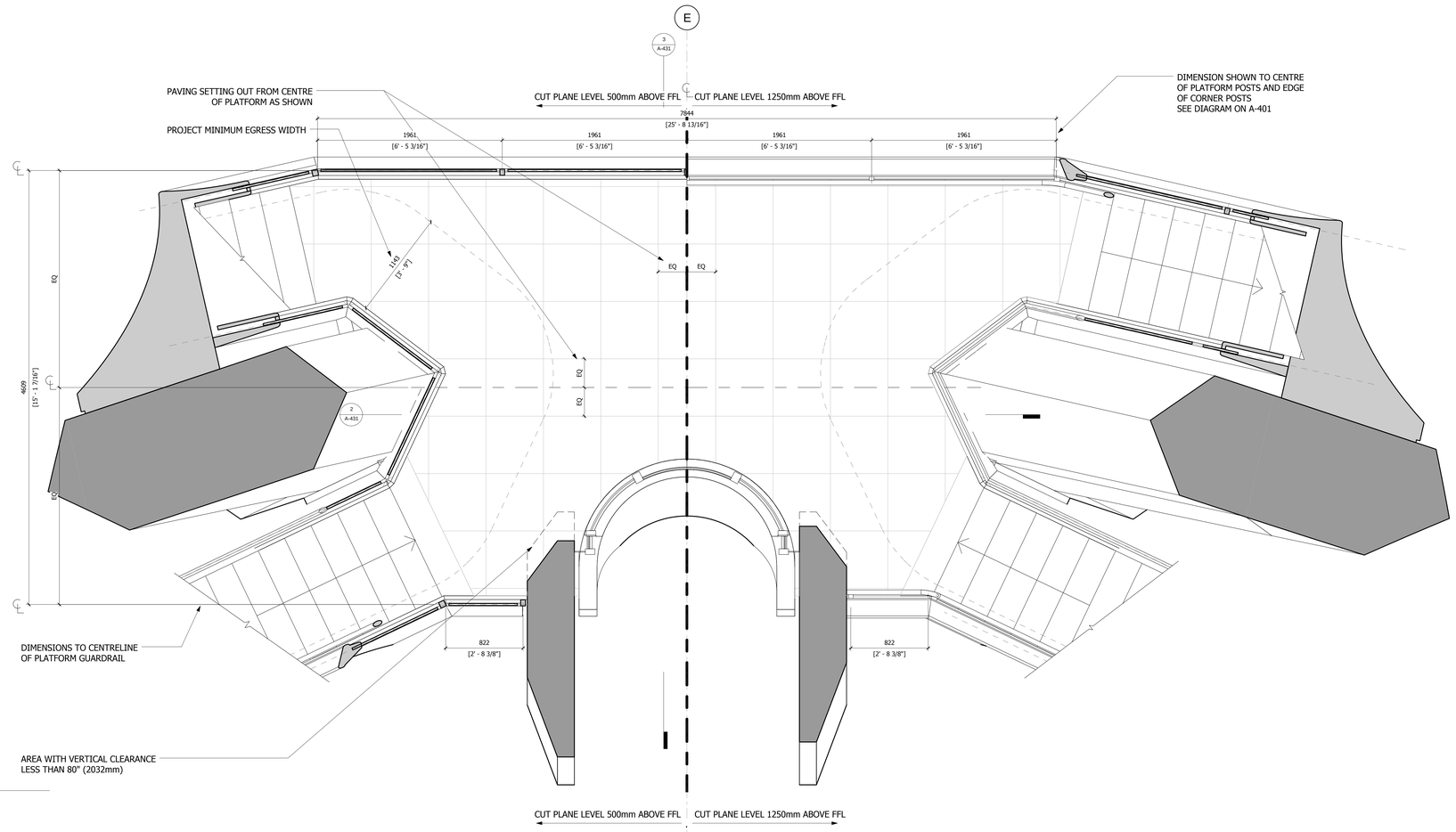

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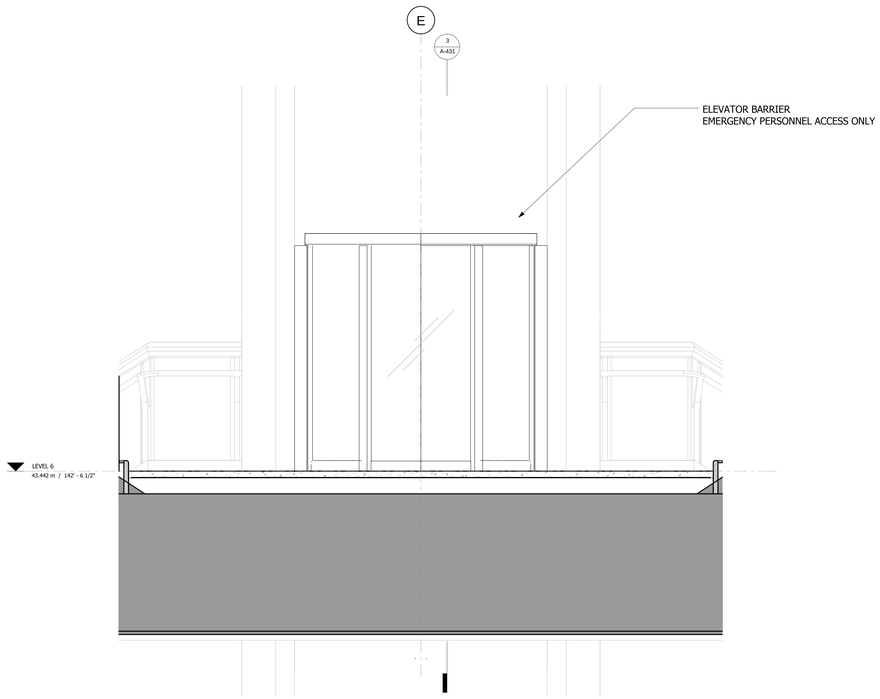

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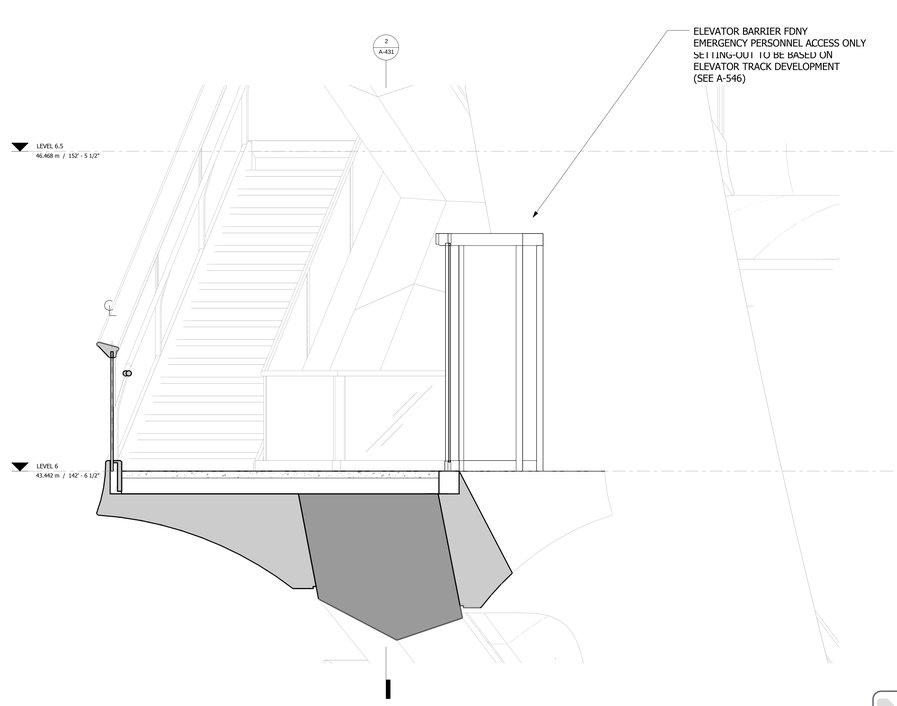

3 CROSS SECTION
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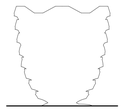
Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

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320 Park Avenue, 17th Floor
New York, NY 10022
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Architects & Planning Consultants
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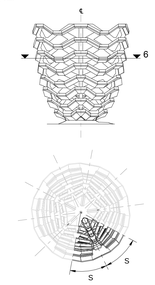
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MOSCHELLA
STATE OF NEW YORK
023143-1

HYE-VS-A-431

Drawing Title

SPINE PLATFORM LEVEL 6 (DISPLAY 6)

Drawing Number
A-431.00

SHEET 58 OF 86

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SPINE PLATFORM LEVEL 11
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A-431
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DEPT OF BUILDINGS 121191185 Job Number
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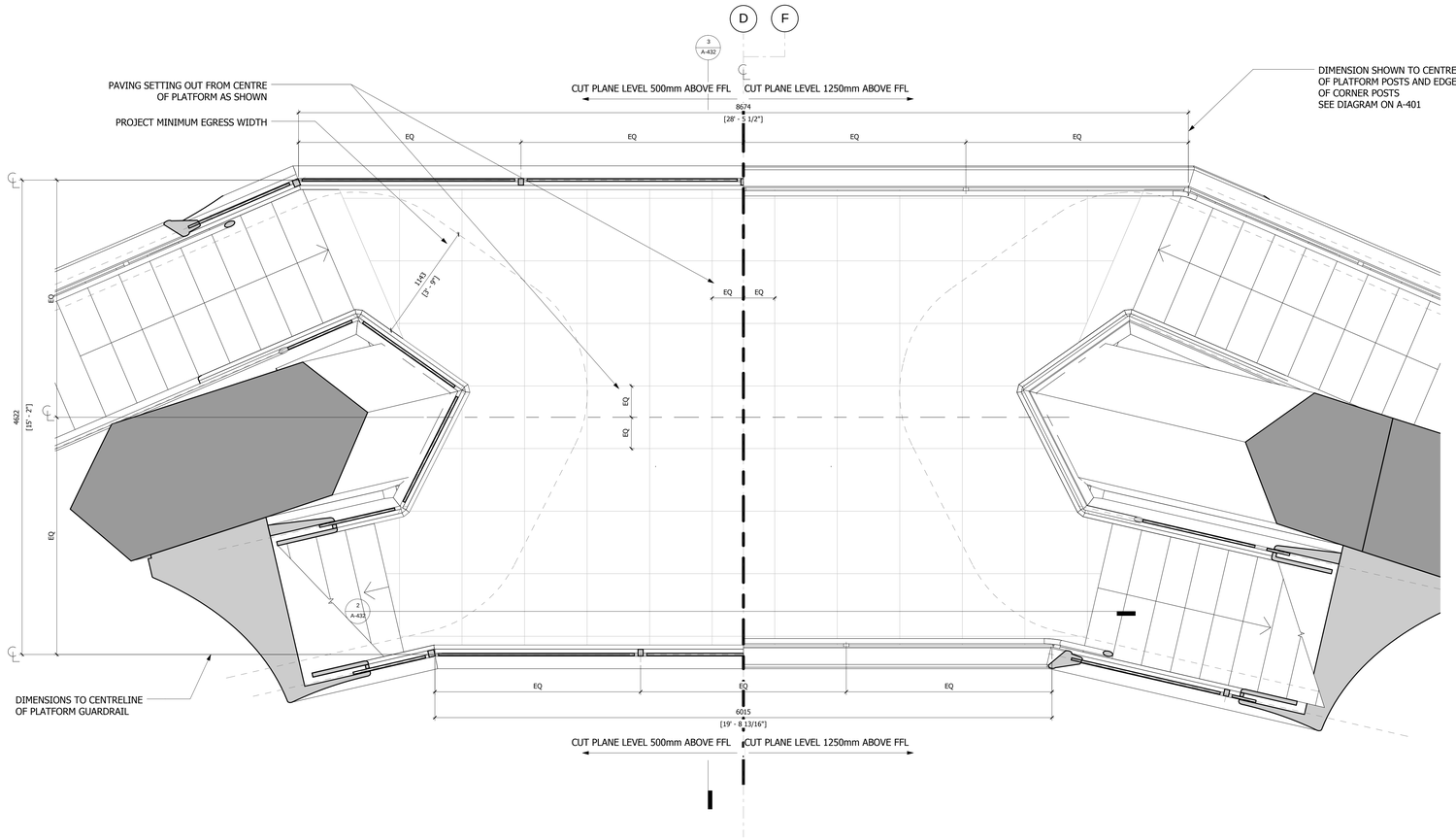

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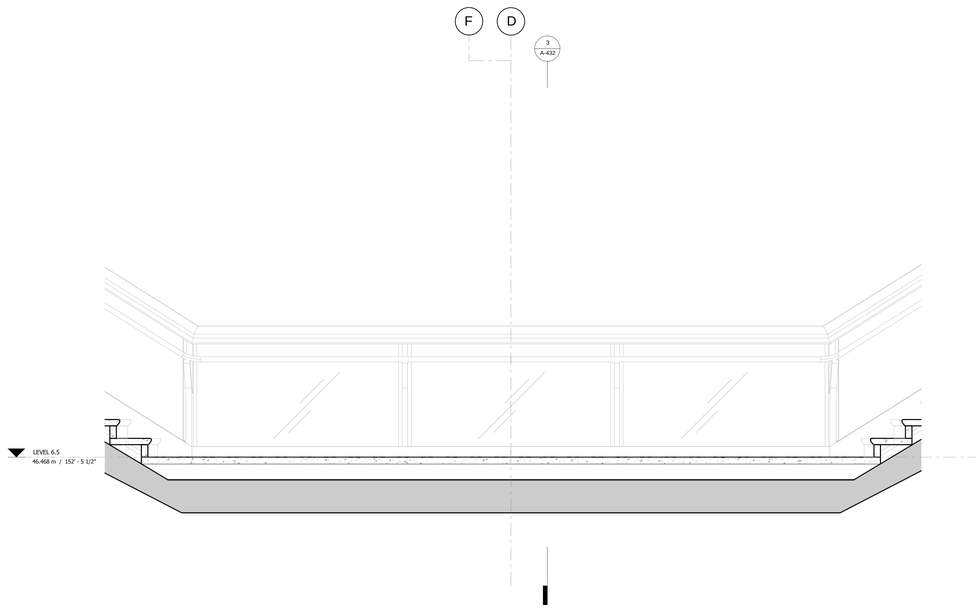

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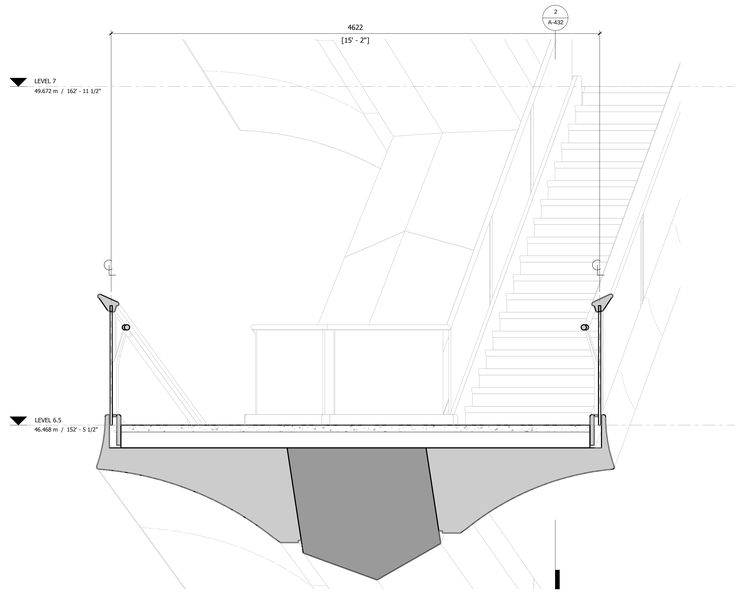

3 CROSS SECTION

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NOTES:

TRANSITION PLATFORMS 6.5B (SHOWN HERE) AND 6.5K ARE IDENTICAL TO TYPICAL PLATFORMS 6.5D, 6.5F AND 6.5H

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VESSEL

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NEW YORK, NY

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60 Columbus Circle
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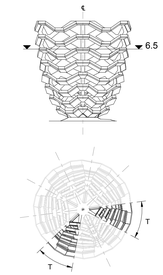
Key Plan



Date: 05/29/15
Project No. 2298.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHN MAY BOSWORTH
No. 026443
STATE OF NEW YORK

HYE-VS-A-432

Drawing Title

TRANSITION PLATFORM LEVEL 6.5 (DISPLAY 6)

Drawing Number
A-432.00

SHEET 59 OF 86

Damian Titus
Buildings
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Under Directive 2 of 1975
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A-432
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TRANSITION PLATFORM LEVEL 12
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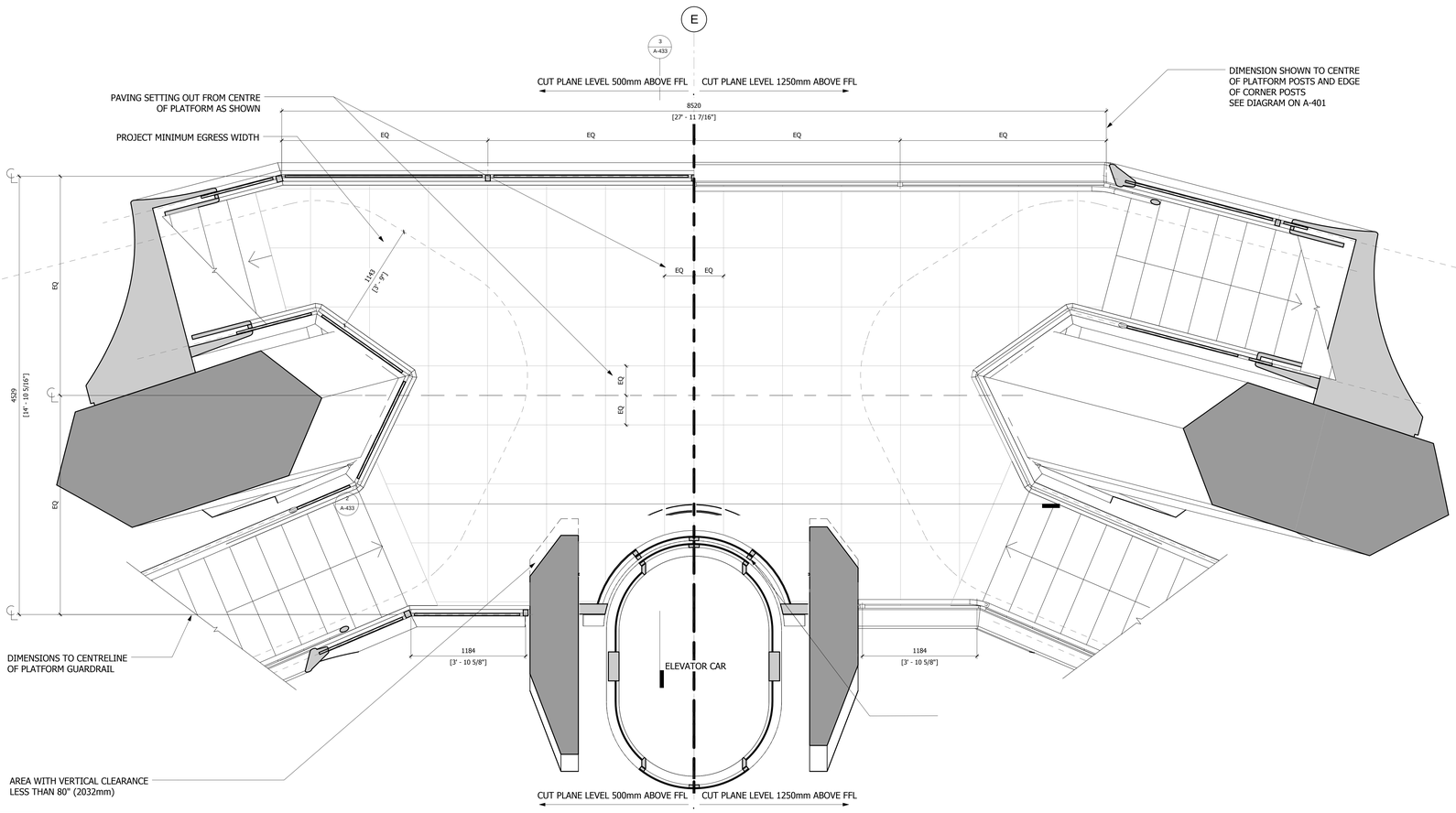

1 PLAN

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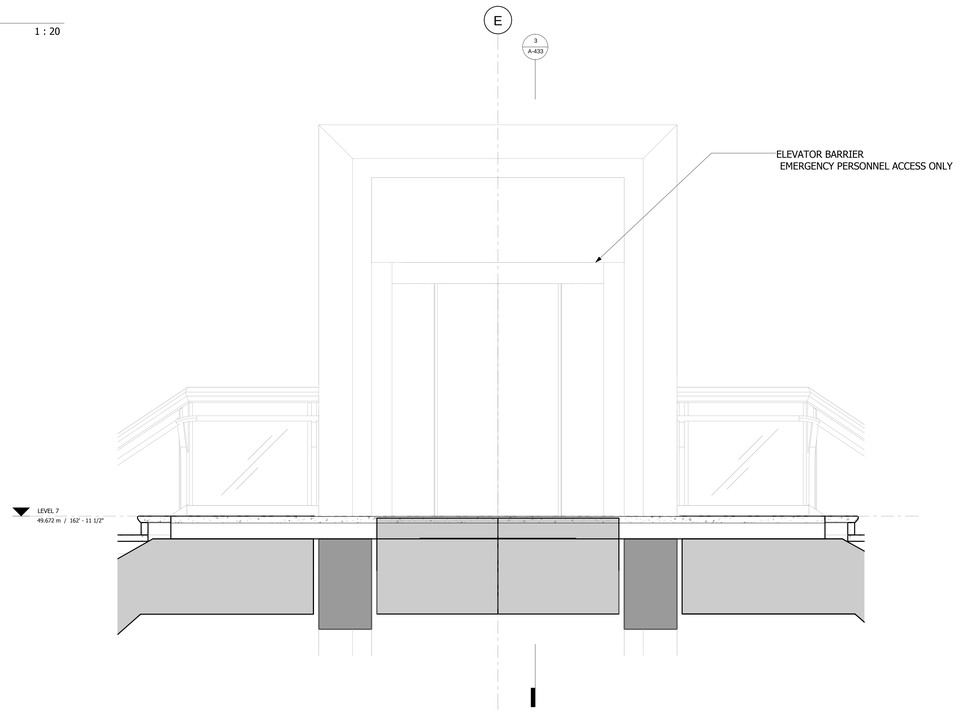

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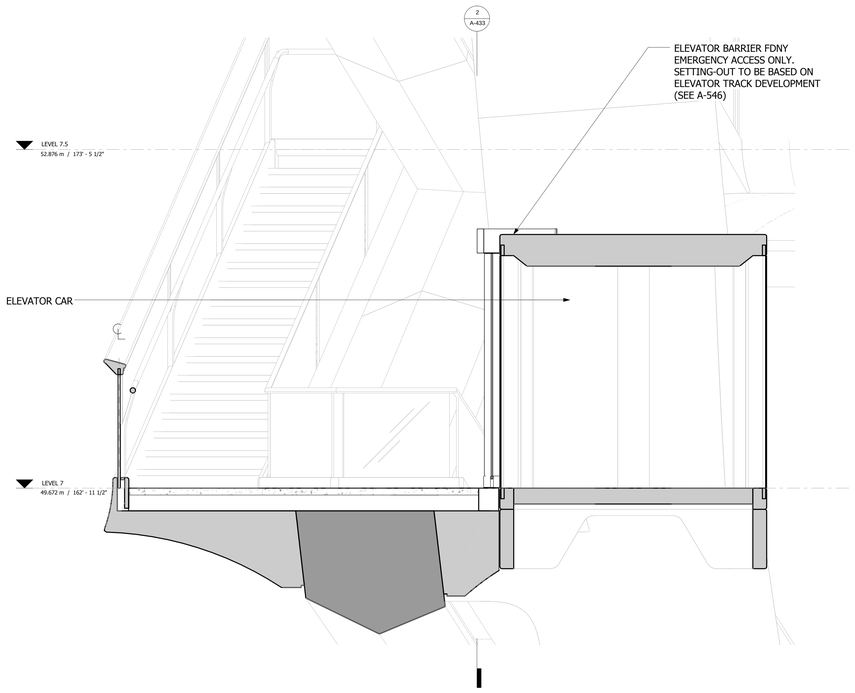


3 CROSS SECTION

1 : 20

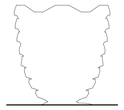
NOTES

- Do not scale this drawing work to figured dimensions only.
- All dimensions are in millimetres unless otherwise stated.
- All dimensions to be confirmed prior to fabrication.
- Heatherwick Studio shall be notified in writing of any discrepancies requesting verification.

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
Tishman Construction Corporation
100 Park Avenue
Tel: 212.708.6800

Architect
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Architects & Planning Consultants
11 West 42nd Street
Tel: 212.977.6500 Fax: 212.956.2526

Design Architect
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United Kingdom
Tel: 44(0)20 7833 8800

Structural Engineer
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51 Madison Avenue
New York, NY 10010
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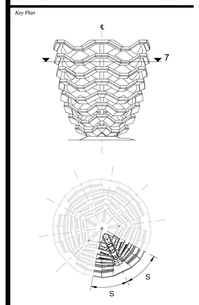
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT ANTHONY MOSELLE 023143-1 STATE OF NEW YORK

HYE-VS-A-433

Drawing Title

SPINE PLATFORM
LEVEL 7 (DISPLAY 7)

Drawing Number
A-433.00

SHEET 60 OF 86

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SPINE PLATFORM LEVEL 13
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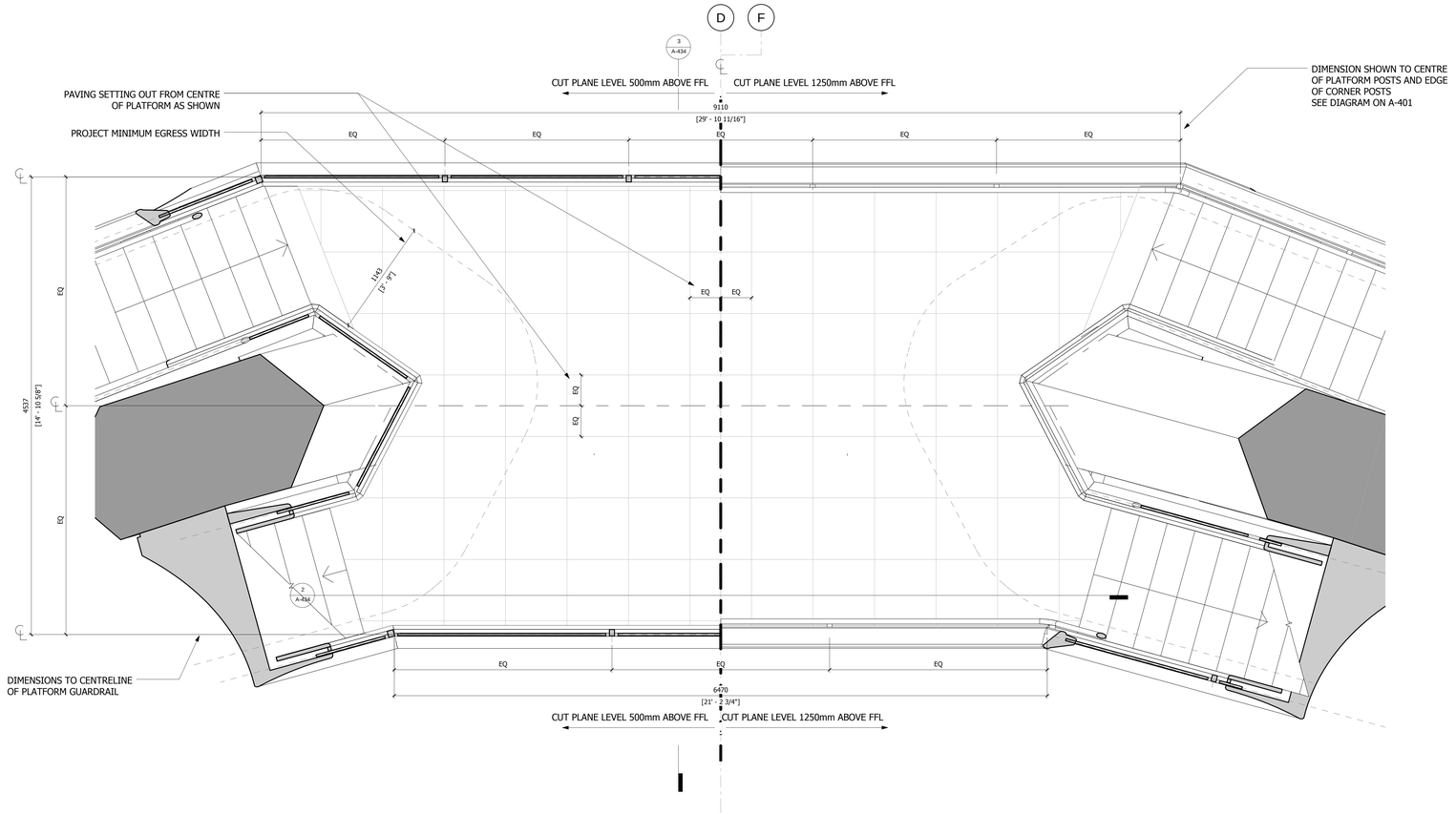
DEPT OF BUILDINGS 121191185 Job Number
ES2.0941929 Scan Code



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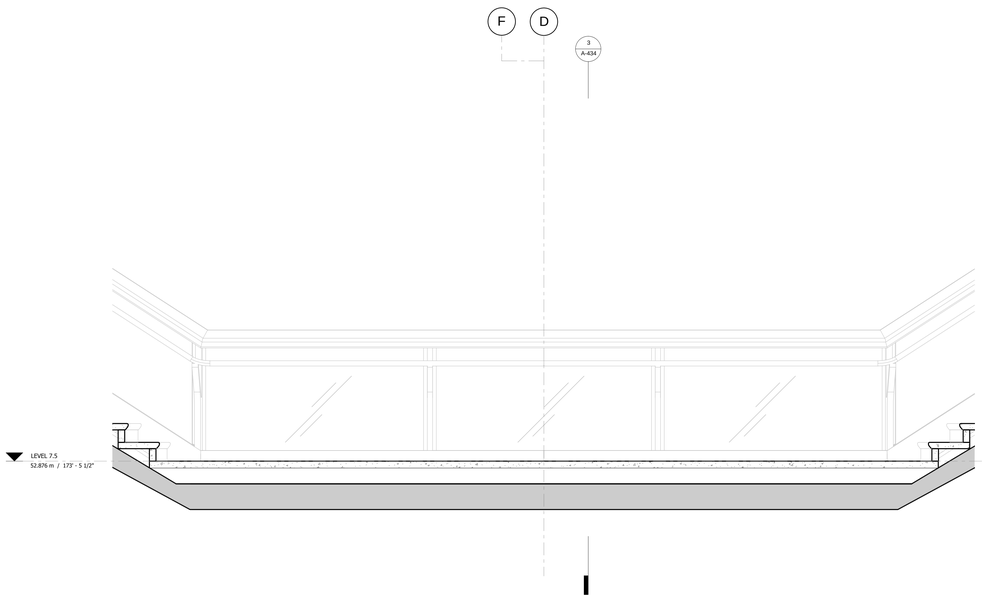

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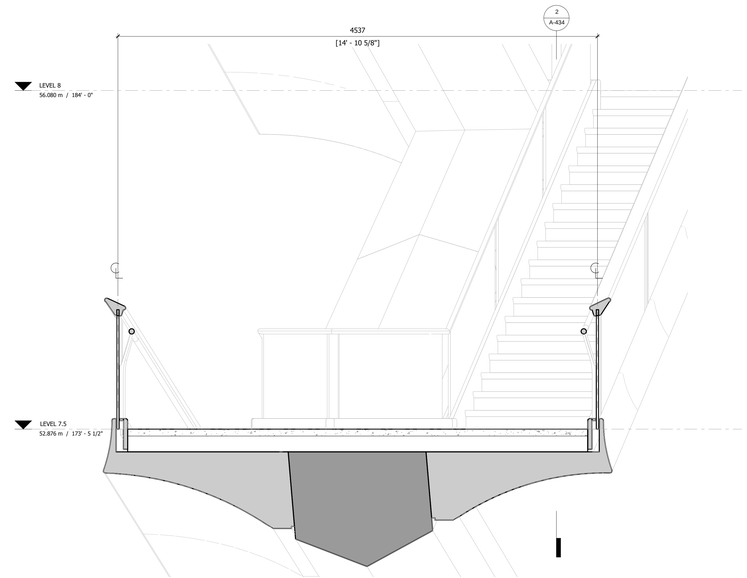

3 CROSS SECTION

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NOTES:

TRANSITION PLATFORMS 7.5B (SHOWN HERE) AND 7.5K ARE IDENTICAL TO TYPICAL PLATFORMS 7.5D, 7.5F AND 7.5H

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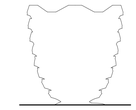

Client
Related Companies
60 Columbus Circle
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Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
Tishman Construction Corporation
100 Park Avenue
Tel: 212.708.6800

Executive Architect
Kohn Pedersen Fox Associates PC
Architects & Planning Consultants
11 West 42nd Street
Tel: 212.977.6500 Fax: 212.956.2526

Design Architect
Heatherwick Studio
356-364 Grays Inn Road
London WC1X 8BH
United Kingdom
Tel: 44(0)20 7833 8800

Structural Engineer
Thornton Tomasetti, Inc.
51 Madison Avenue
New York, NY 10010
Tel: 917.661.7800 Fax: 917.661.7801

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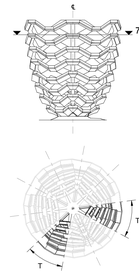
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/29/15
Project No. 2298.00
Drawn By
Sheet Number

HYE-VS-A-434

Drawing Title

TRANSITION PLATFORM LEVEL 7.5 (DISPLAY 7)

Drawing Number
A-434.00

SHEET 61 OF 86

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

A-434
25/03/2016 19:13:42
TRANSITION PLATFORM LEVEL 7.5
C:\BIM\731_VESSEL_MASTER_bamrock.rvt

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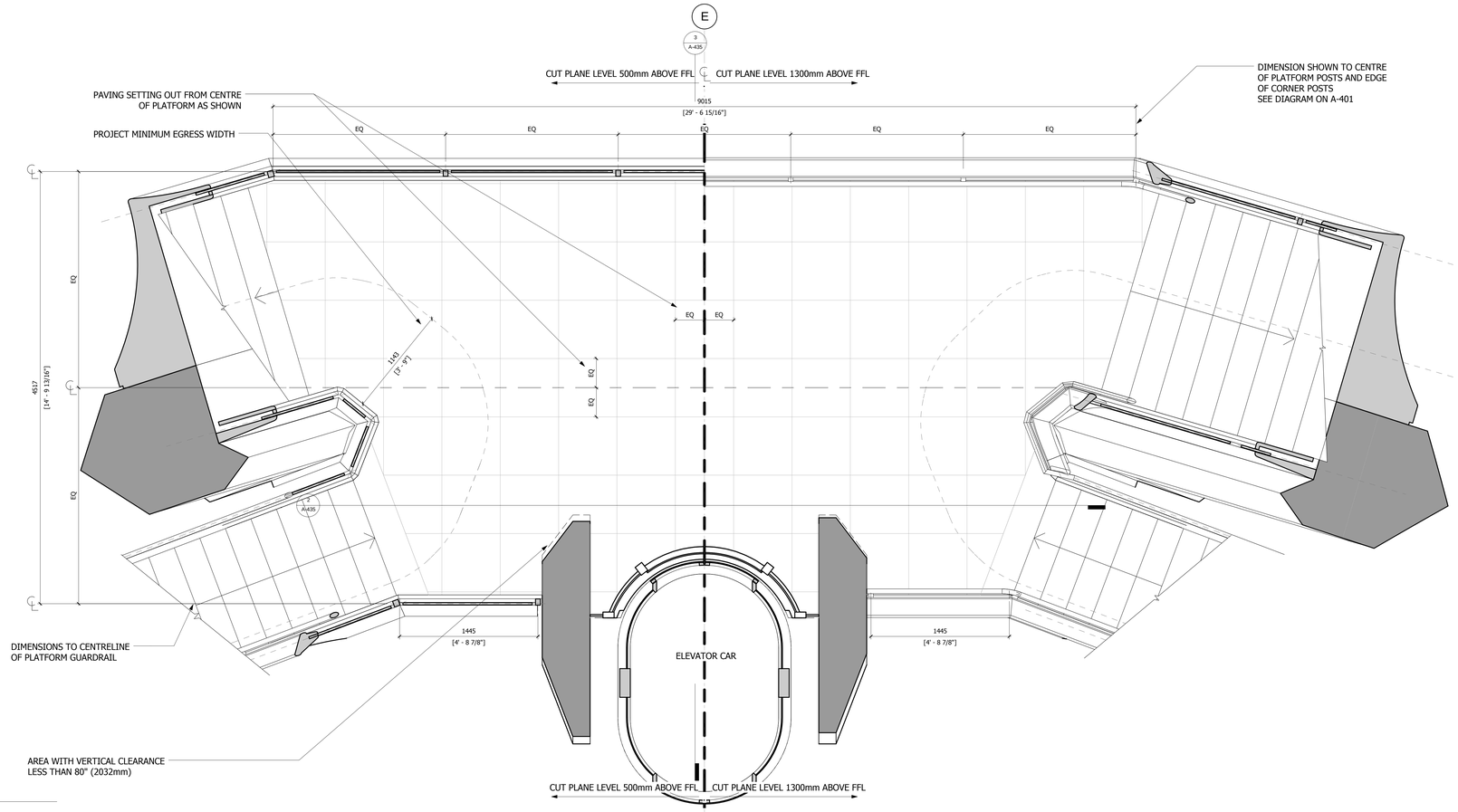
ES0946500502 Scan Code



1 PLAN

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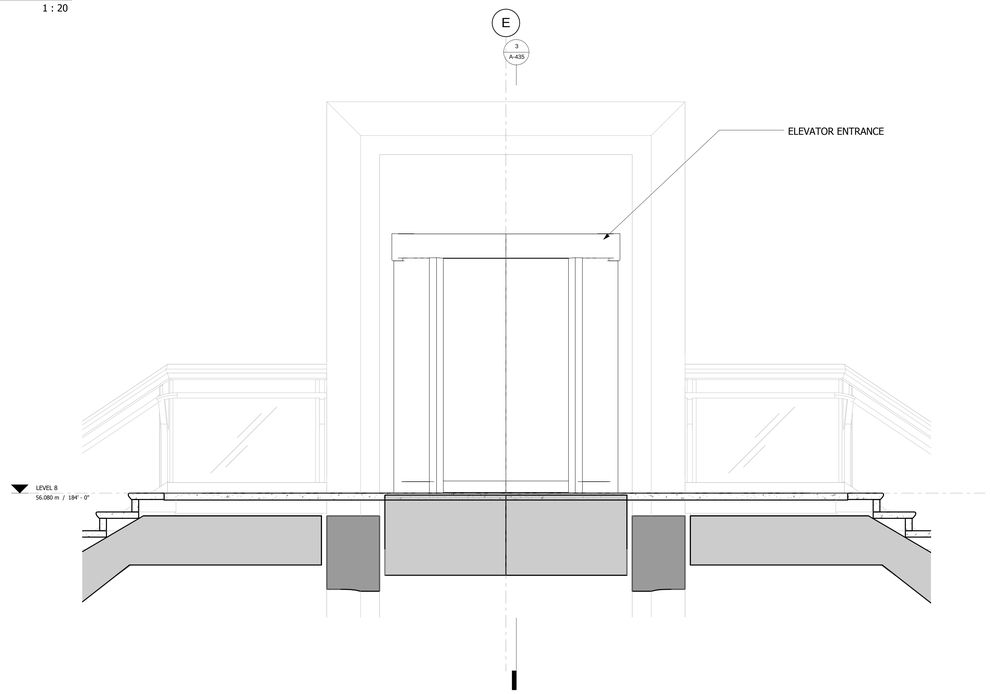

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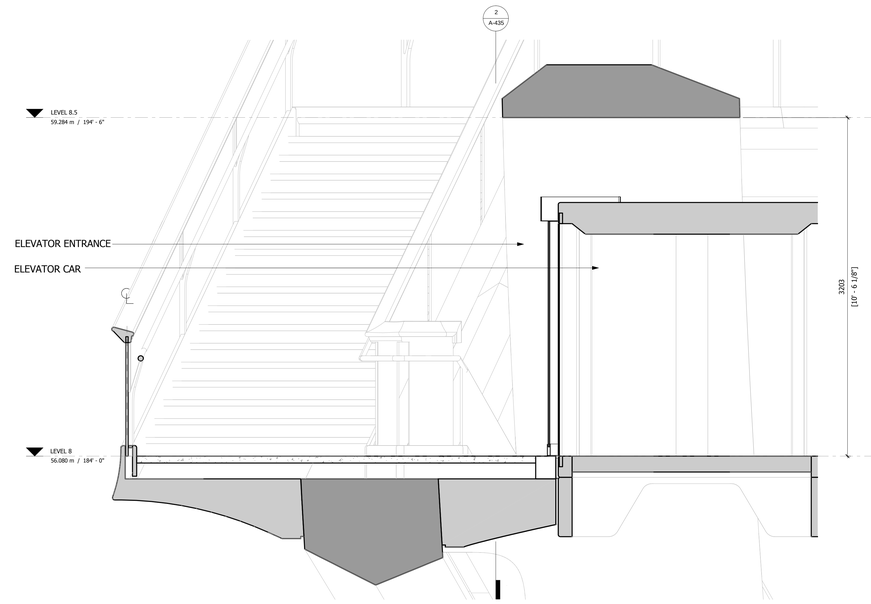

3 CROSS SECTION

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SPINE-EXTERIOR-LEVEL-15
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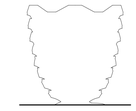
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
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Executive Architect
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Architects & Planning Consultants
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Structural Engineer
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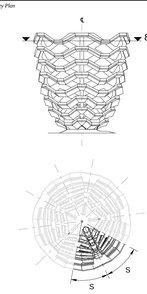

Date: 05/15/14
Project No. 22960
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORELLI
028973
STATE OF NEW YORK

HYE-VS-A-435

Drawing Title

SPINE PLATFORM LEVEL 8 (DISPLAY 8)

Drawing Number

A-435.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

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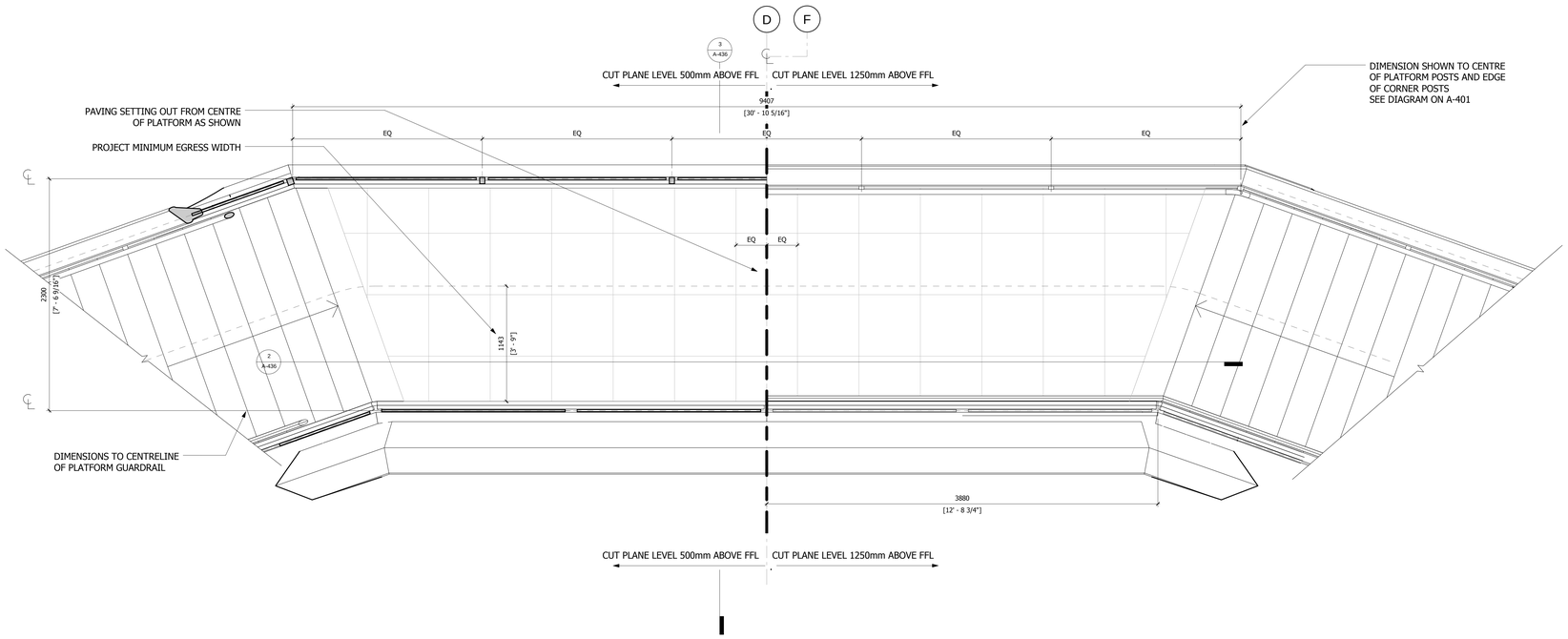
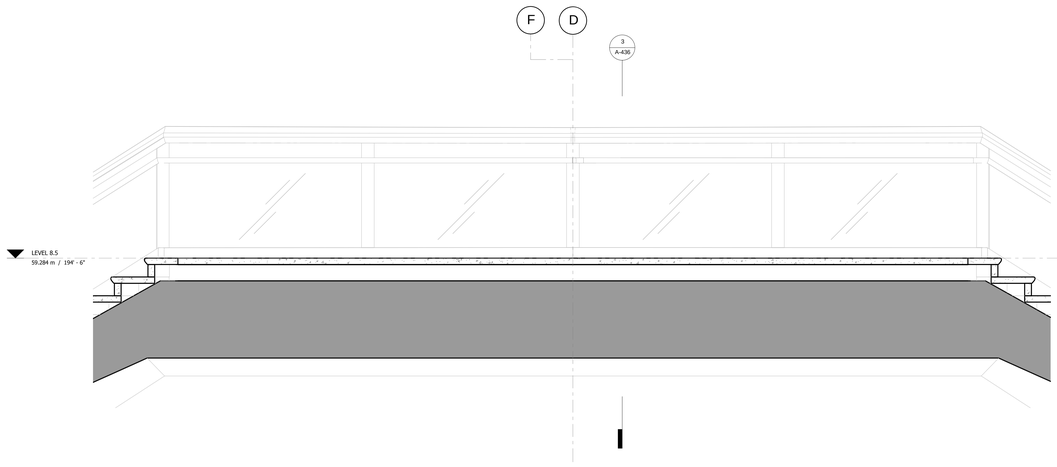


1 PLAN

1 : 20

NOTES:

TRANSITION PLATFORMS 8.5B (SHOWN HERE) AND 8.5K ARE IDENTICAL TO TYPICAL PLATFORMS 8.5D, 8.5F AND 8.5H



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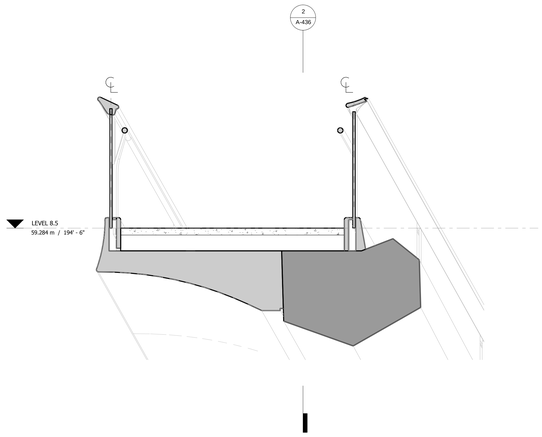


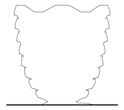
3 CROSS SECTION

1 : 20

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

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320 Park Avenue, 17th Floor
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Tel: 212.986.7514 Fax: 212.9863.7510

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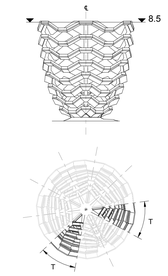

Date: 05/29/15
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT ANTHONY MOSELLE 021743-1 STATE OF NEW YORK

HYE-VS-A-436

Drawing Title

TRANSITION PLATFORM LEVEL 8.5 (DISPLAY 8)

Drawing Number

A-436.00

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TRANSITION PLATFORM LEVEL 16
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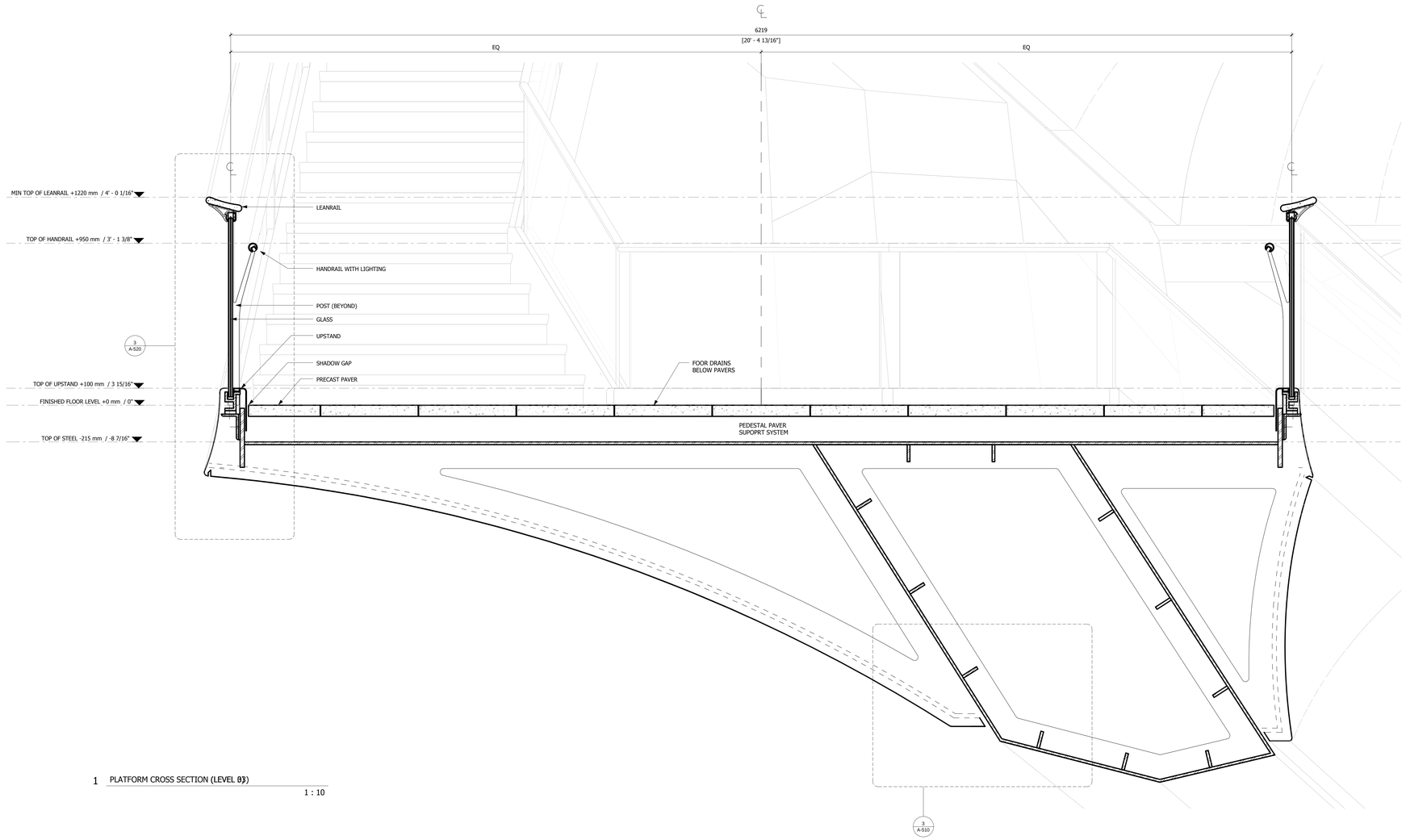

1 PLATFORM CROSS SECTION (LEVEL 03)

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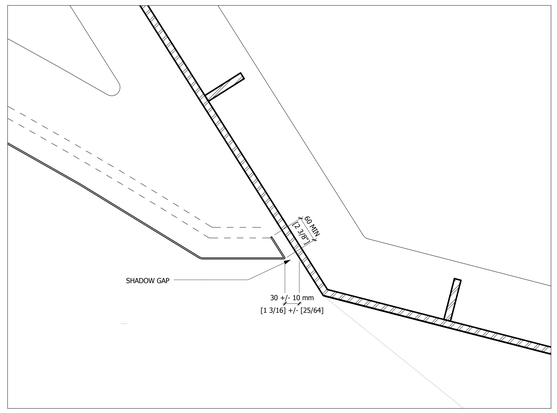
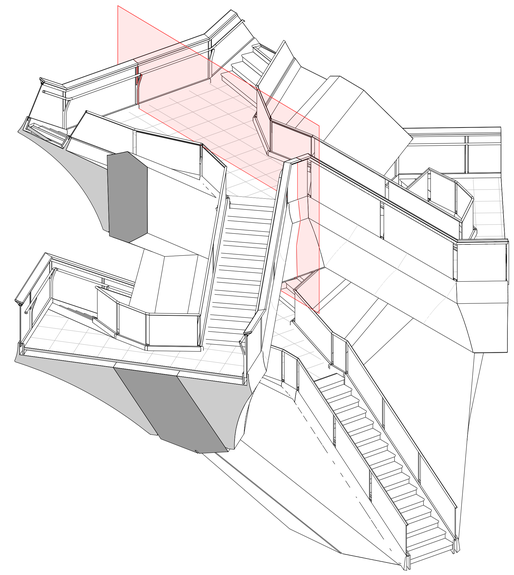


3 SOFFIT SHADOW GAP

1 : 5



2 KEY DIAGRAM

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
Tishman Construction Corporation
100 Park Avenue
Tel: 212.708.6800

Executive Architect
Kohn Pedersen Fox Associates PC
Architects & Planning Consultants
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United Kingdom
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51 Madison Avenue
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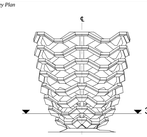
Key Plan



Date:	05/15/14
Project No.	2298607
Drawn By	
Sheet Number	

REGISTERED ARCHITECT THOMAS J. MORETTI 026345-1 STATE OF NEW YORK

HYE-VS-A-510

Drawing Title

PLATFORM CROSS SECTION (LEVEL 3)

Drawing Number

A-510.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

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25/05/2016 19:15:15
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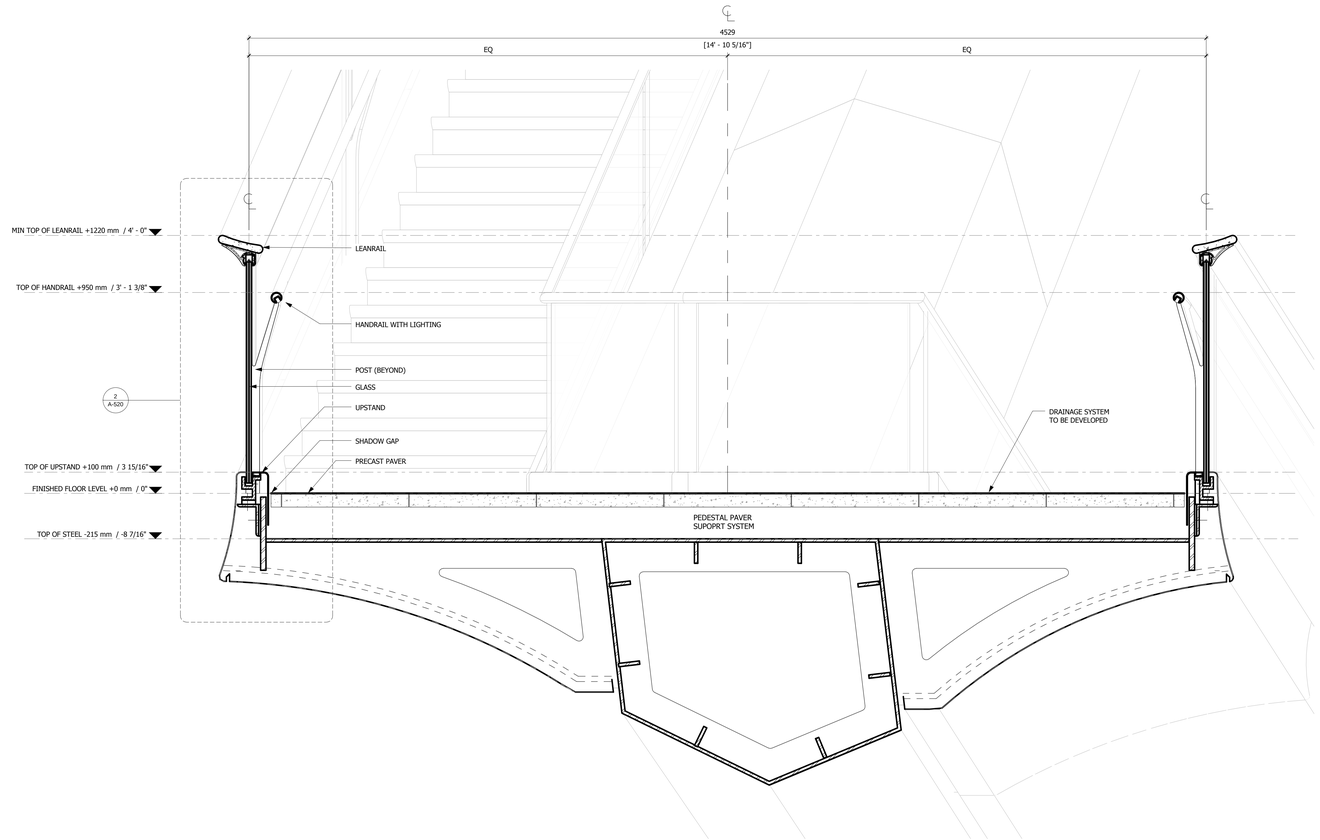

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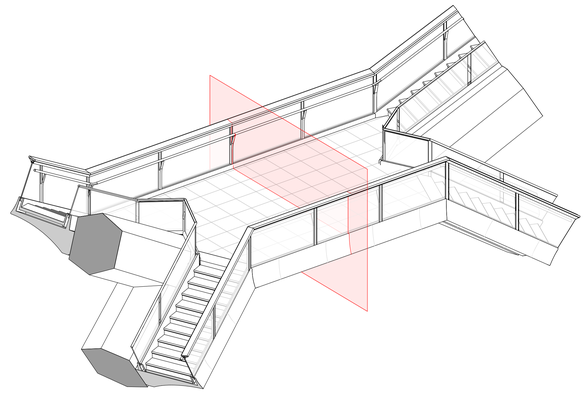
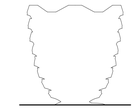


2 KEY DIAGRAM

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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No.	Issue	Date
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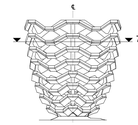
Key Plan



Date: 05/15/14
Project No. 2298.07
Drawn By
Sheet Number

REGISTERED ARCHITECT
JOHN MAY MORRIS
027443
STATE OF NEW YORK

HYE-VS-A-511

Drawing Title

PLATFORM CROSS SECTION (LEVEL 7)

Drawing Number
A-511.00

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DEPT OF BUILDINGS 321191185 Job Number
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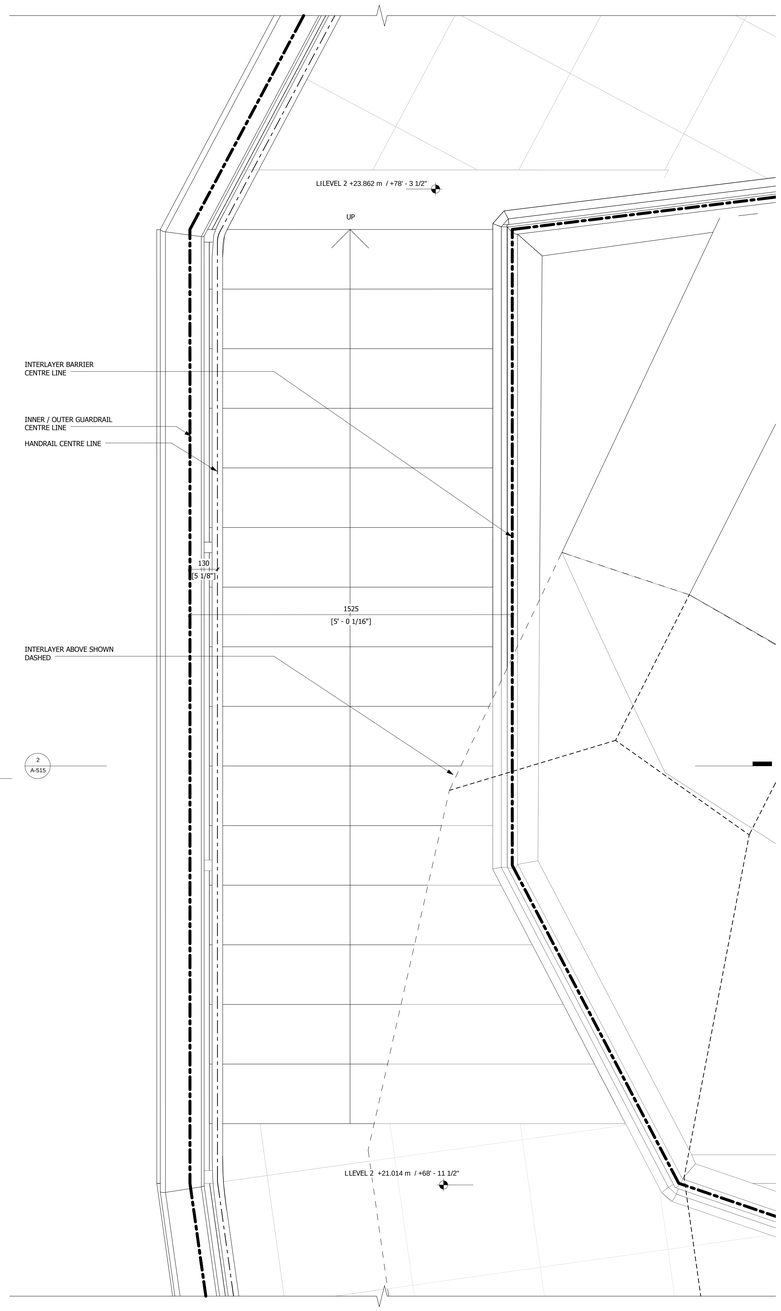

1 STAIR PLAN

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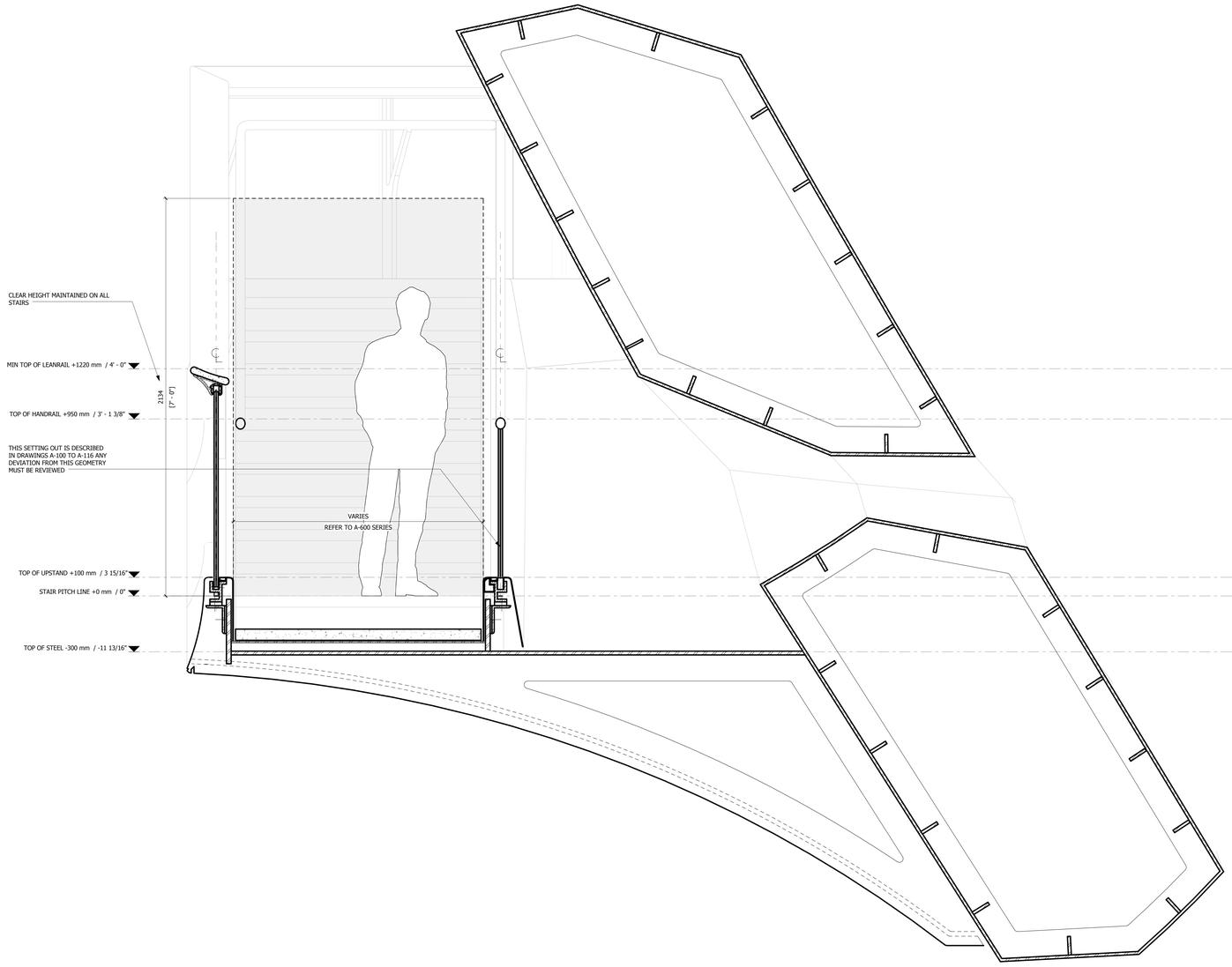

2 STAIR CROSS SECTION

1 : 10

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
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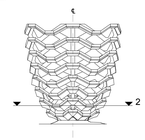
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 2298.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
ARCHITECT NOT MODIFIED
DAMIAN TITUS
026453
STATE OF NEW YORK

HYE-VS-A-515

Drawing Title

STAIR DETAILS (STAIR TYPE 3-TY)

Drawing Number
A-515.00

SHEET 66 OF 86

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A-515
25/03/2016 19:16:15
STAIR DETAILS (STAIR TYPE 03).TY
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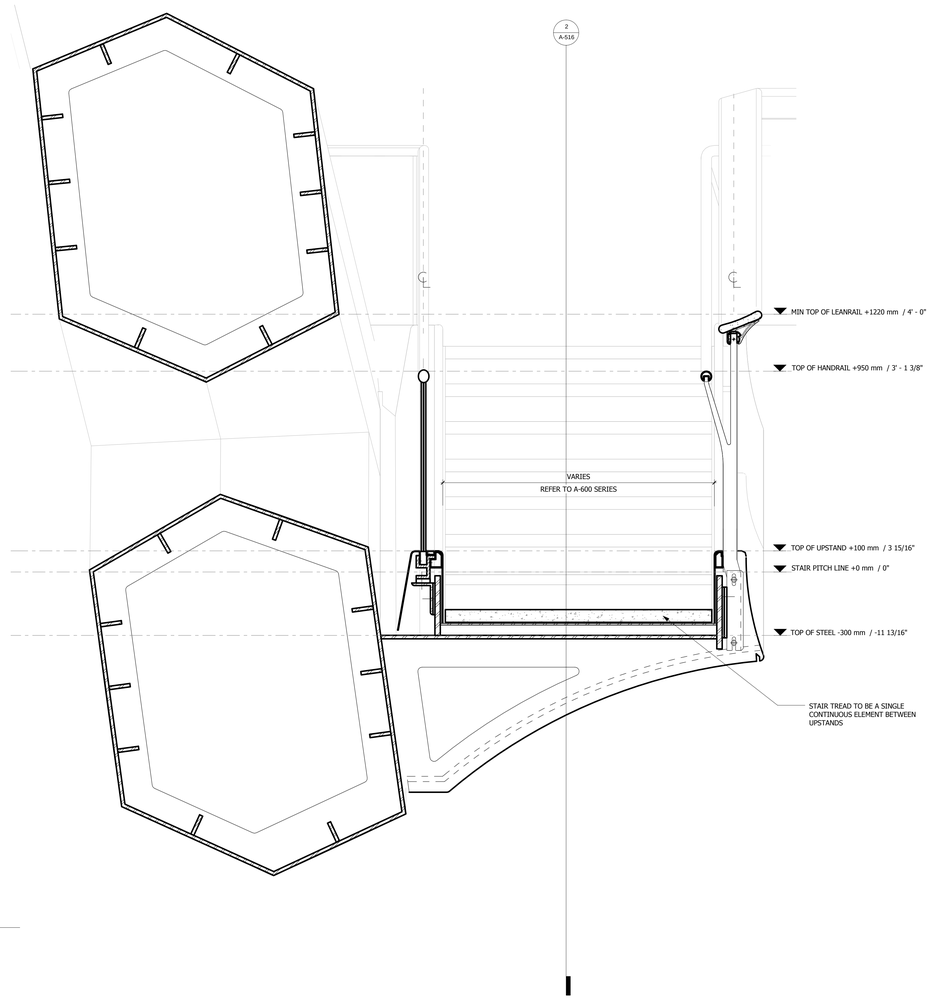
DEPT OF BUILDINGS 121121125 Job Number
E100647098 Scan Code



1 STAIR CROSS SECTION

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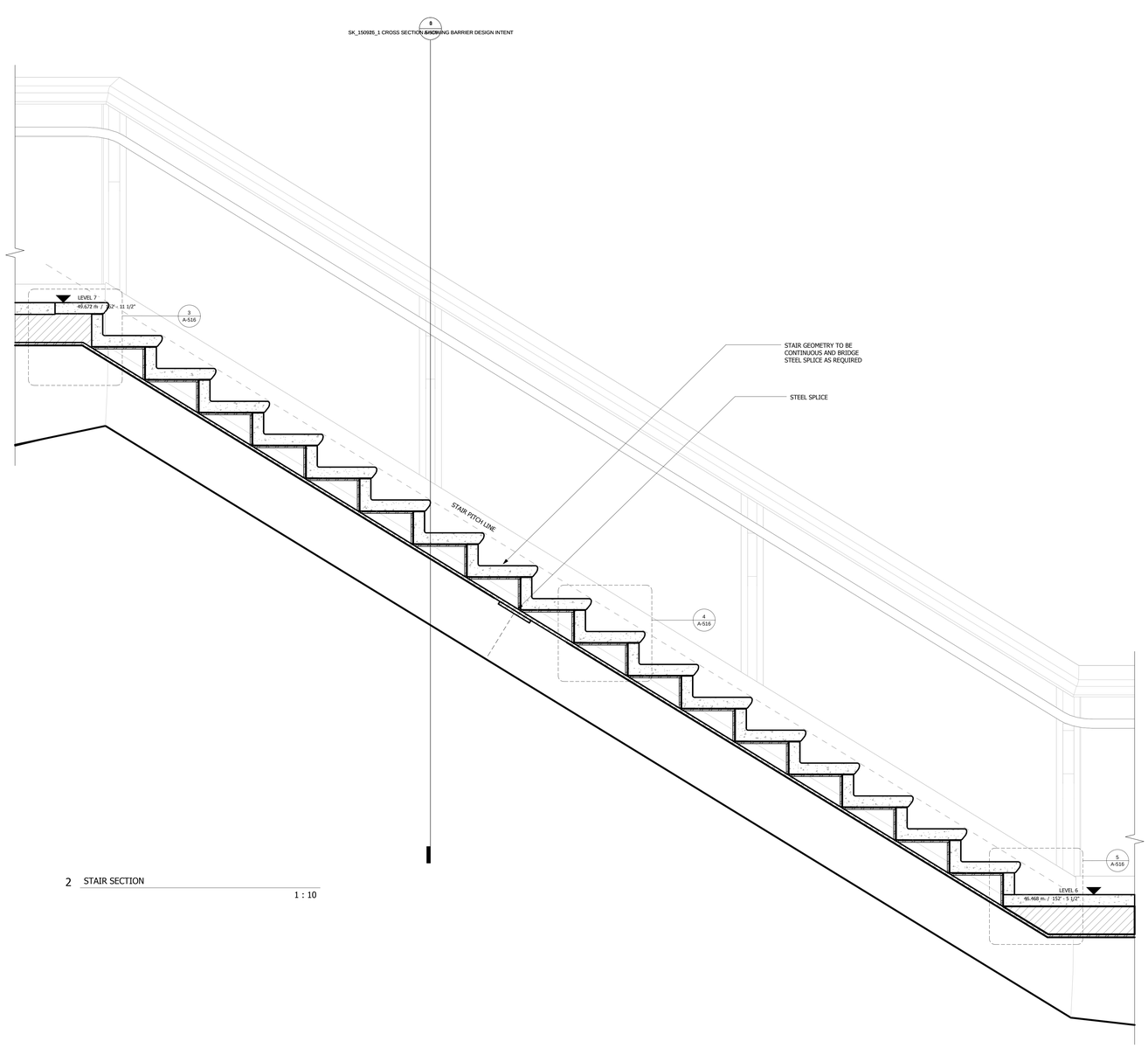

2 STAIR SECTION

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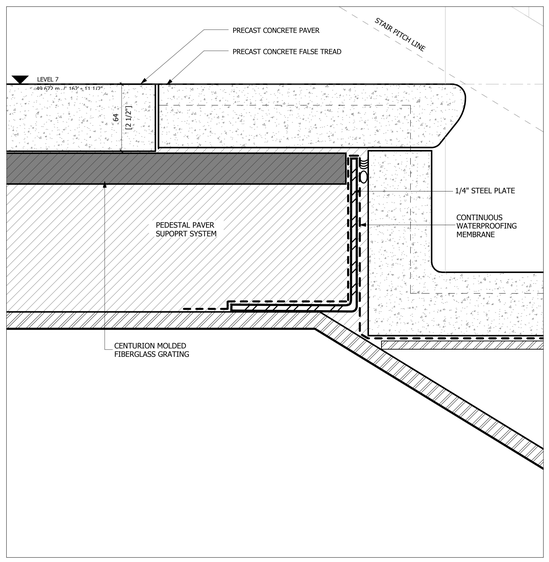
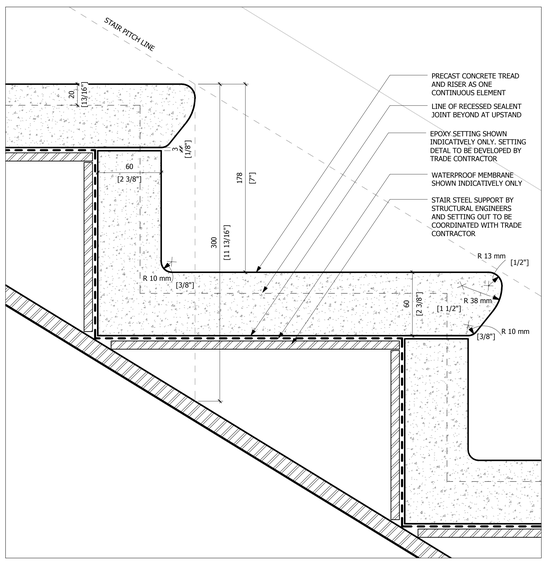


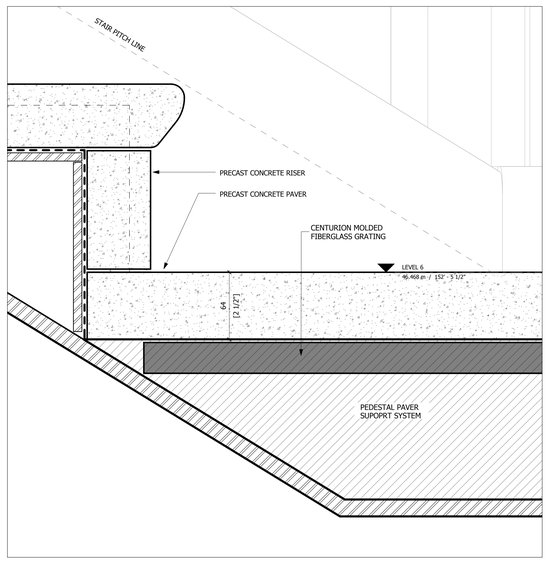
3 STAIR TOP DETAIL

1 : 2



4 STAIR TYPICAL DETAIL

1 : 2



5 STAIR BASE DETAIL

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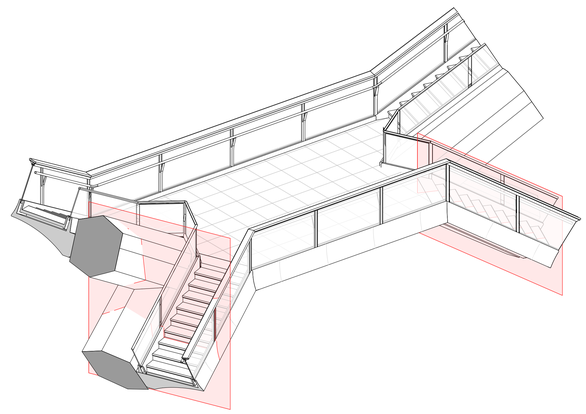

6 KEY DIAGRAM

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

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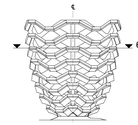
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/15/14
Project No. 229.00
Drawn By
Sheet Number

HYE-VS-A-516

Drawing Title

STAIR DETAILS (STAIR TYPE 6-TY)

Drawing Number

A-516.00

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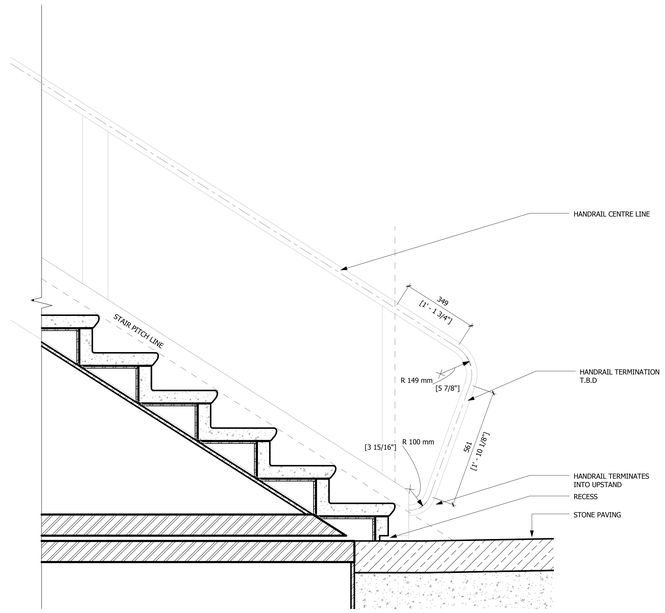
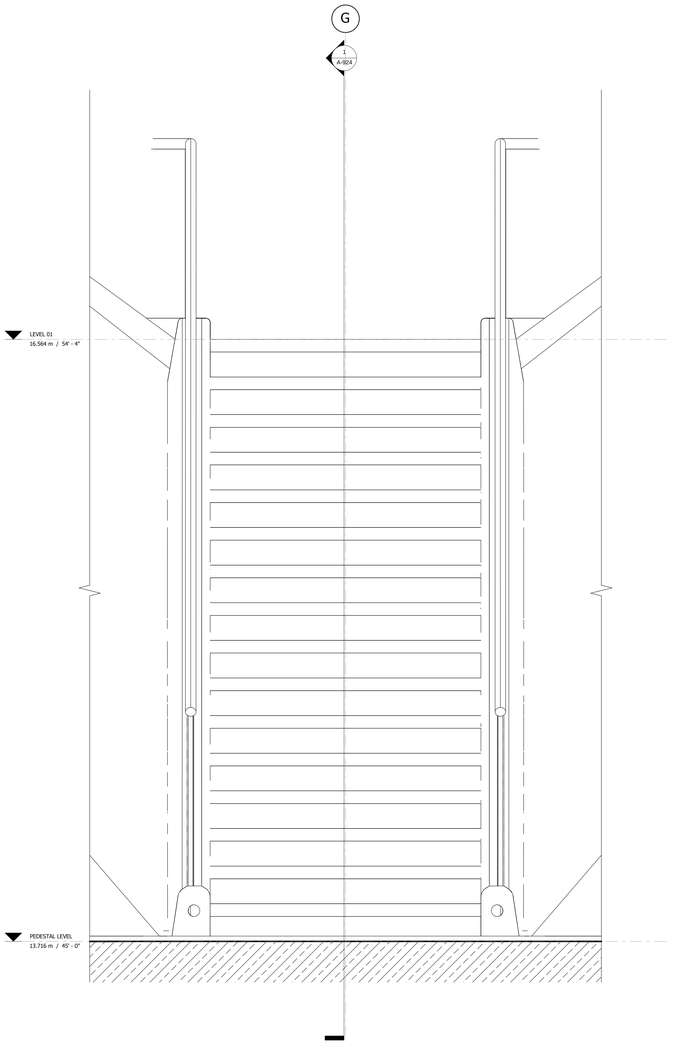


1 SECTION

1 : 10



2 ELEVATION

1 : 10

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

Construction Manager
Tishman Construction Corporation
100 Park Avenue
Tel: 212.708.6800

Executive Architect
Kohn Pedersen Fox Associates PC
Architects & Planning Consultants
11 West 42nd Street
Tel: 212.977.6500 Fax: 212.956.2526

Design Architect
Heatherwick Studio
356-364 Grays Inn Road
London WC1X 8BH
United Kingdom
Tel: 44(0)20 7833 8800

Structural Engineer
Thornton Tomasetti, Inc.
51 Madison Avenue
New York, NY 10010
Tel: 917.661.7800 Fax: 917.661.7801

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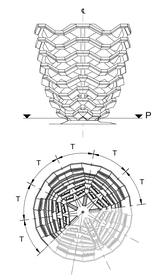
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/29/15
Project No. 2298.00
Drawn By
Sheet Number

HYE-VS-A-517

Drawing Title

STAIR DETAILS (STAIR TYPE PEDESTAL)

Drawing Number
A-517.00

SHEET 68 OF 86

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
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A-517
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STAIR DETAILS (STAIR TYPE PEDESTAL)
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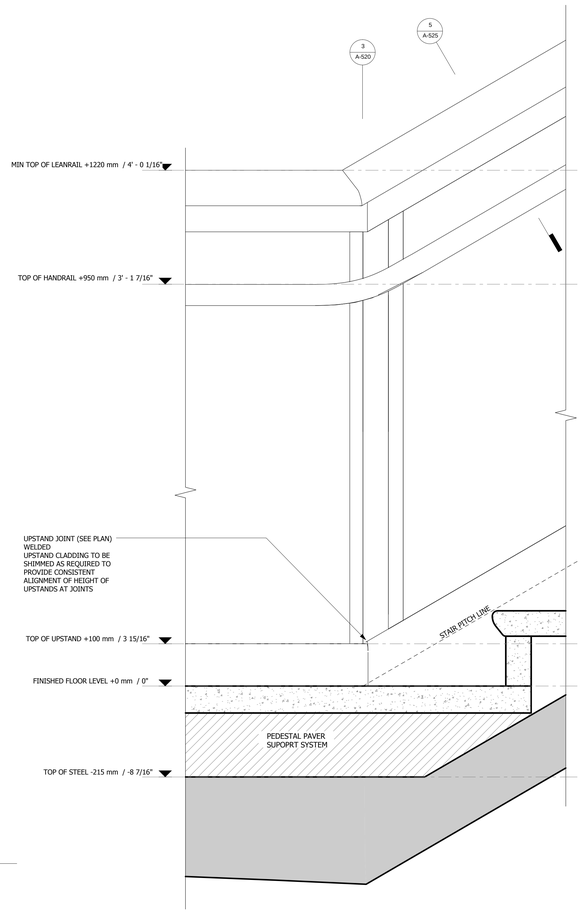
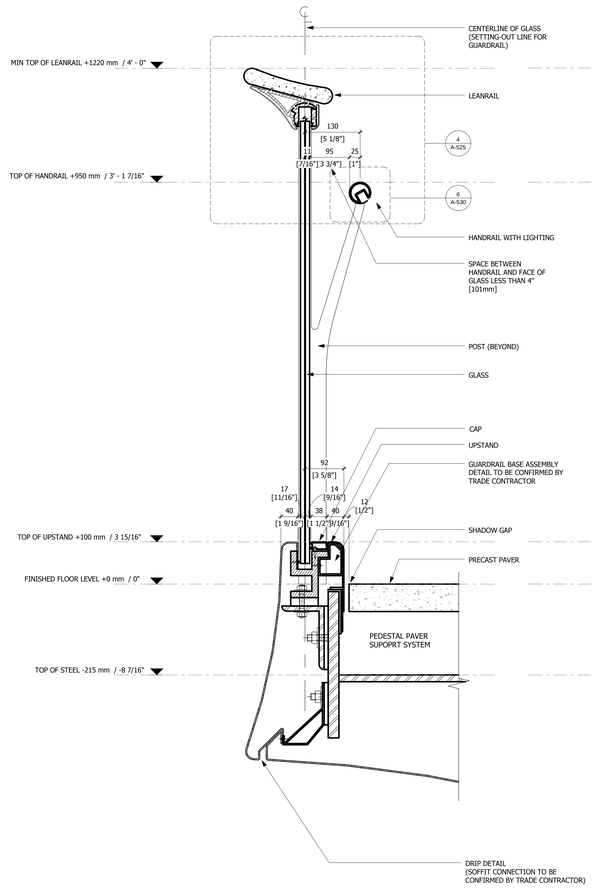


1 CORNER ELEVATION

1 : 5



2 PLATFORM DETAIL SECTION

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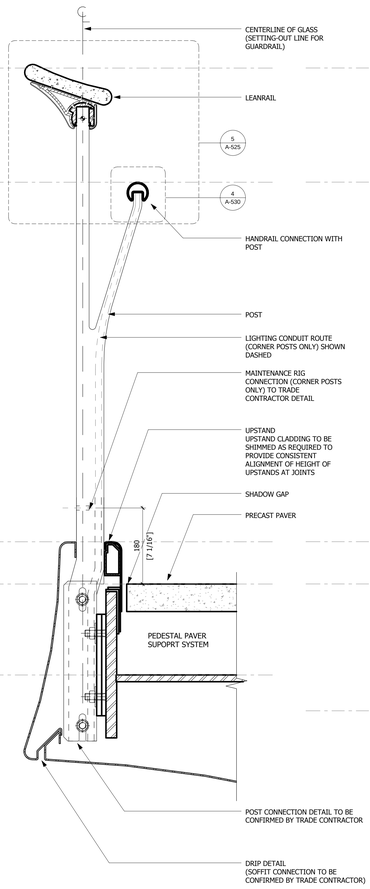

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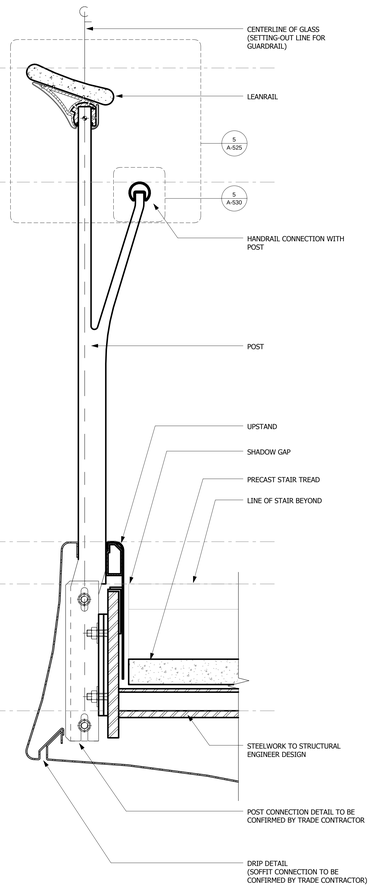
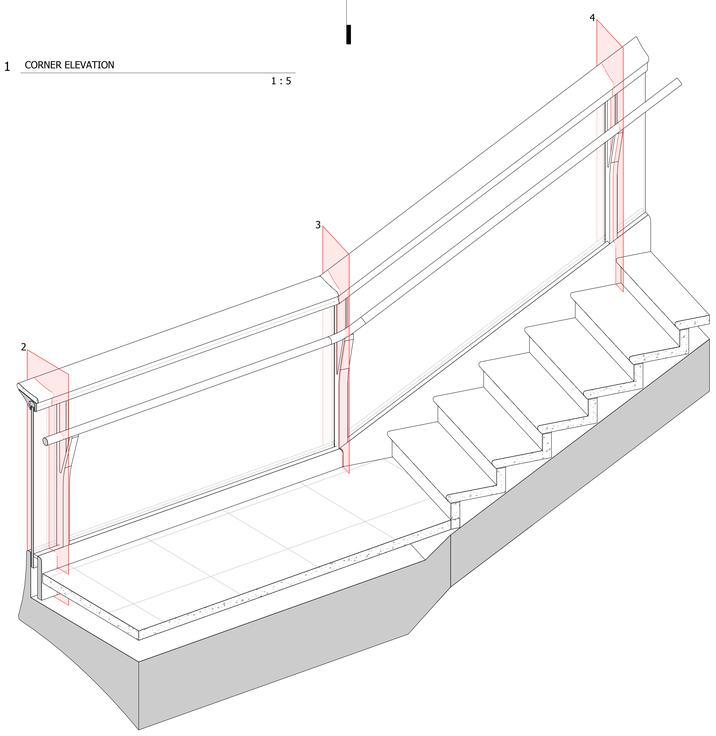
1 : 5

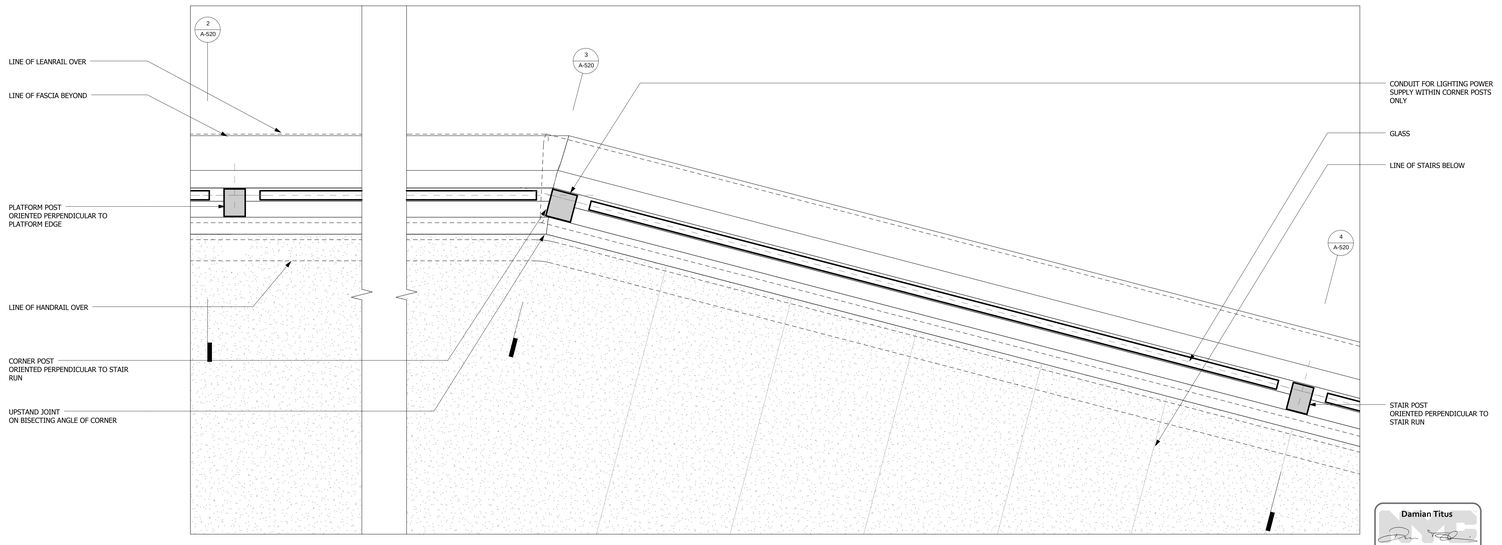


4 STAIR DETAIL SECTION

1 : 5



6 KEY DIAGRAM



7 PLAN (CUT AT 900MM / 3' ABOVE FINISHED FLOOR)

1 : 5

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
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HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
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60 Columbus Circle
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1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan

Date: 05/15/14
Project No. 220.007
Drawn By SC
Sheet Number

REGISTERED ARCHITECT
JOHN MARTIN MORRIS
028453
STATE OF NEW YORK

HYE-VS-A-520

Drawing Title

INNER / OUTER GUARDRAIL DETAILS

Drawing Number
A-520.00

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A-520
25/07/2016 19:18:29
INNER / OUTER GUARDRAIL DETAILS
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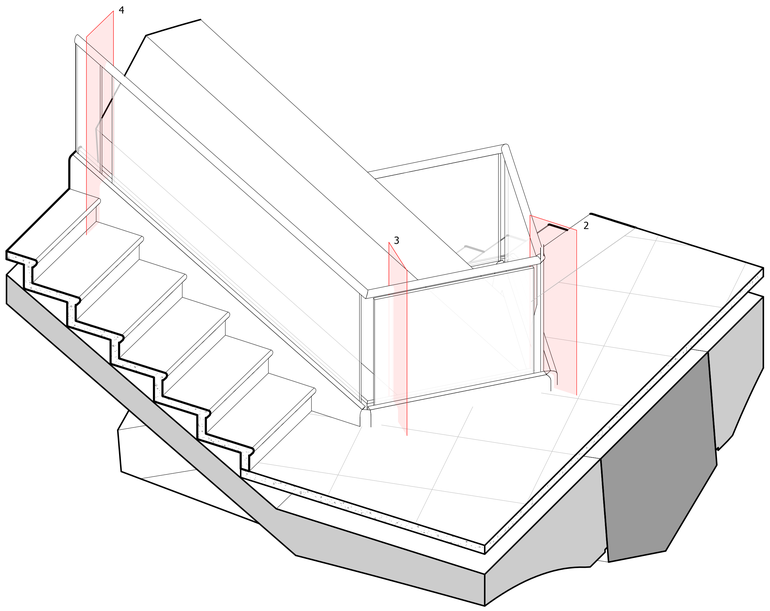

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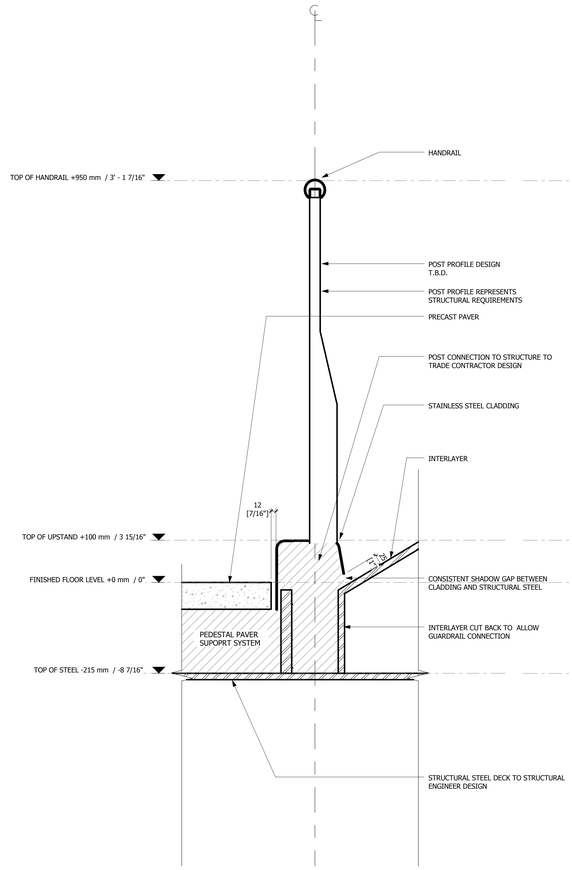
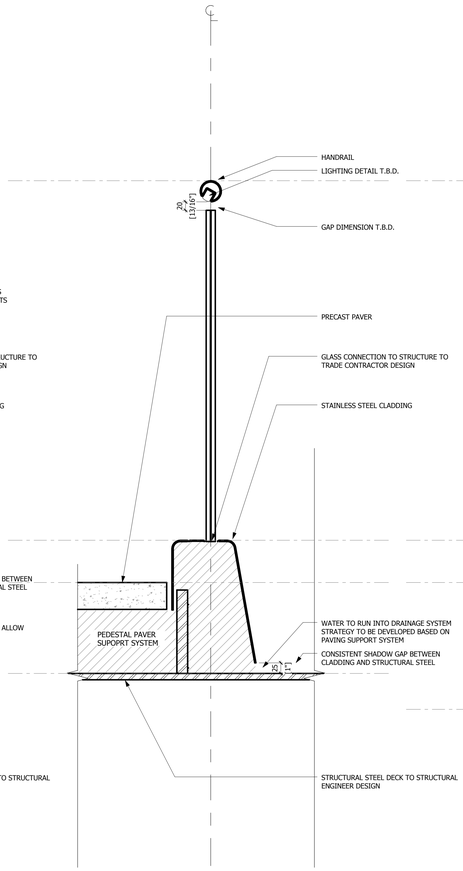


2 INTERLAYER GUARDRAIL PLATFORM POST DETAIL SECTION
1 : 5



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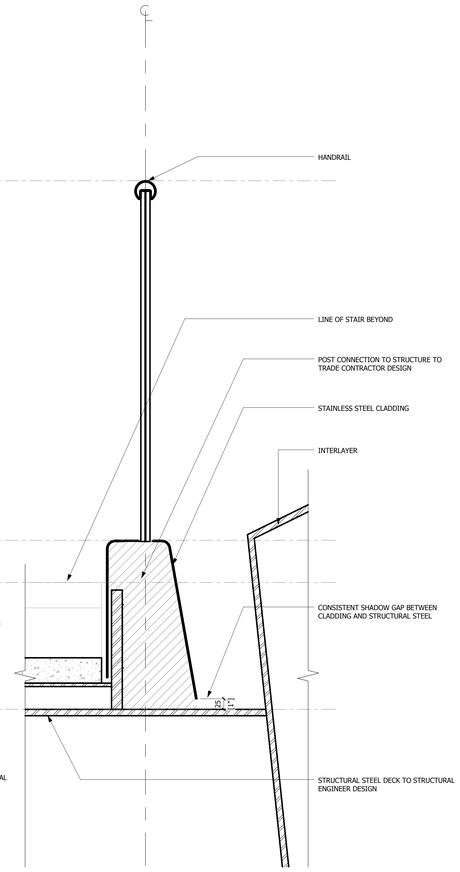
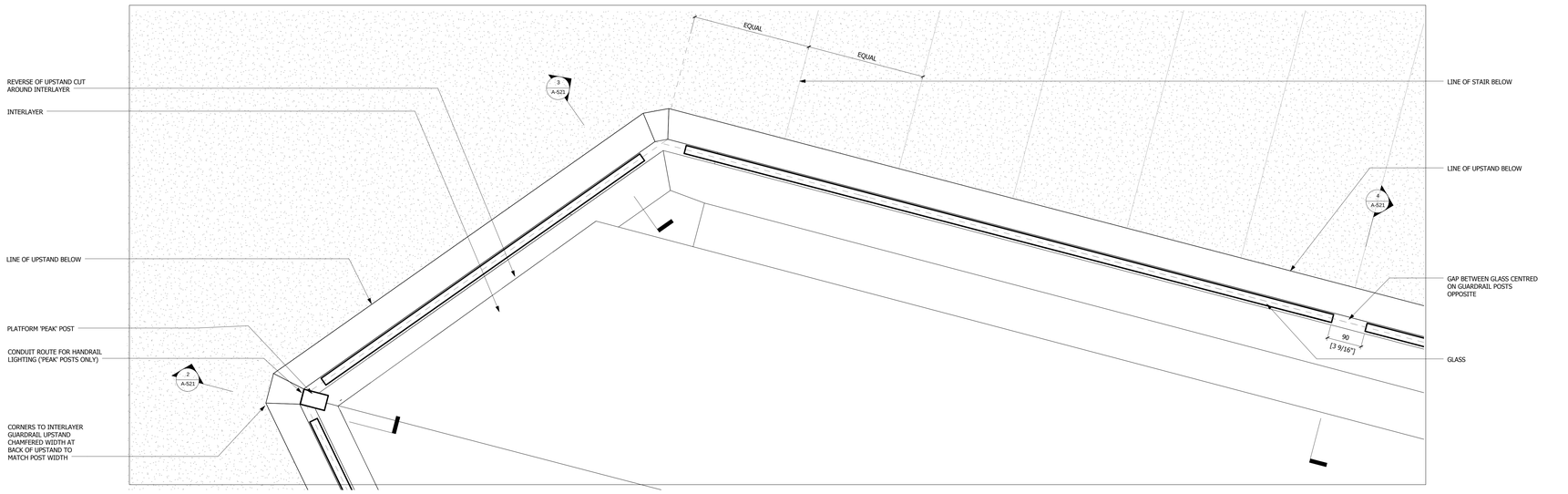


4 INTERLAYER GUARDRAIL STAIR POST DETAIL SECTION
1 : 5

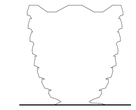


5 PLAN
1 : 5

Damian Titus
BuildNYC
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan

Date: 05/29/15
Project No. 2298907
Drawn By
Sheet Number

REGISTERED ARCHITECT ANTHONY MORRIS 026443-1 STATE OF NEW YORK

HYE-VS-A-521

Drawing Title

INTERLAYER BARRIER DETAILS

Drawing Number
A-521.00

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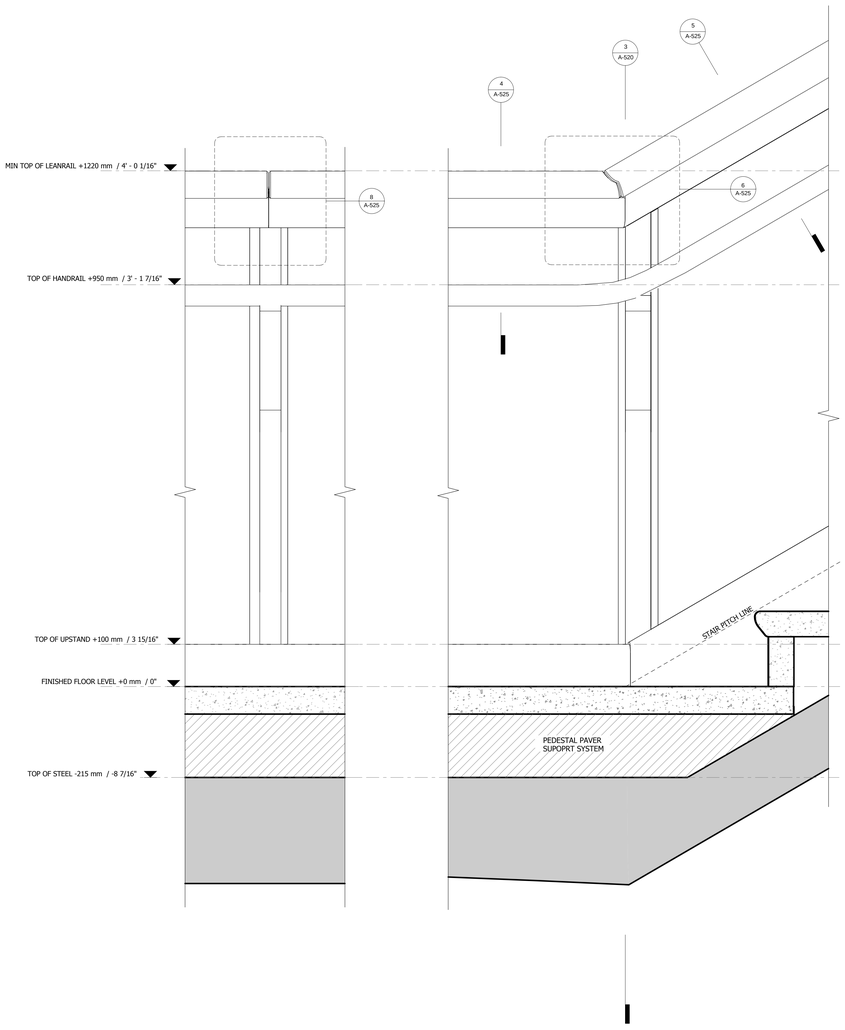
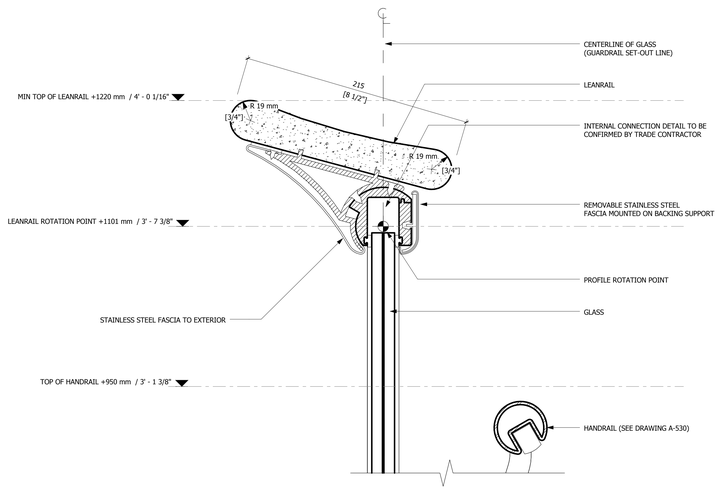
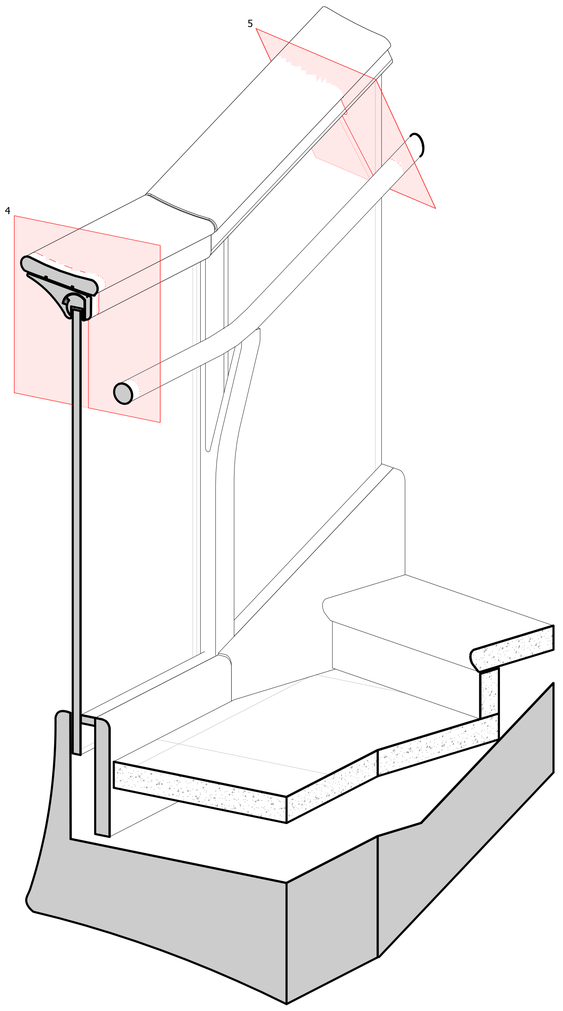


1 OUTER PLATFORM POST ELEVATION
1 : 5



4 LEANRAIL DETAIL (PLATFORM)
1 : 2

2 OUTER CORNER POST ELEVATION
1 : 5



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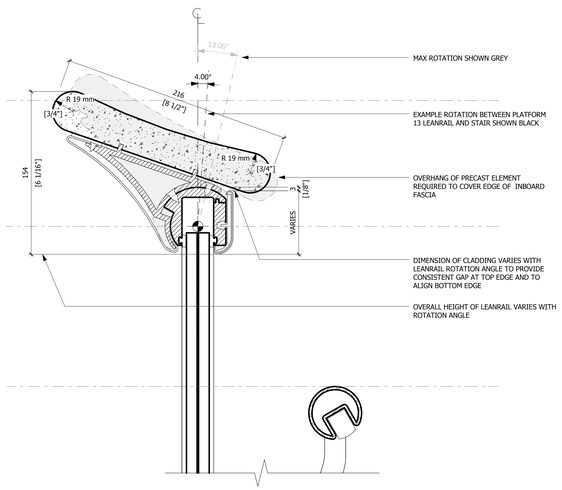


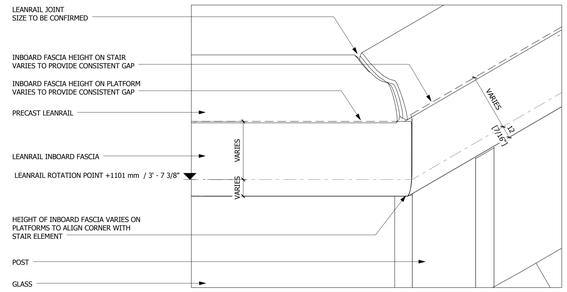
5 LEANRAIL DETAIL (STAIR)
1 : 2

LEANRAIL CONNECTION JOINT

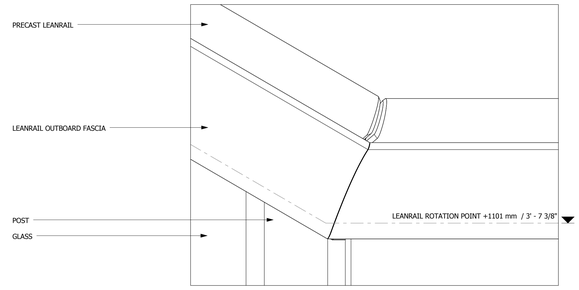
THE GUARDRAILS ON THE VESSEL ARE SET OUT SO AS TO TRANSITION FROM PLATFORM TO STAIR IN ONE JOINT.

BECAUSE THE ANGLE OF THE LEANRAIL CHANGES AT THIS JOINT IN BOTH PLAN AND ELEVATION, A COMPOUND MITRE IS REQUIRED TO JOIN THE PLATFORM LEANRAIL TO THE STAIR LEANRAIL. THIS RESULTS IN DIFFERENCE IN ROTATION OF THE LEANRAIL PROFILE SHAPE BETWEEN EACH CONNECTING PLATFORM AND STAIR JOINT.

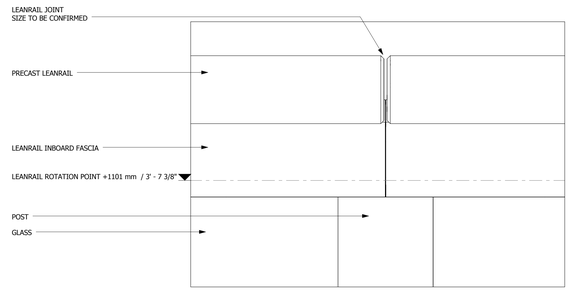
THE LEANRAIL CONNECTION DETAIL (TO BE DEVELOPED BY THE GUARDRAIL TRADE CONTRACTOR) WILL ACCOMODATE THIS ROTATION.



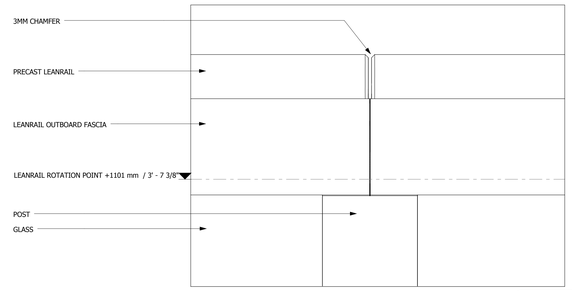
6 CORNER JOINT ELEVATION (FROM PLATFORM)
1 : 2



7 CORNER JOINT ELEVATION (FROM OUTSIDE OF VESSEL)
1 : 2



8 PLATFORM JOINT ELEVATION (FROM PLATFORM)
1 : 2



9 PLATFORM JOINT ELEVATION (FROM OUTSIDE VESSEL)
1 : 2

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Buildings
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Under Directive 2 of 1975
Date: 12/07/2016
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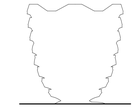
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan

Date: 05/15/14
Project No. 229.00
Drawn By
Sheet Number **HYE-VS-A-525**

Drawing Title

LEANRAIL DETAILS

Drawing Number
A-525.00

REGISTERED ARCHITECT
ANTHONY MORRELLI
No. 026745
STATE OF NEW YORK

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A-525
25/09/2016 10:19:32
LEANRAIL DETAILS
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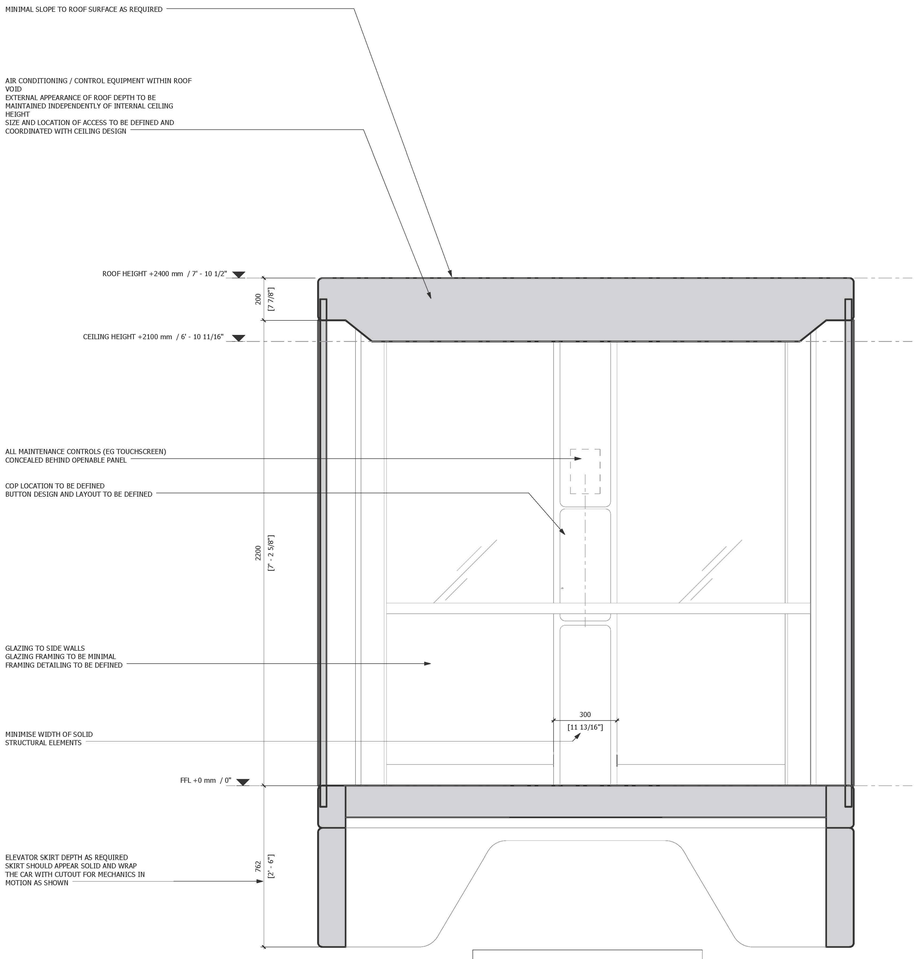
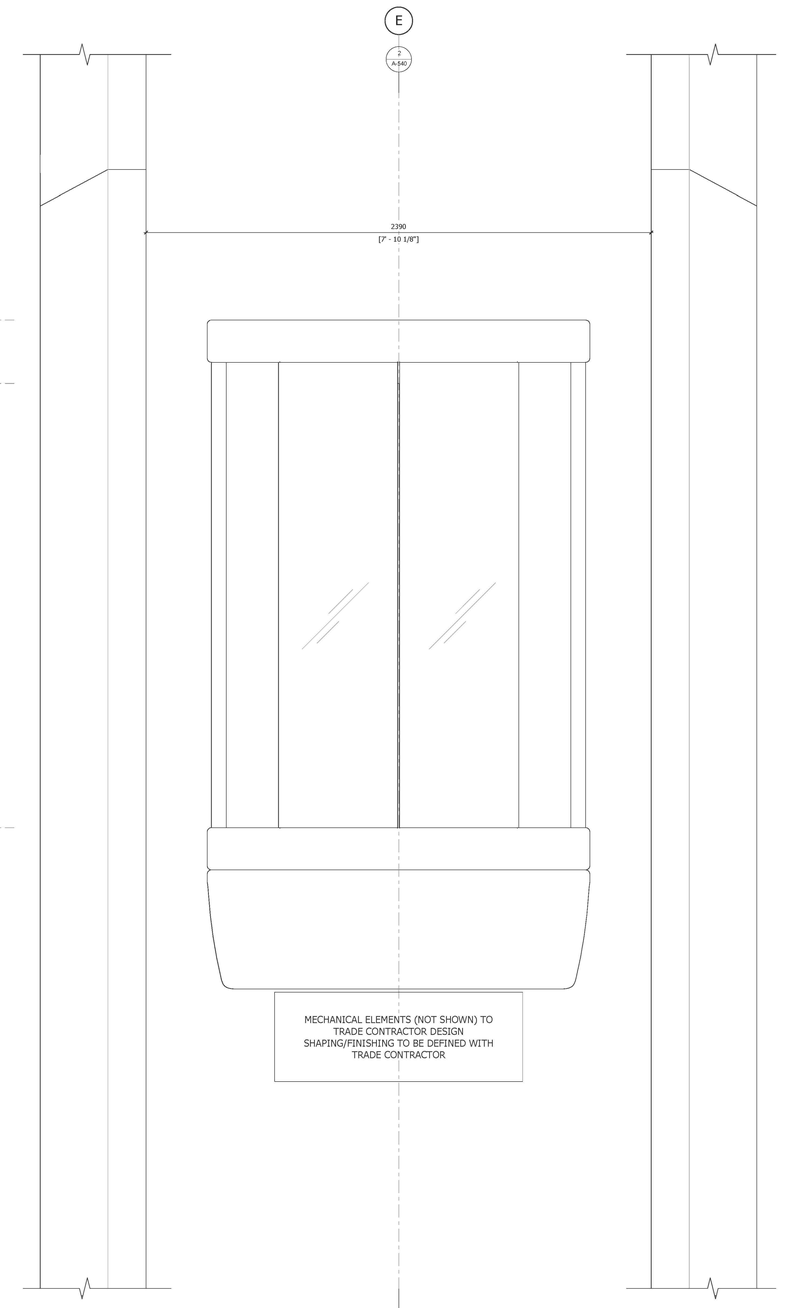
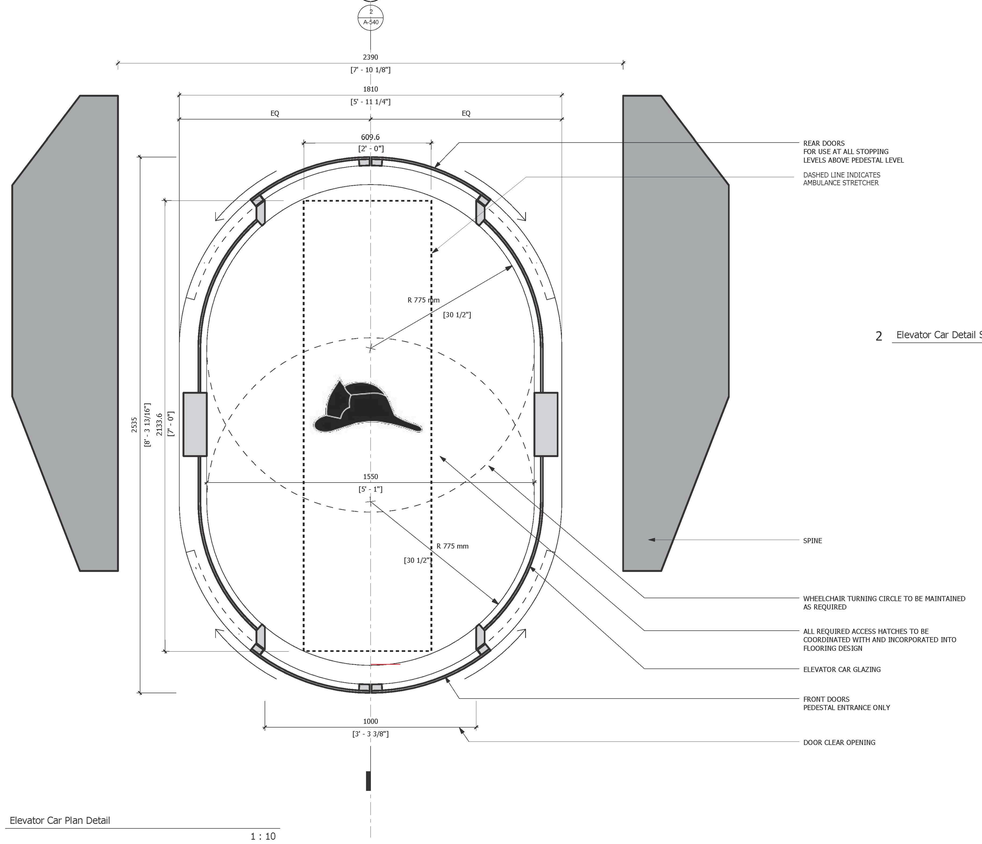
DEPT OF BUILDINGS 321191185 Job Number
E5454576245 Scan Code



2 Elevator Car Detail Section
1 : 10



3 Elevator Car Elevation Detail
1 : 10



1 Elevator Car Plan Detail
1 : 10

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

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2	D.O.B. BUILDING PERMIT FILING	12/02/2016
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan

Date: 08/29/14
Project No 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT DANIEL MICHAEL CULLEN 026 STATE OF NEW YORK

HYE-VS-A-540

Drawing Title

ELEVATOR CAR DETAILS

Drawing Number
A-540.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

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A-540
29/09/2016 19:19:53
ELEVATOR CAR DETAIL 8
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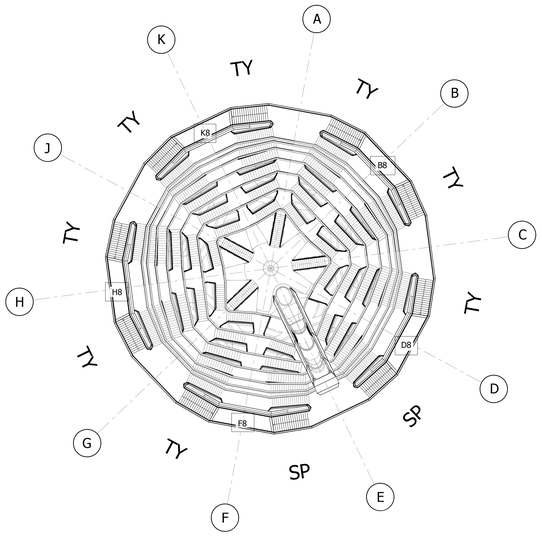
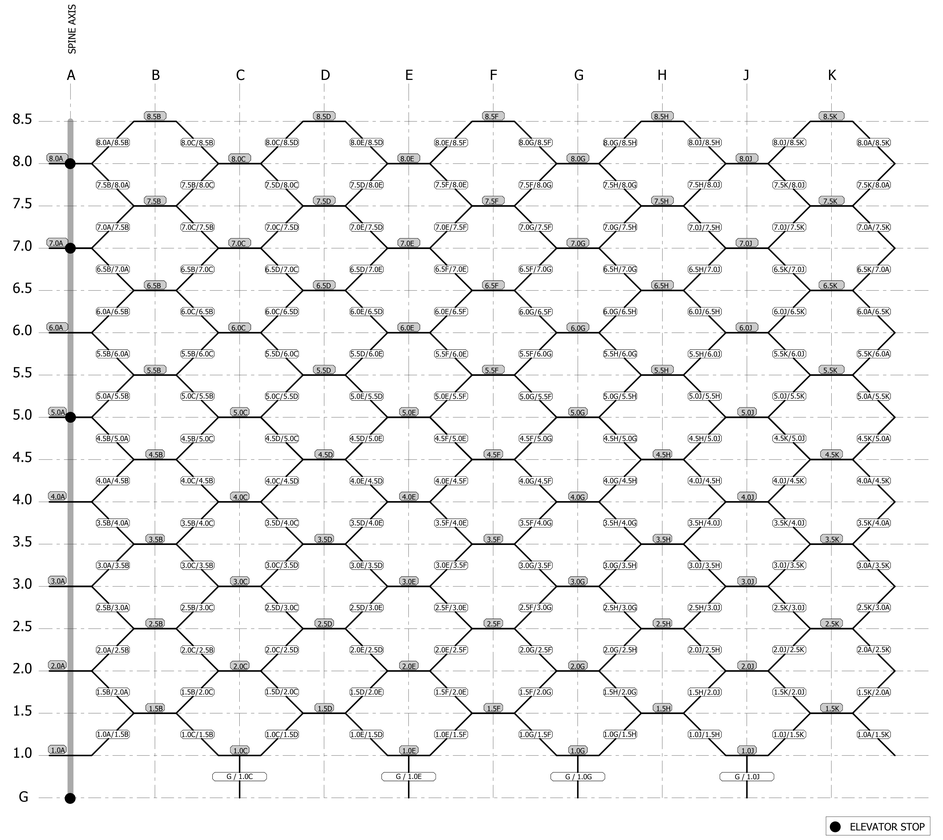


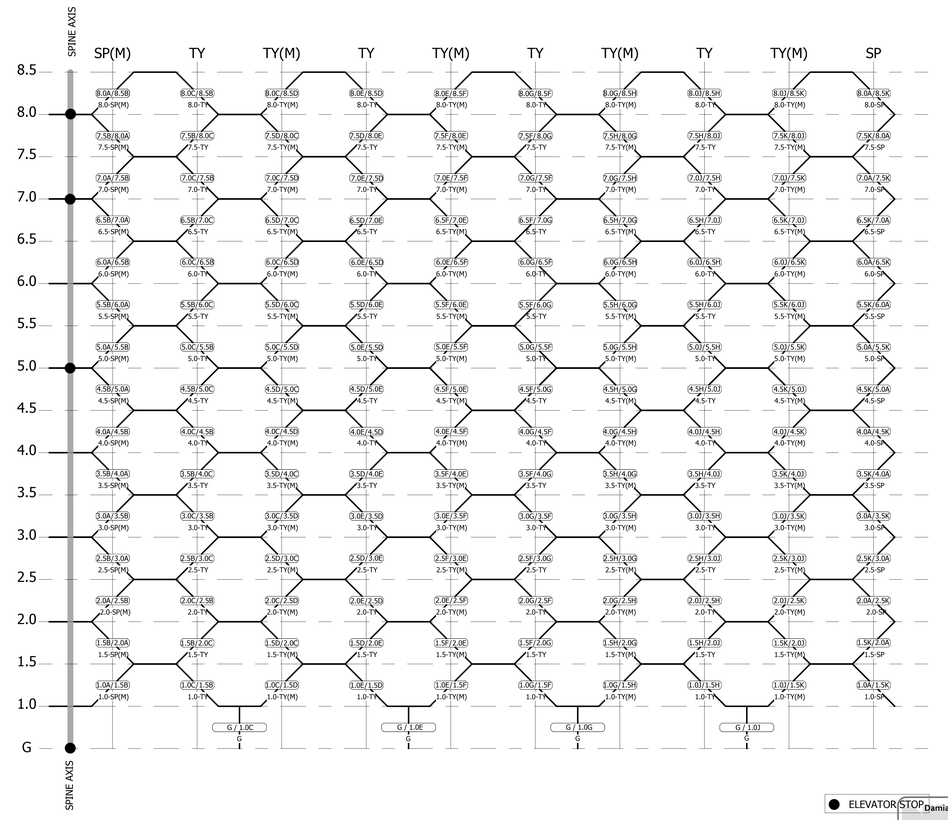
3 STAIR TYPE KEY PLAN

STAIR TYPES SCHEDULE

LEVEL / STAIR TYPE	NUMBER OF RISERS	NUMBER OF TREADS	RISER HEIGHT [mm]	RISER HEIGHT [feet/inches]	WIDTH (MEASURED BETWEEN GUARDRAIL CENTRELINES) [mm]	WIDTH (MEASURED BETWEEN GUARDRAIL CENTRELINES) Width (inches)	STAIR OVERALL LENGTH (MEASURED FROM FIRST RISER TO LAST RISER) [mm]	STAIR OVERALL LENGTH (MEASURED FROM FIRST RISER TO LAST RISER) [feet/inches]
LEVEL G								
G 16	15	178	7"	1464	4' - 9 5/8"	4200	13' - 9 3/8"	
LEVEL 1.0								
1.0-SP	13	12	178	7"	1543	5' - 0 3/4"	3370	11' - 0 11/16"
1.0-SP(M)	13	12	178	7"	1543	5' - 0 3/4"	3370	11' - 0 11/16"
1.0-TY	13	12	178	7"	1543	5' - 0 3/4"	3370	11' - 0 11/16"
1.0-TY(M)	13	12	178	7"	1543	5' - 0 3/4"	3370	11' - 0 11/16"
LEVEL 1.5								
1.5-SP	9	8	178	7"	1463	4' - 9 5/8"	2351	7' - 8 9/16"
1.5-SP(M)	9	8	178	7"	1463	4' - 9 5/8"	2351	7' - 8 9/16"
1.5-TY	12	11	178	7"	1463	4' - 9 5/8"	3233	10' - 7 5/16"
1.5-TY(M)	12	11	178	7"	1463	4' - 9 5/8"	3233	10' - 7 5/16"
LEVEL 2.0								
2.0-SP	16	15	178	7"	1525	5' - 0 1/16"	4230	13' - 10 9/16"
2.0-SP(M)	16	15	178	7"	1525	5' - 0 1/16"	4230	13' - 10 9/16"
2.0-TY	16	15	178	7"	1525	5' - 0 1/16"	4230	13' - 10 9/16"
2.0-TY(M)	16	15	178	7"	1525	5' - 0 1/16"	4230	13' - 10 9/16"
LEVEL 2.5								
2.5-SP	13	12	178	7"	1471	4' - 9 15/16"	3425	11' - 2 13/16"
2.5-SP(M)	13	12	178	7"	1471	4' - 9 15/16"	3425	11' - 2 13/16"
2.5-TY	13	12	178	7"	1461	4' - 9 1/2"	4031	13' - 2 11/16"
2.5-TY(M)	13	12	178	7"	1461	4' - 9 1/2"	4031	13' - 2 11/16"
LEVEL 3.0								
3.0-SP	17	16	178	7"	1538	5' - 0 9/16"	4524	14' - 10 1/8"
3.0-SP(M)	17	16	178	7"	1538	5' - 0 9/16"	4524	14' - 10 1/8"
3.0-TY	17	16	178	7"	1562	5' - 1 1/2"	4984	16' - 4 1/4"
3.0-TY(M)	17	16	178	7"	1562	5' - 1 1/2"	4984	16' - 4 1/4"
LEVEL 3.5								
3.5-SP	14	13	178	7"	1456	4' - 9 5/16"	4748	15' - 6 15/16"
3.5-SP(M)	14	13	178	7"	1456	4' - 9 5/16"	4748	15' - 6 15/16"
3.5-TY	14	13	178	7"	1462	4' - 9 9/16"	4790	15' - 8 9/16"
3.5-TY(M)	14	13	178	7"	1462	4' - 9 9/16"	4790	15' - 8 9/16"
LEVEL 4.0								
4.0-SP	17	16	178	7"	1554	5' - 1 3/16"	4783	15' - 8 5/16"
4.0-SP(M)	17	16	178	7"	1554	5' - 1 3/16"	4783	15' - 8 5/16"
4.0-TY	17	16	178	7"	1545	5' - 0 13/16"	5156	16' - 11"
4.0-TY(M)	17	16	178	7"	1545	5' - 0 13/16"	5156	16' - 11"
LEVEL 4.5								
4.5-SP	15	14	178	7"	1457	4' - 9 3/8"	4854	15' - 11 1/8"
4.5-SP(M)	15	14	178	7"	1457	4' - 9 3/8"	4854	15' - 11 1/8"
4.5-TY	15	14	178	7"	1466	4' - 9 11/16"	4864	15' - 11 1/2"
4.5-TY(M)	15	14	178	7"	1466	4' - 9 11/16"	4864	15' - 11 1/2"
LEVEL 5.0								
5.0-SP	17	16	178	7"	1571	5' - 1 7/8"	5045	16' - 6 5/8"
5.0-SP(M)	17	16	178	7"	1571	5' - 1 7/8"	5045	16' - 6 5/8"
5.0-TY	17	16	178	7"	1527	5' - 0 1/8"	5381	17' - 7 7/8"
5.0-TY(M)	17	16	178	7"	1527	5' - 0 1/8"	5381	17' - 7 7/8"
LEVEL 5.5								
5.5-SP	17	16	178	7"	1466	4' - 9 11/16"	4960	16' - 3 1/4"
5.5-SP(M)	17	16	178	7"	1466	4' - 9 11/16"	4960	16' - 3 1/4"
5.5-TY	17	16	178	7"	1466	4' - 9 11/16"	4960	16' - 3 1/4"
5.5-TY(M)	17	16	178	7"	1466	4' - 9 11/16"	4960	16' - 3 1/4"
LEVEL 6.0								
6.0-SP	17	16	178	7"	1468	4' - 9 13/16"	5264	17' - 3 1/4"
6.0-SP(M)	17	16	178	7"	1468	4' - 9 13/16"	5264	17' - 3 1/4"
6.0-TY	17	16	178	7"	1468	4' - 9 13/16"	5264	17' - 3 1/4"
6.0-TY(M)	17	16	178	7"	1468	4' - 9 13/16"	5264	17' - 3 1/4"
LEVEL 6.5								
6.5-SP	18	17	178	7"	1469	4' - 9 13/16"	4937	16' - 2 3/8"
6.5-SP(M)	18	17	178	7"	1469	4' - 9 13/16"	4937	16' - 2 3/8"
6.5-TY	18	17	178	7"	1469	4' - 9 13/16"	4937	16' - 2 3/8"
6.5-TY(M)	18	17	178	7"	1469	4' - 9 13/16"	4937	16' - 2 3/8"
LEVEL 7.0								
7.0-SP	18	17	178	7"	1450	4' - 9 1/16"	5201	17' - 0 3/4"
7.0-SP(M)	18	17	178	7"	1450	4' - 9 1/16"	5201	17' - 0 3/4"
7.0-TY	18	17	178	7"	1450	4' - 9 1/16"	5201	17' - 0 3/4"
7.0-TY(M)	18	17	178	7"	1450	4' - 9 1/16"	5201	17' - 0 3/4"
LEVEL 7.5								
7.5-SP	18	17	178	7"	1471	4' - 9 15/16"	4847	15' - 10 13/16"
7.5-SP(M)	18	17	178	7"	1471	4' - 9 15/16"	4847	15' - 10 13/16"
7.5-TY	18	17	178	7"	1471	4' - 9 15/16"	4847	15' - 10 13/16"
7.5-TY(M)	18	17	178	7"	1471	4' - 9 15/16"	4847	15' - 10 13/16"
LEVEL 8.0								
8.0-SP	18	17	178	7"	2443	8' - 0 3/16"	5082	16' - 8 1/16"
8.0-SP(M)	18	17	178	7"	2443	8' - 0 3/16"	5082	16' - 8 1/16"
8.0-TY	18	17	178	7"	2443	8' - 0 3/16"	5082	16' - 8 1/16"
8.0-TY(M)	18	17	178	7"	2443	8' - 0 3/16"	5082	16' - 8 1/16"



2 STAIR AND PLATFORM NAMING DIAGRAM



1 STAIR TYPES DIAGRAM

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016.
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

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Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
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Tishman Construction Corporation
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Civil, Mechanical, Electrical, Plumbing, Fire Alarm, Fire Protection, Security
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1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan

Date: 05/15/14
Project No. 220.00
Drawn By SW
Sheet Number

HYE-VS-A-601

Drawing Title

STAIR SCHEDULE

Drawing Number
A-601.00

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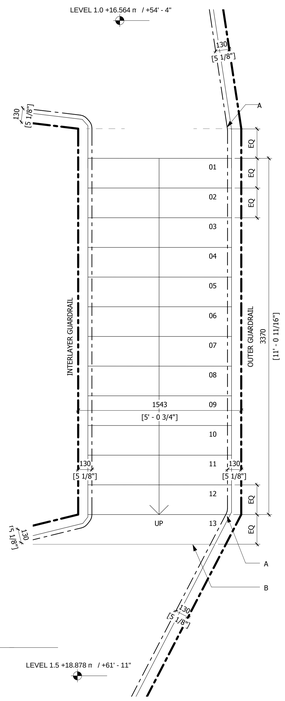
A-601
2/03/2016 19:20:24
STAIR SCHEDULE
C:\BIM\21_VESSEL_MASTER_laurence.rvt

DEPT OF BLDGS 321191185 Job Number
B3254144150 Scan Code

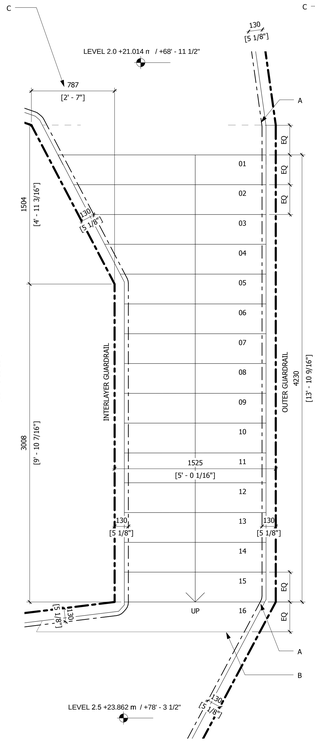
NOTES:

A: CURVED HANDRAIL CORNER TO MAINTAIN CONSISTENT HANDRAIL PROJECTION INTO STAIR
B: JOINT BETWEEN FALSE TREAD AND PLATFORM PAVING
C: SETTING-OUT DIMENSIONS GIVEN TO CENTRELINE OF GUARDRAIL
D: HANDRAIL EXTENDS MINIMUM ONE TREAD DEPTH BEYOND THE FIRST STEP
E: SPINE
STAIR WIDTH DIMENSIONS GIVEN BETWEEN GUARDRAIL CENTRELINES

KEY:
GUARDRAIL CENTRE
HANDRAIL CENTRELINE



1 STAIR TYPE 1.0-TY
1 : 20



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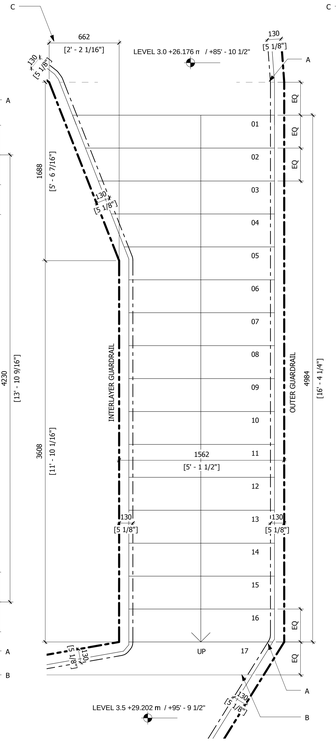

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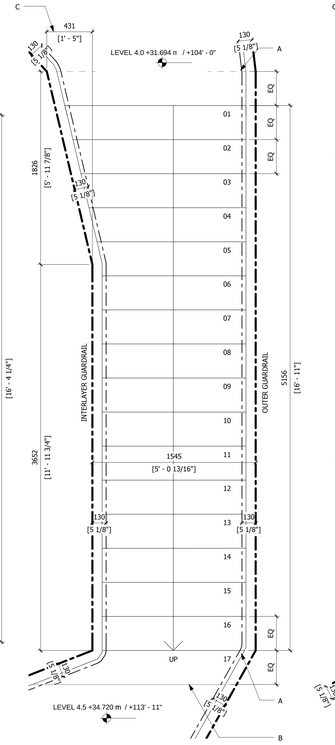

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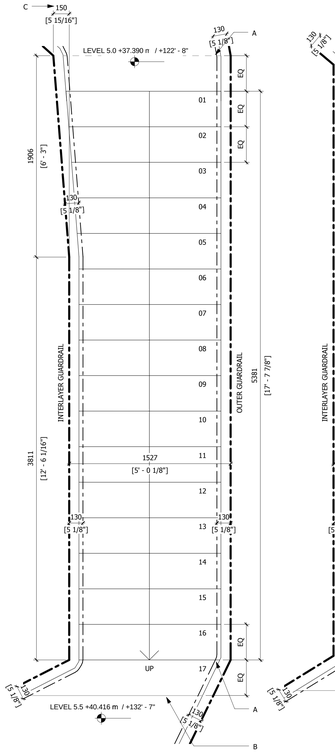

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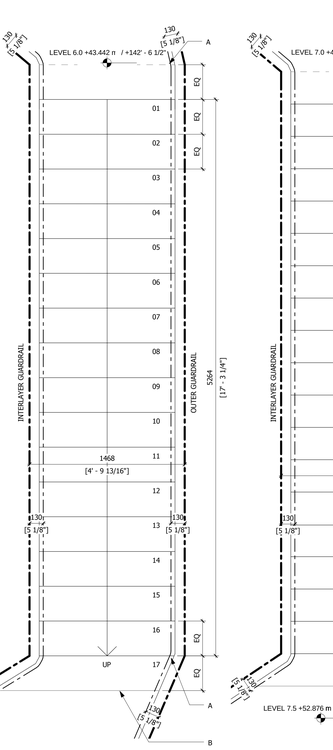

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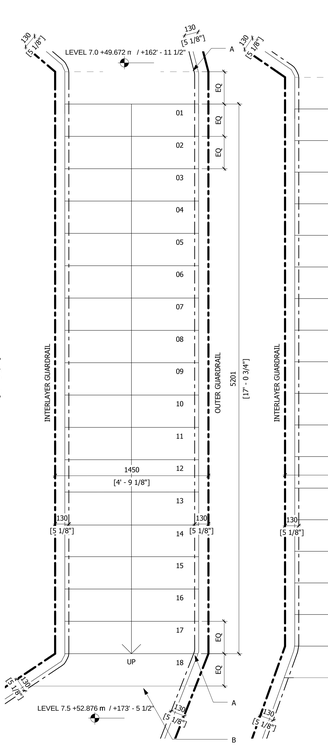

13 STAIR TYPE 7.0-TY
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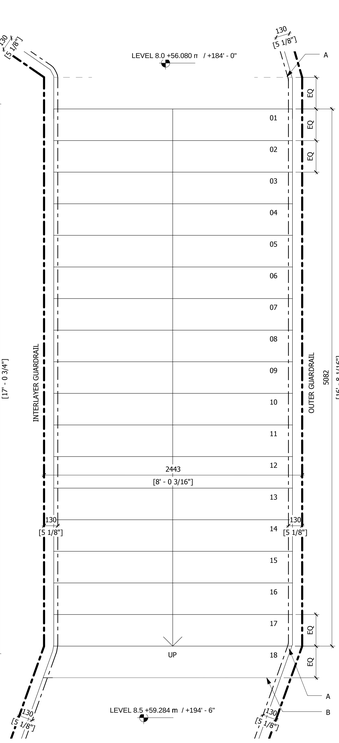

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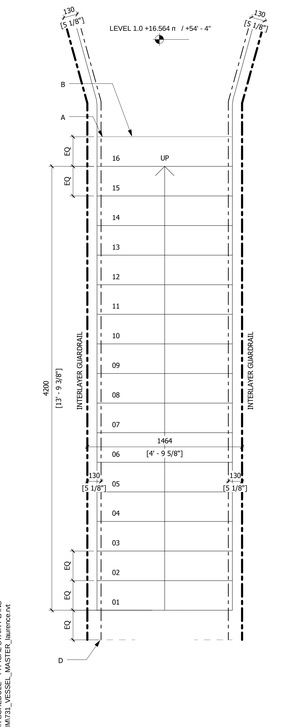

0 STAIR TYPE LEVEL G
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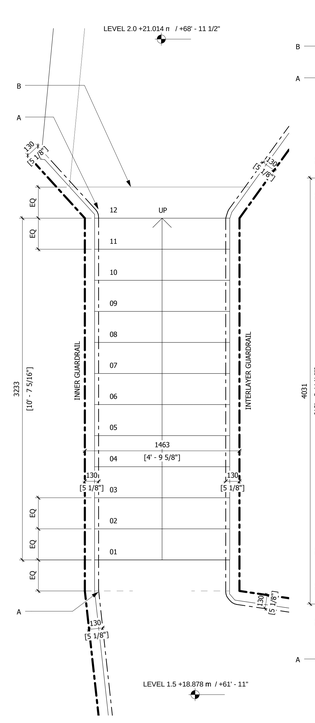

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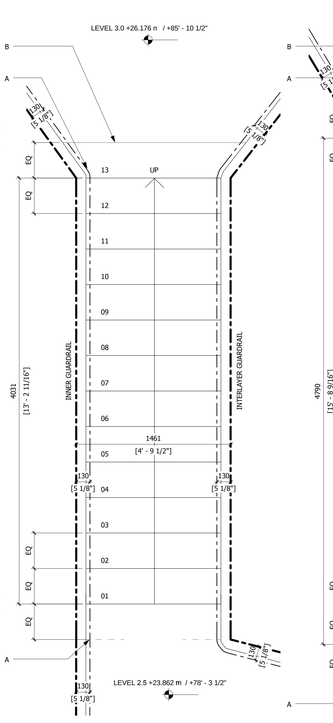

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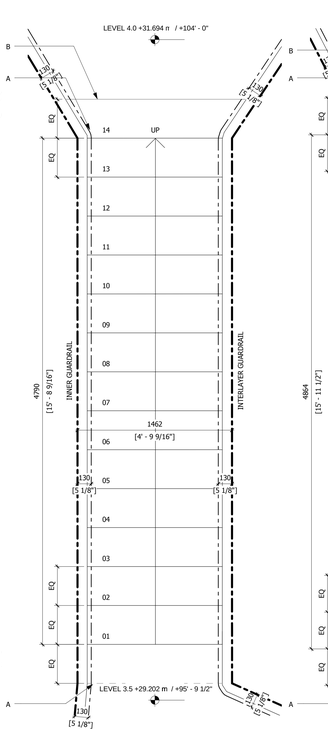

6 STAIR TYPE 3.5-TY
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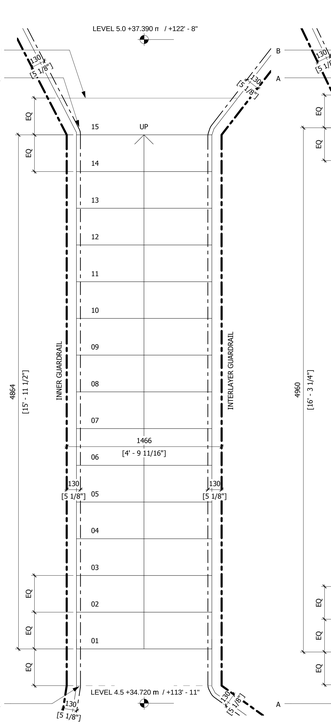

8 STAIR TYPE 4.5-TY
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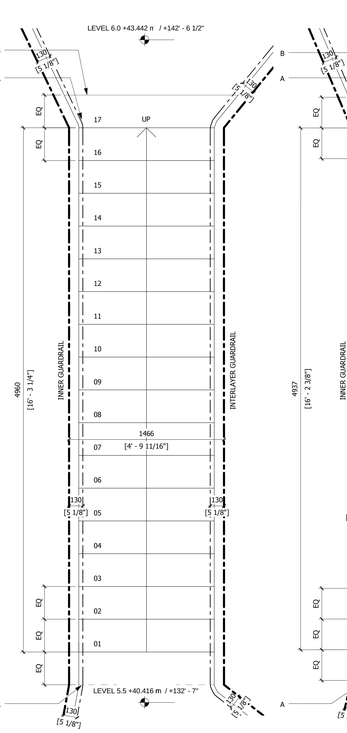

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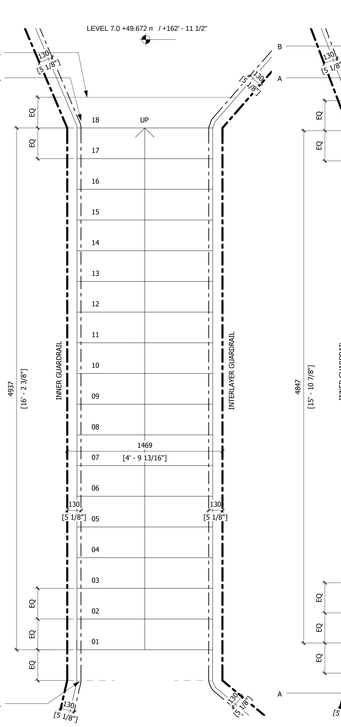
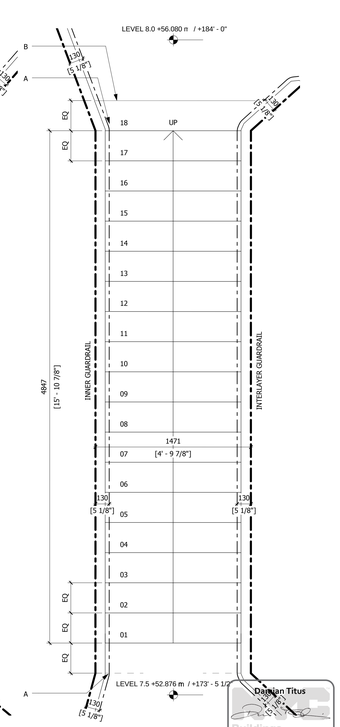


12 STAIR TYPE 6.5-TY
1 : 20



14 STAIR TYPE 7.5-TY
1 : 20

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Building
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Under Directive 2 of 1975
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NYC Development Hub

STAIR SCHEDULE - TYPICAL STAIR PLANS
C:\BIM\21_VESSEL_MASTER_Lisamcvay.rvt
A-602
25/05/2016 19:20:34

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY

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Construction Manager
Tishman Construction Corporation
100 Park Avenue
Tel: 212.708.6800

Executive Architect
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Architects & Planning Consultants
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Tel: 212.896.3000

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1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan

Date: 05/29/15
Project No. 2210.02
Drawn By
Sheet Number

HYE-VS-A-602

Drawing Title

STAIR SCHEDULE - TYPICAL STAIR PLANS

Drawing Number
A-602.00

SHEET 74 OF 86

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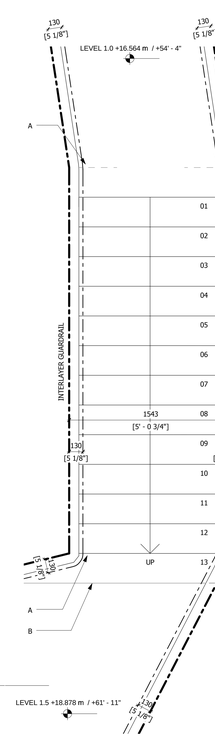
DEPT OF BLDGS 321910185 Job Number
ES1566429E Scan Code

NOTES:

A: CURVED HANDRAIL CORNER TO MAINTAIN CONSISTENT HANDRAIL PROJECTION INTO STAIR
B: JOINT BETWEEN FALSE TREAD AND PLATFORM PAVING
C: SETTING-OUT DIMENSIONS GIVEN TO CENTRELINE OF GUARDRAIL
D: HANDRAIL EXTENDS MINIMUM ONE TREAD DEPTH BEYOND THE FIRST STEP
E: SPINE
STAIR WIDTH DIMENSIONS GIVEN BETWEEN GUARDRAIL CENTRELINES

KEY:
GUARDRAIL CENTRE
HANDRAIL CENTRELINE



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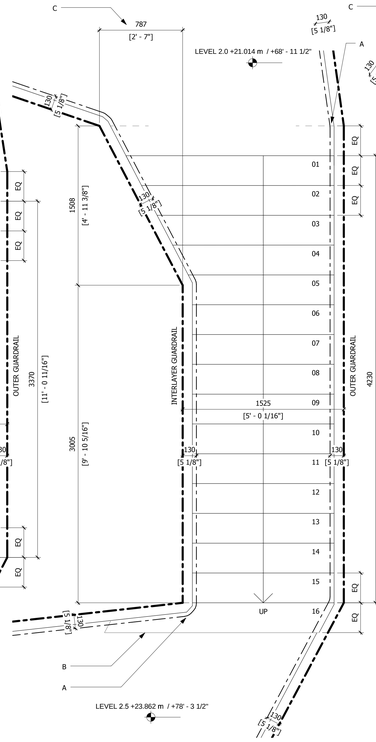

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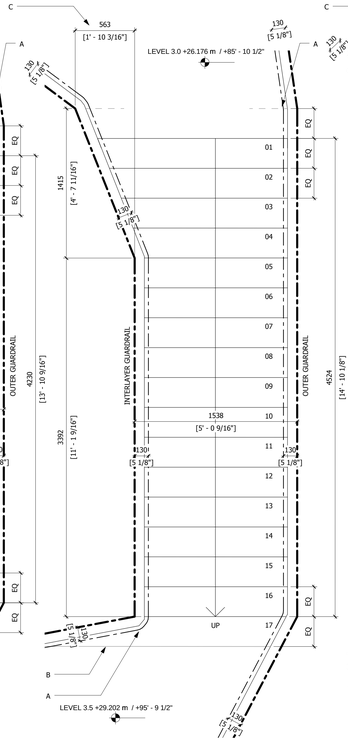

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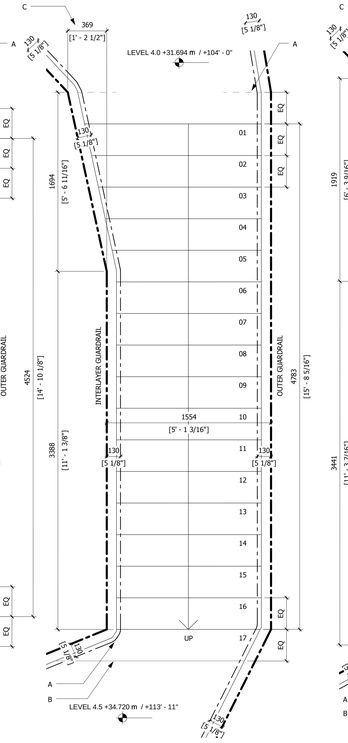

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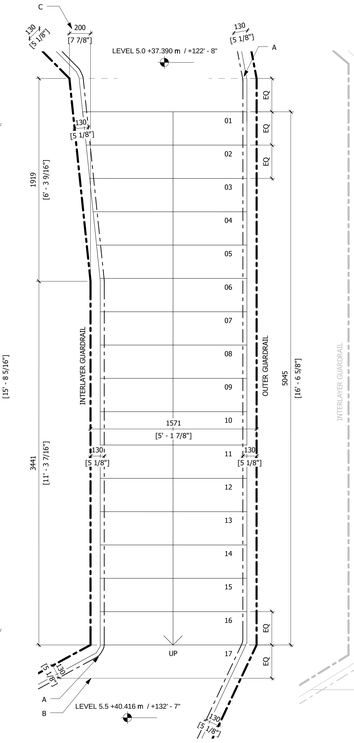

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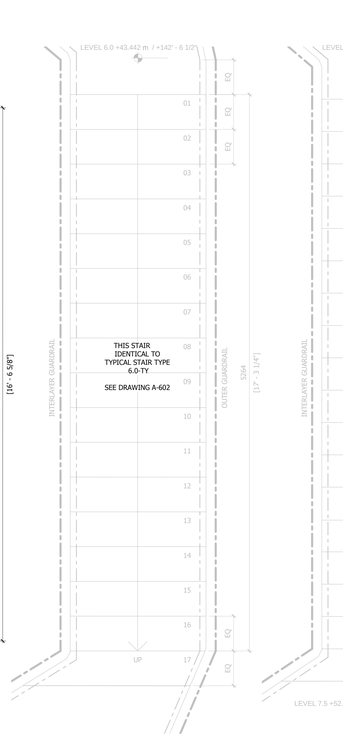

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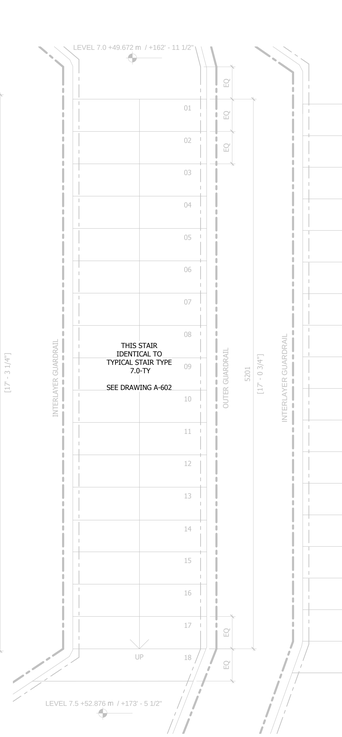

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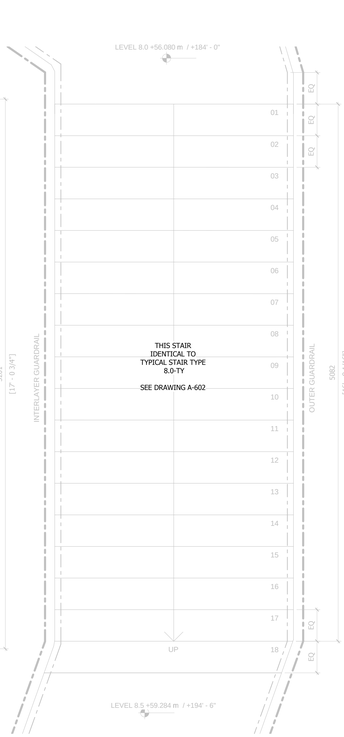
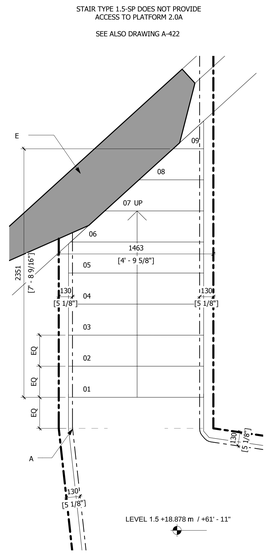


15 STAIR TYPE 7.5-SP
1 : 20



2 STAIR TYPE 1.5-SP
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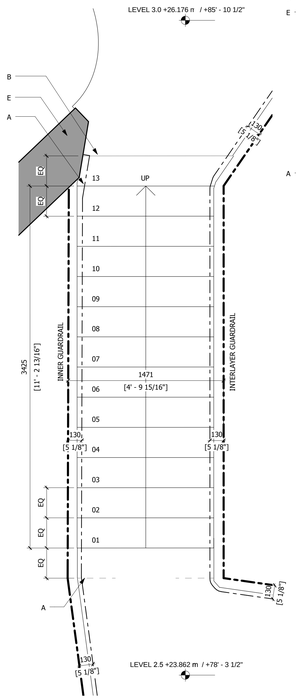

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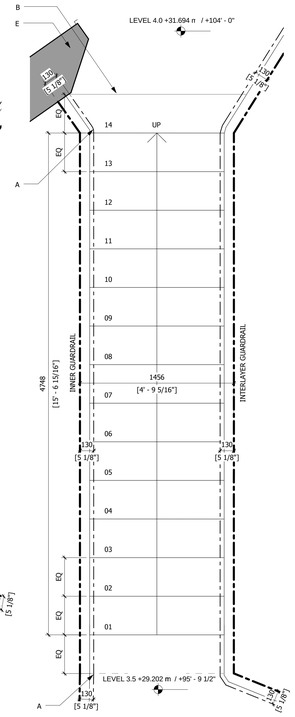
1 : 20



6 STAIR TYPE 3.5-SP
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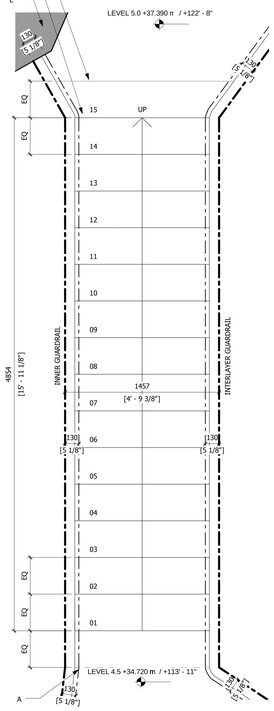

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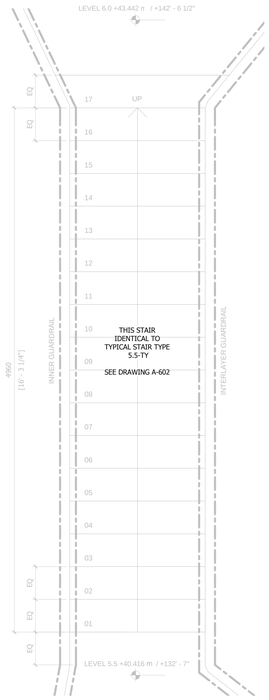

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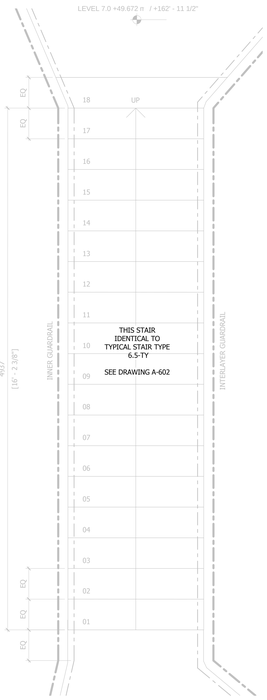

12 STAIR TYPE 6.5-SP
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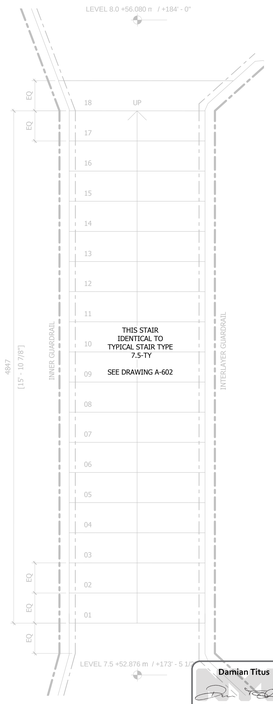

14 STAIR TYPE 7.5-SP
1 : 20

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY

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Related Companies
60 Columbus Circle
New York, NY 10023
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Key Plan

Date: 05/29/15
Project No. 229.00
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Sheet Number

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HYE-VS-A-603

Drawing Title

STAIR SCHEDULE - SPINE STAIR PLANS

Drawing Number

A-603.00

SHEET 75 OF 86

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A-603
25/05/2016 19:20:45
STAIR SCHEDULE - SPINE STAIR PLANS
C:\BIM\21_VESSEL_MASTER_bimcenter.rvt

PJ PK PL

1 A-930.00

CENTRAL VENT TRANSFER SEE PLATFORM SHEETS (NIC)

CENTRAL ELECTRICAL ROOM SEE PLATFORM SHEETS (NIC)

2 A-930.00

EXTENT OF PEDESTAL PAVING ABOVE

EXTENT OF GRILLAGE

EL. +34'-0" T.O. S.S. BELOW

EL. 36'-2 5/8" T.O. SLAB (ASSUMES 6" SLAB ABOVE GRILLAGE)

CP

INTERSTITIAL SPACE (MAINTENANCE ACCESS ONLY)

3 A-930.00

8

7

6

5

4

LIRR (NIC)

VESSEL ELECTRICAL ROOM

MECHANICAL	
F-2	300
259 SF	1

OPEN TO ATMOSPHERE

VESSEL SUPPORT

MECHANICAL	
F-2	300
101 SF	1

(NIC)

2 A-931.00

1 A-931.00

EXIT A		
	WIDTH	CAPACITY
STAIR	--	--
DOOR	34"	170

EXIT B		
	WIDTH	CAPACITY
STAIR	--	--
DOOR	34"	170

CIRCULATION	
F-2	300
121 SF	1

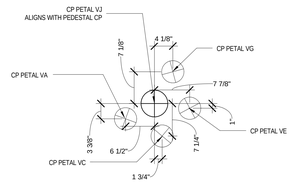
STAIR		
	WIDTH	CAPACITY
STAIR	58"	193
DOOR	--	--

TRAVEL DISTANCE	
EXIT B	55'-11"

TRAVEL DISTANCE	
EXIT A	80'-6"

UP

1 VESSEL SUB-SURFACE LEVEL PLAN
SCALE: 1/4" = 1'-0"



2 ENLARGED PLAN AT VESSEL CENTER POINT
SCALE: 1" = 1'-0"

HUDSON YARDS - VESSEL

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NEW YORK, NY

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New York, NY 10005
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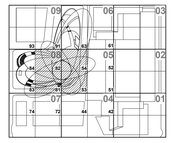
Key Plan



Issue Date: 02/25/14
Project No. 12067
Drawn By Author
Sheet Number

HYE -PZ -A-901.00
Drawing Title

VESSEL SUB SURFACE LEVEL

Drawing Number
A-901.00

Damian Titus
BuildingConnected
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016.
NYC Development Hub

0 4' 8 16

SHEET 76 OF 86

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A-901.00 VESSEL SUB SURFACE LEVEL
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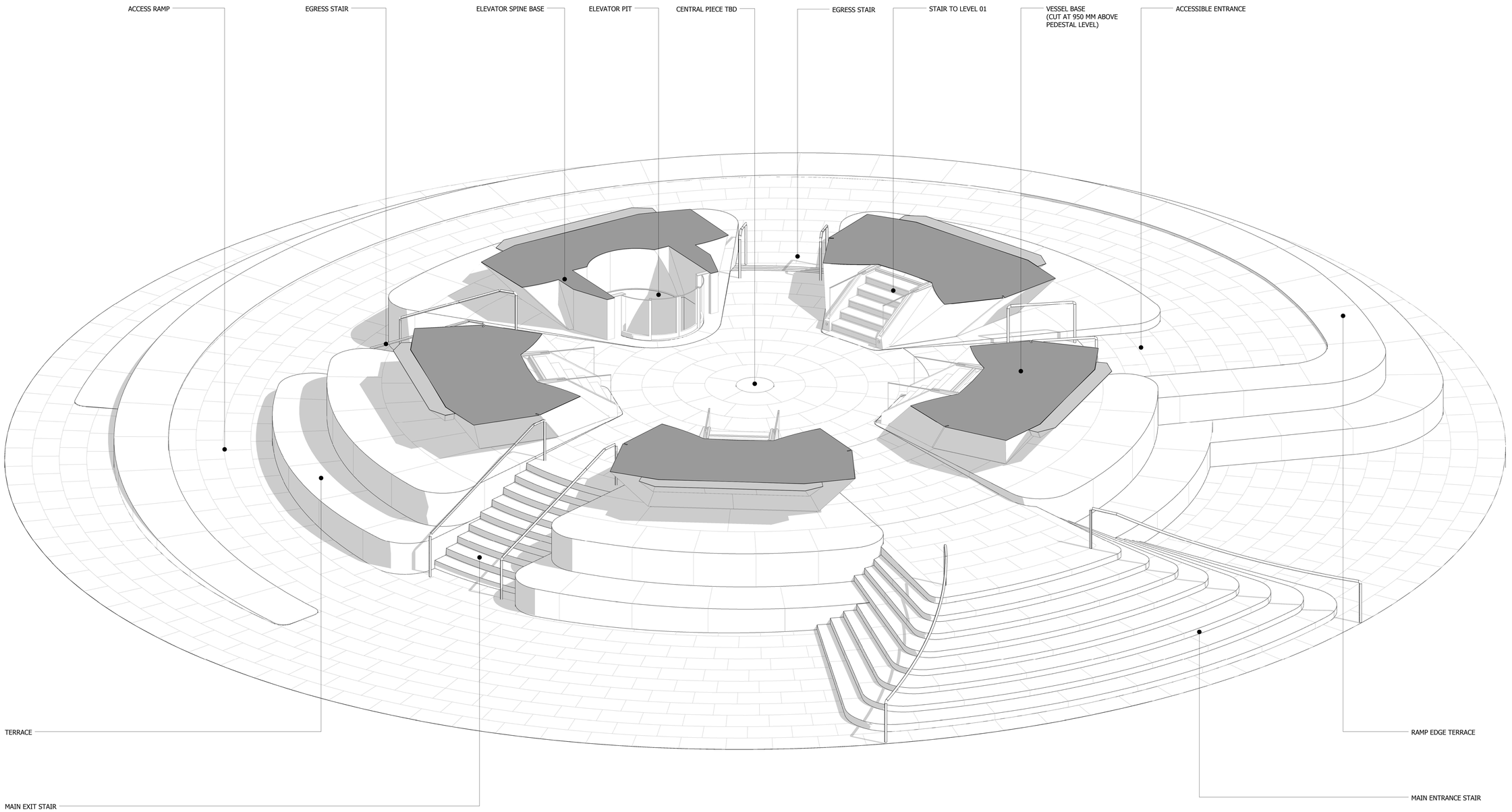
DEPT OF BUILDINGS 321191185 Job Number
B2004547803 Scan Code



1 PEDESTAL 3D

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

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Project No. 2208007
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORRIS
028443
STATE OF NEW YORK

HYE-VS-A-910

Drawing Title

PEDESTAL 3D DIAGRAM

Drawing Number
A-910.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
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A-910
25/03/2016 19:21:20
PEDESTAL 3D DIAGRAM
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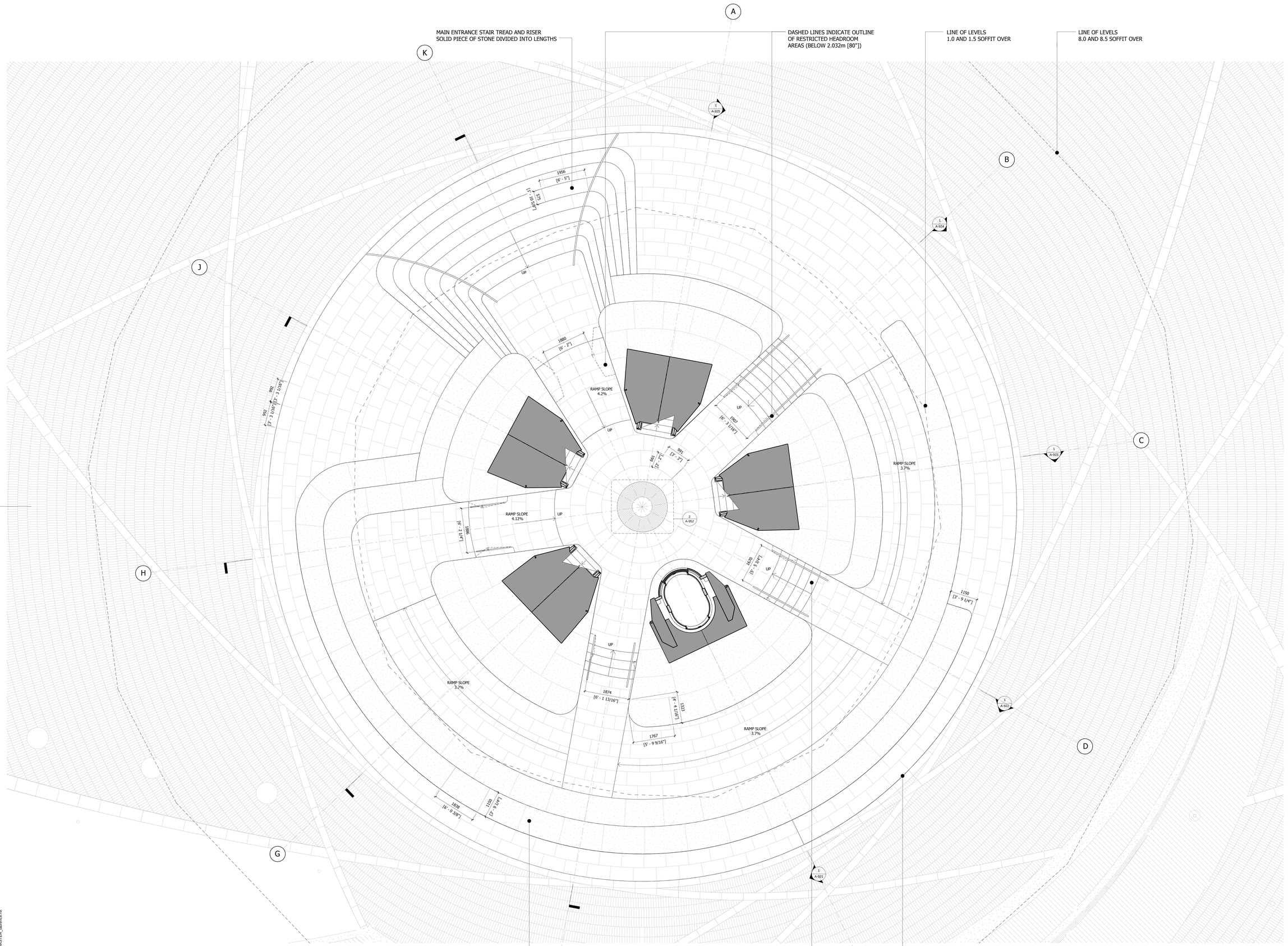
EXIT OF BLOCK 37 1191183 Job Number
B1506692785 Scan Code



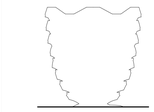
1 PEDESTAL PAVING PLAN

1 : 50

PEDESTAL PAVING PLAN
C:\BIM\731_VESSEL_MASTER_laurence.rvt
A-911
25/07/2016 19:21:54

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



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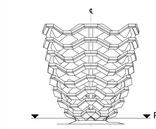

Date:	08/29/14
Project No.	229.007
Drawn By	
Sheet Number	

HYE-VS-A-911

Drawing Title

PEDESTAL PAVING PLAN

Drawing Number

A-911.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

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EXIT OF BLOCK 3719185 Job Number
ES1940504R1 Scan Code

STONE PAVING
TERRACE
SOLID STONE BLOCK
LIGHT FIXTURE IN CLADDING RECESS
TO LIGHTING CONSULTANT
SPECIFICATION
ELEVATOR DOOR THRESHOLD AND
PAVING DESIGN
TO BE COORDINATED WITH
ELEVATOR DOOR DESIGN
STONE PAVING
CENTRAL PIECE TBD
FLOOD LIGHT PIT
(COVERED BY GRILLE)
DOOR TRACK
GATE DRIVE MECHANISM TBD
STONE PAVING
STEP
SOLID STONE BLOCK

LEVEL 1.5
18.878 m / 61' - 11"
LEVEL 1
16.564 m / 54' - 4"
PEDESTAL LEVEL
13.716 m / 45' - 0"
PLAZA SURFACE LEVEL
12.344 m / 40' - 6"
GRILLAGE LEVEL
10.997 m / 36' - 1"
SLAB LEVEL
10.363 m / 34' - 0"

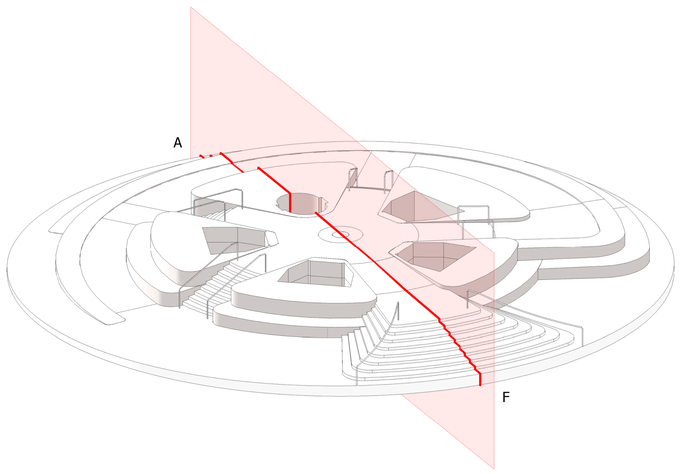
1 A-953
1 A-952
1 A-951

TERRACE
ROUGH TEXTURED SURFACE
RAMP
TERRACE
ROUGH TEXTURED SURFACE
RAMP
STAIR LANDING
MAIN ENTRANCE STAIR

+13716 mm / 45' - 0"
[No Slope]
+12894 mm / 42' - 3 5/8"
+12344 mm / 40' - 6"
+13750 mm / 45' - 1 3/8"
+13485 mm / 44' - 2 15/16"
1.75%
1.75%
4.2%
1.75%
1%
1%

ELEVATOR PIT REFUGE ZONE DIMENSIONS TBD
STEEL WORK TO
STRUCTURAL ENGINEERS
DESIGN
INTERSTITIAL SPACE
GRILLAGE DESIGN BY
STRUCTURAL ENGINEERS
(SHOWN INDICATIVELY)

1 PEDESTAL SECTION A-F
1 : 30



2 KEY DIAGRAM

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25/03/2016 19:22:40
PEDESTAL SECTION A-F
C:\BIM\731_VESSEL_MASTER_laurence.rvt

Damian Titus
Buildings
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Date: 12/07/2016
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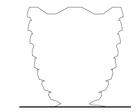
HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY



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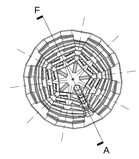

Date: 08/29/14
Project No. 22800.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MORRELLO
No. 026345
STATE OF NEW YORK

HYE-VS-A-921

Drawing Title

PEDESTAL SECTION A-F

Drawing Number
A-921.00

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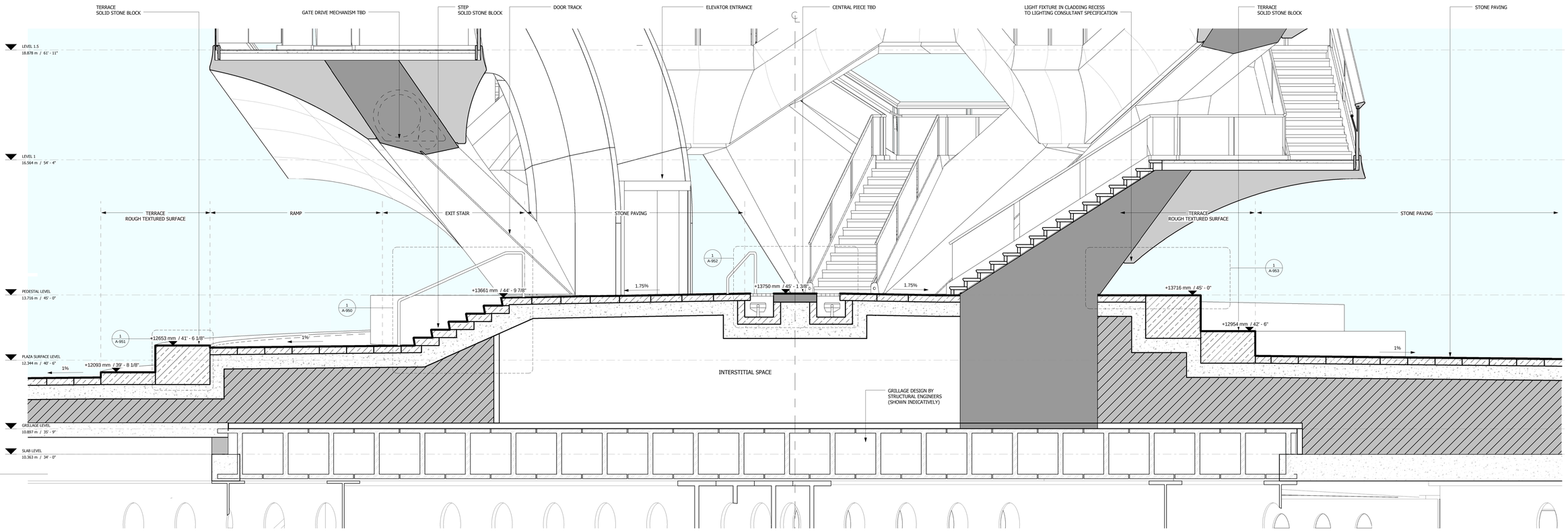
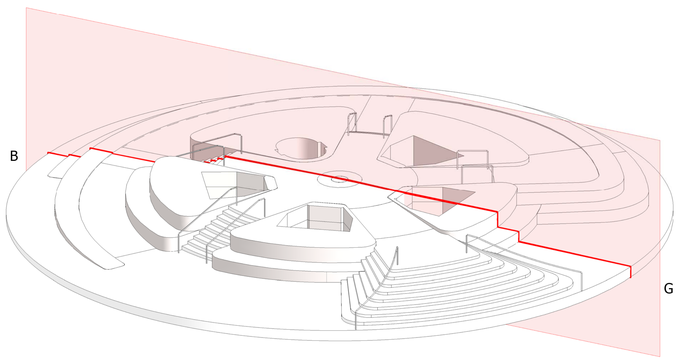


1 PEDESTAL SECTION B-G

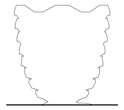
1 : 30



2 KEY DIAGRAM

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY



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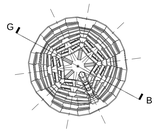

Date: 08/29/14
Project No. 2298.02
Drawn By
Sheet Number

HYE-VS-A-922

Drawing Title

PEDESTAL SECTION B-G

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Date: 12/07/2016:
NYC Development Hub

Drawing Number
A-922.00

SHEET 80 OF 86

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PEDESTAL SECTION B-G
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A-922
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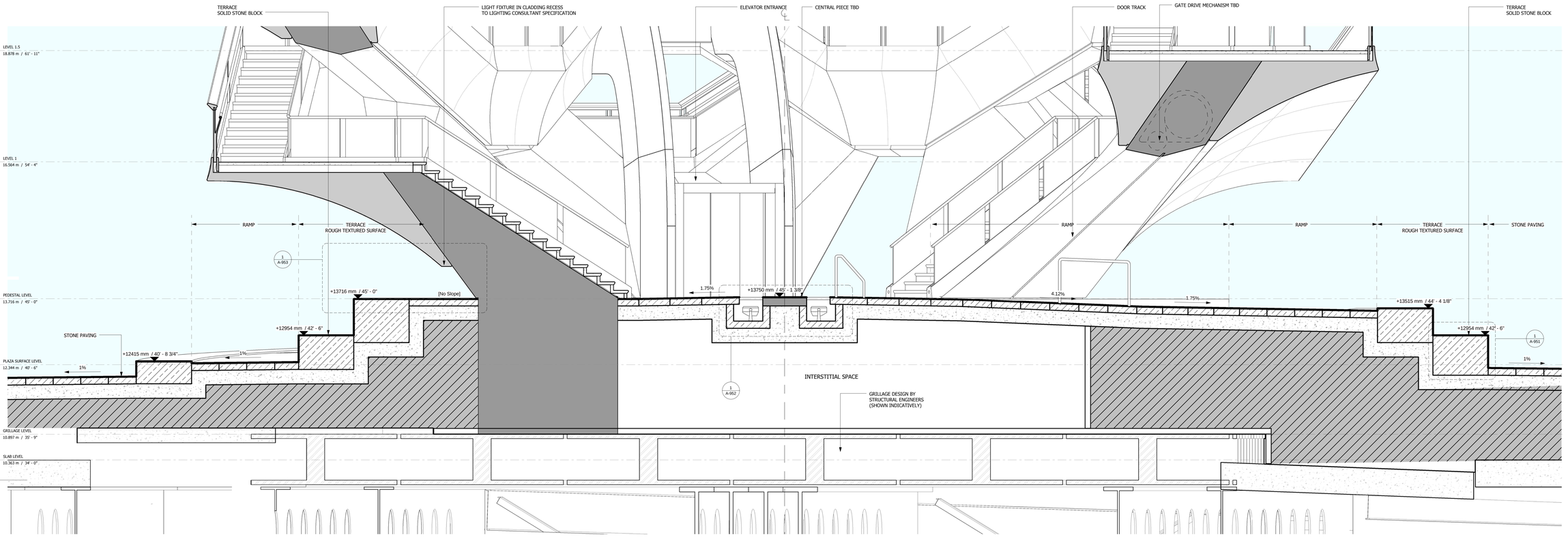

1 PEDESTAL SECTION C-H

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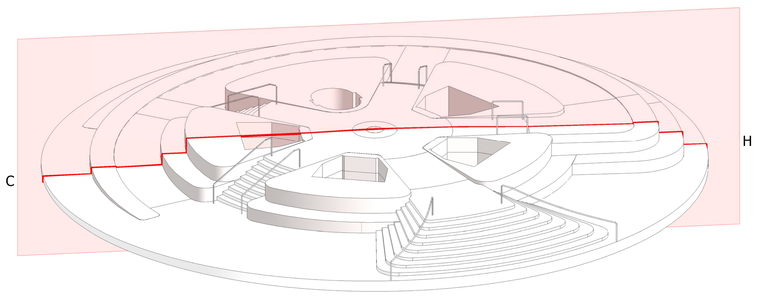
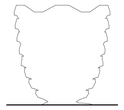


2 KEY DIAGRAM

HUDSON YARDS
VESSEL

530 WEST 33RD STREET
NEW YORK, NY



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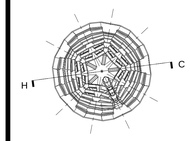
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 2298.02
Drawn By
Sheet Number

REGISTERED ARCHITECT
ANTHONY MOSELLE
STATE OF NEW YORK

HYE-VS-A-923

Drawing Title

PEDESTAL SECTION C-H

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

Drawing Number
A-923.00

SHEET 81 OF 86

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PEDESTAL SECTION C-H
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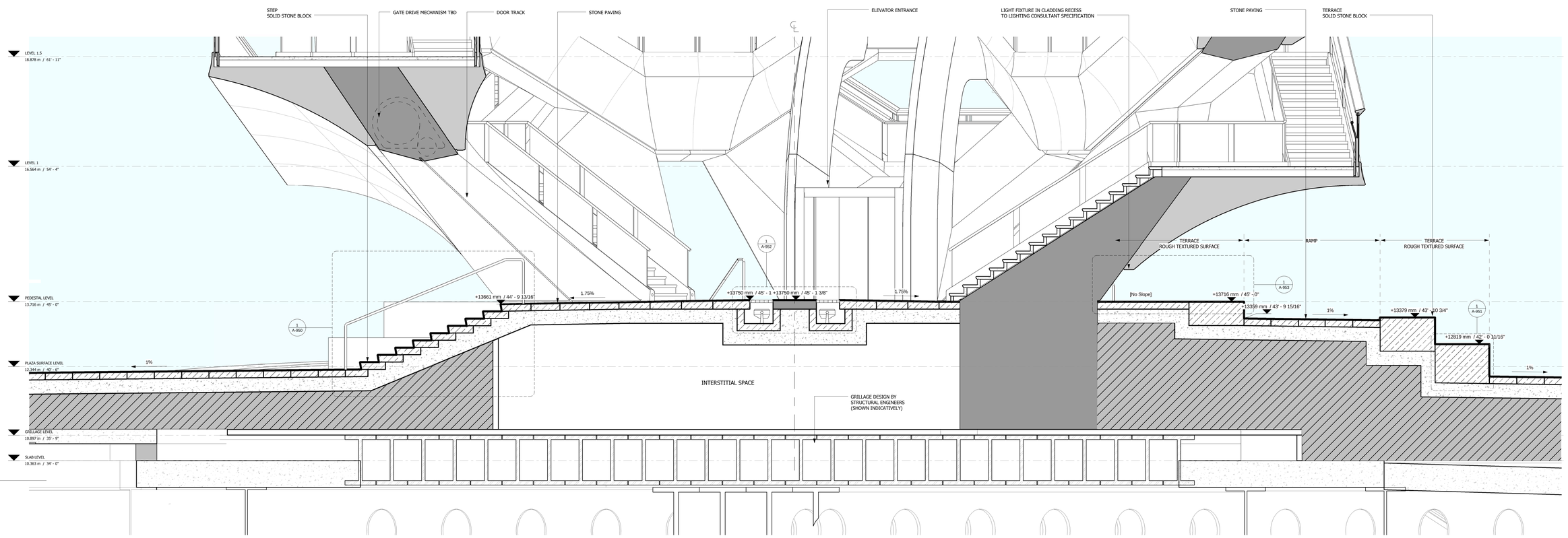

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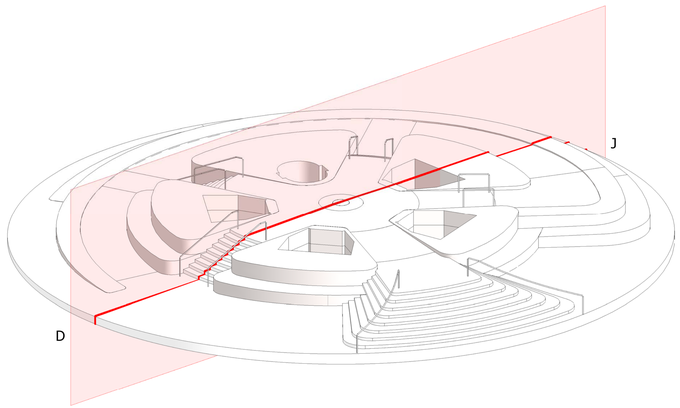

2 KEY DIAGRAM

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Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

530 WEST 33RD STREET
NEW YORK, NY

Client
Related Companies
60 Columbus Circle
New York, NY 10023
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Oxford Properties Group
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New York, NY 10022
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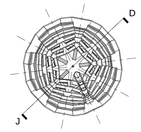
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



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Project No. 22960
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Sheet Number

REGISTERED ARCHITECT
ANTHONY MORELLI
STATE OF NEW YORK

HYE-VS-A-924

Drawing Title

PEDESTAL SECTION D-J

Drawing Number
A-924.00

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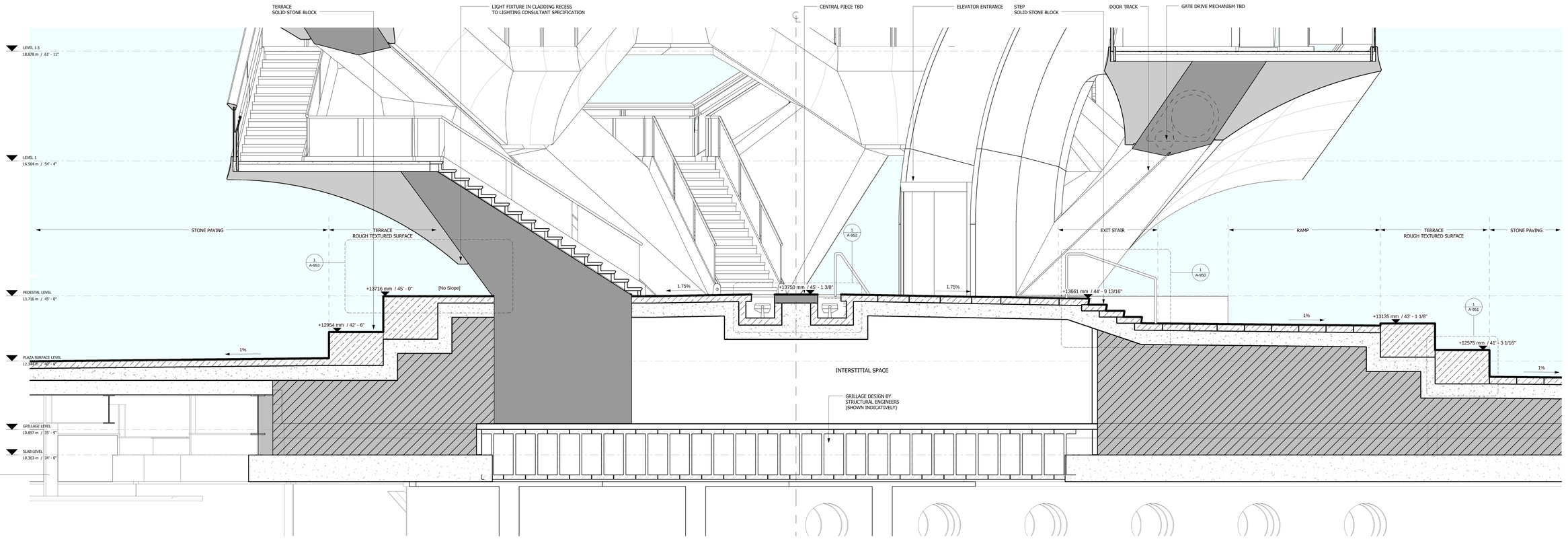

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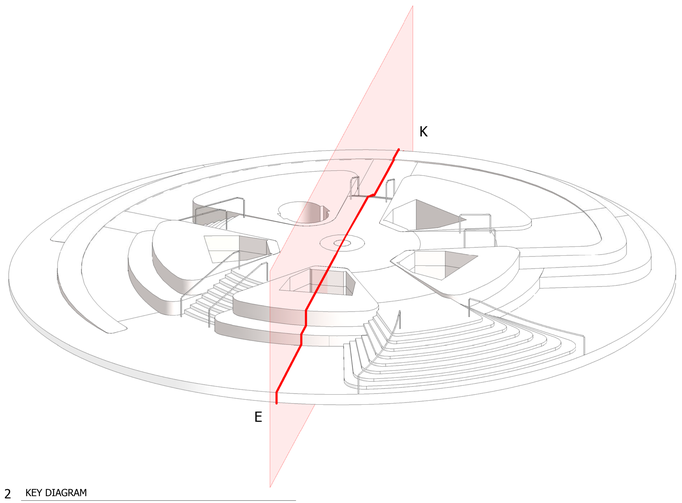

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PEDESTAL SECTION E-K
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NEW YORK, NY

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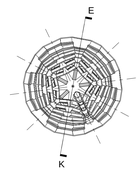
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 08/29/14
Project No. 229.00
Drawn By SC
Sheet Number A-925.00

REGISTERED ARCHITECT
KOHN PEDERSEN FOX
STATE OF NEW YORK

HYE-VS-A-925

Drawing Title

PEDESTAL SECTION E-K

Drawing Number
A-925.00

Damian Titus
Buildings
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Under Directive 2 of 1975
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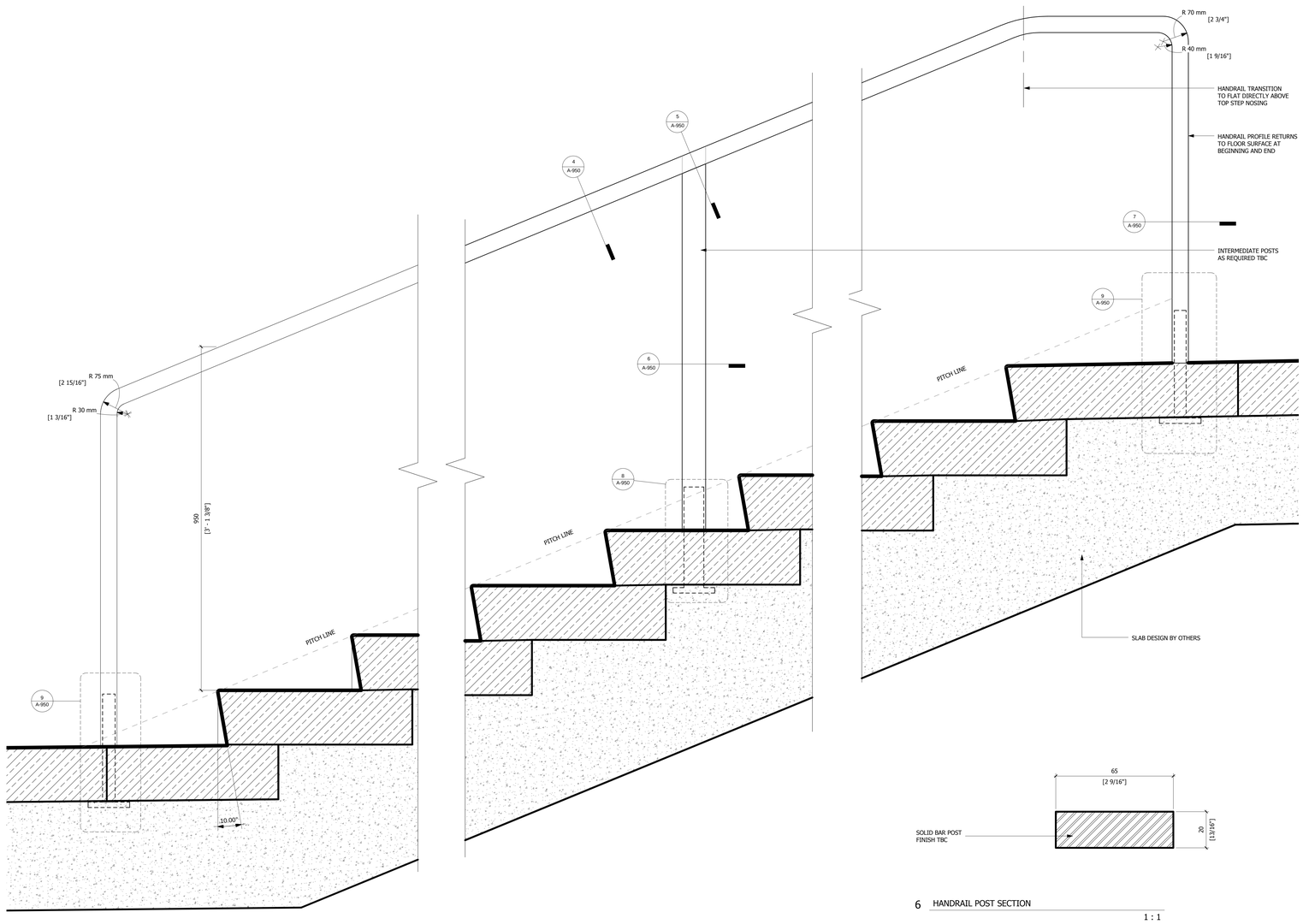
DEPT OF BUILDINGS 121121183 Job Number
E1062120280 Scan Code



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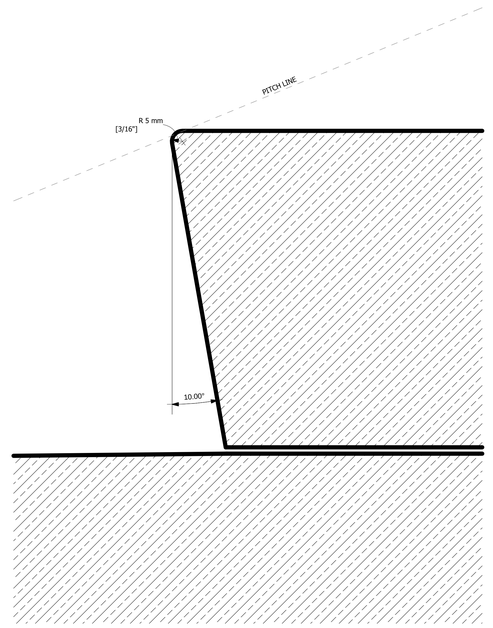

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6 HANDRAIL POST SECTION

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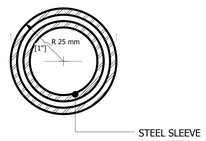

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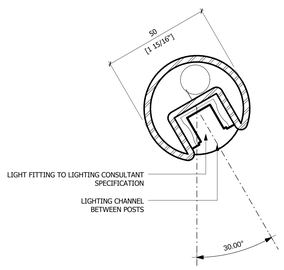

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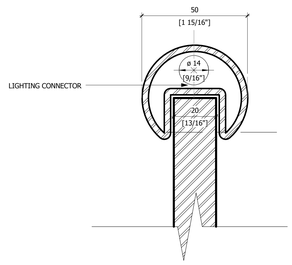

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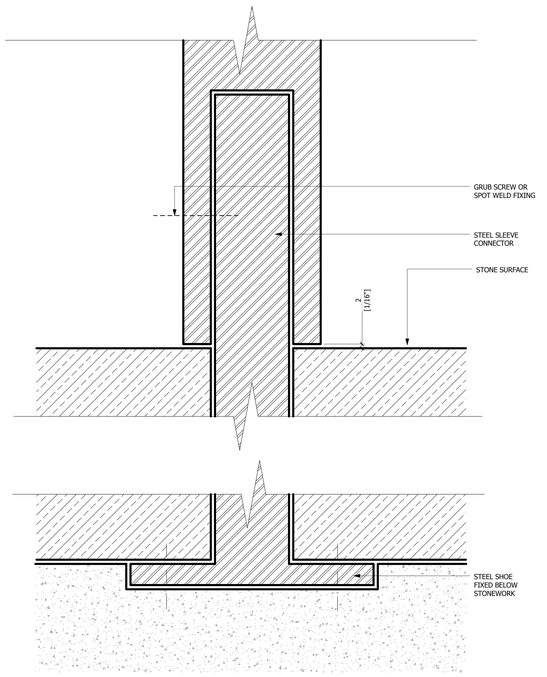

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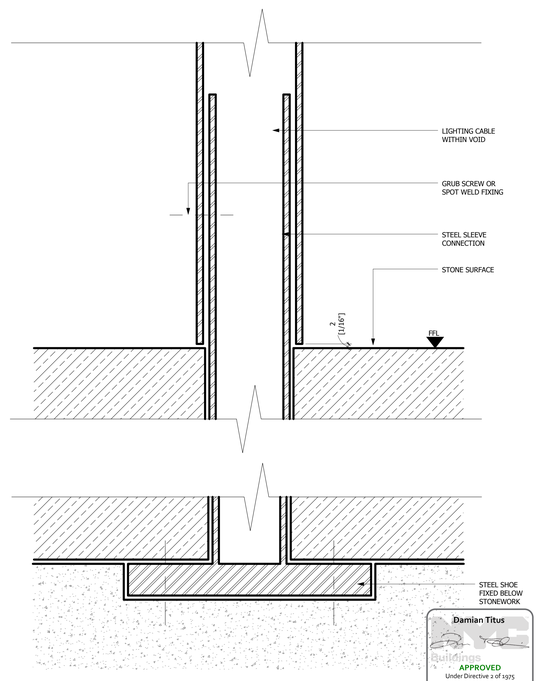

9 HANDRAIL PROFILE BASE SECTION

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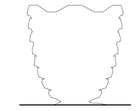

Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
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Architects & Planning Consultants
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1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan

Date: 05/15/14
Project No. 2208007
Drawn By
Sheet Number

REGISTERED ARCHITECT ANTHONY MORPHET 026453 STATE OF NEW YORK

HYE-VS-A-950

Drawing Title

PEDESTAL DETAILS

Drawing Number

A-950.00

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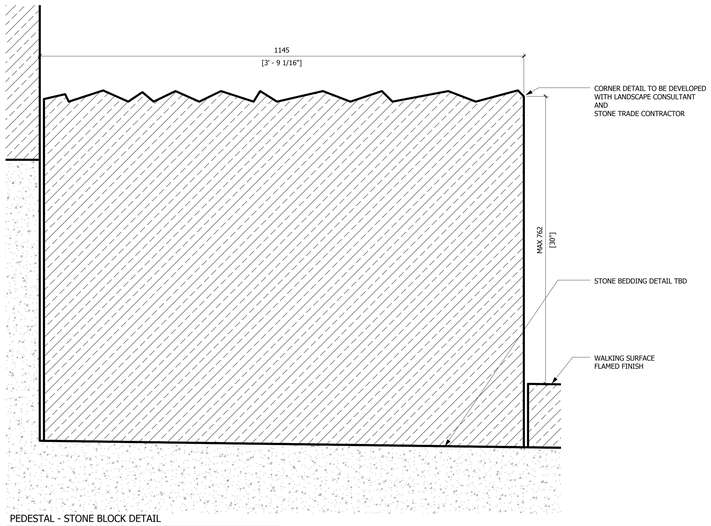

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DEPT OF BUILDINGS 321191185 Job Number
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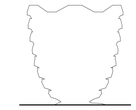
530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
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Oxford Properties Group
320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.9863.7510

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Architects & Planning Consultants
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No.	Issue	Date
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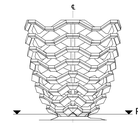
Key Plan



Date: 05/15/14
Project No. 2298.00
Drawn By
Sheet Number **HYE-VS-A-951**

REGISTERED ARCHITECT
DAMIAN TITUS
028457
STATE OF NEW YORK

Drawing Title

PEDESTAL DETAILS

Drawing Number
A-951.00

Damian Titus
Buildings
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Date: 12/07/2016
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A-951
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PEDESTAL DETAILS
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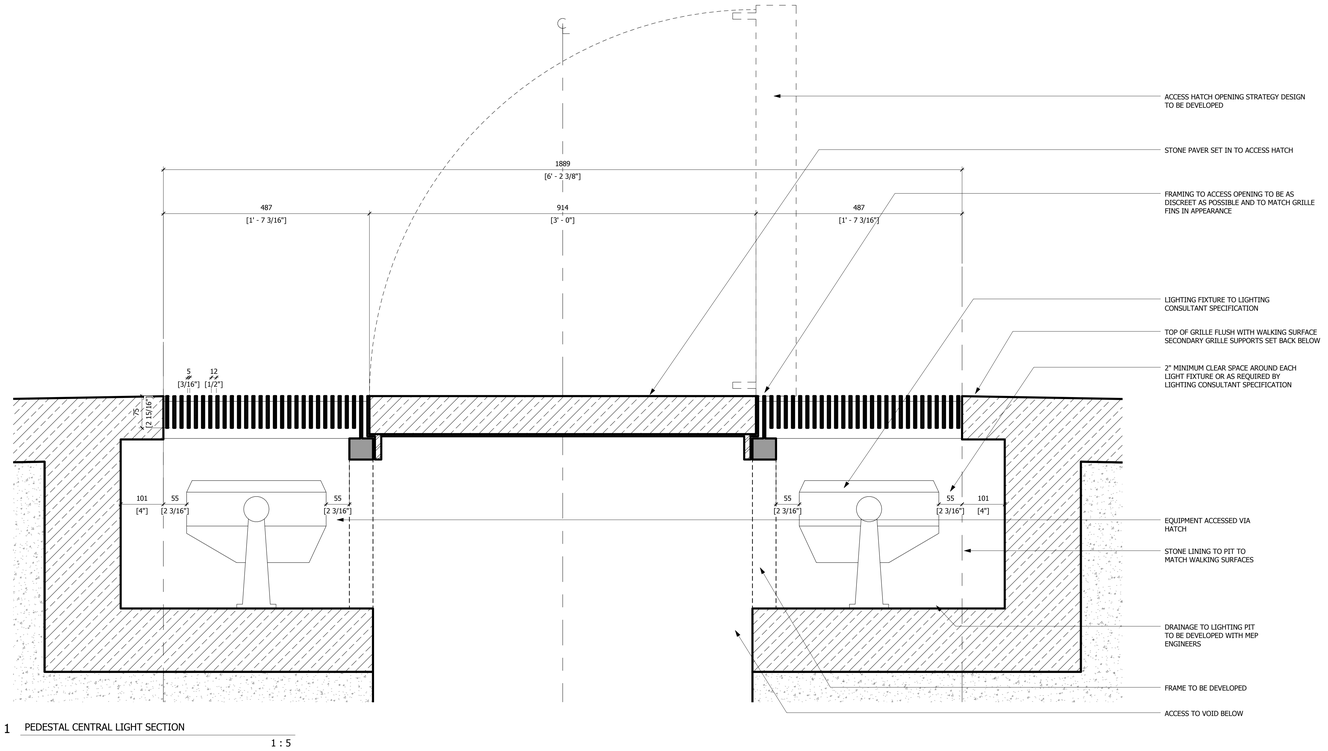

1 PEDESTAL CENTRAL LIGHT SECTION

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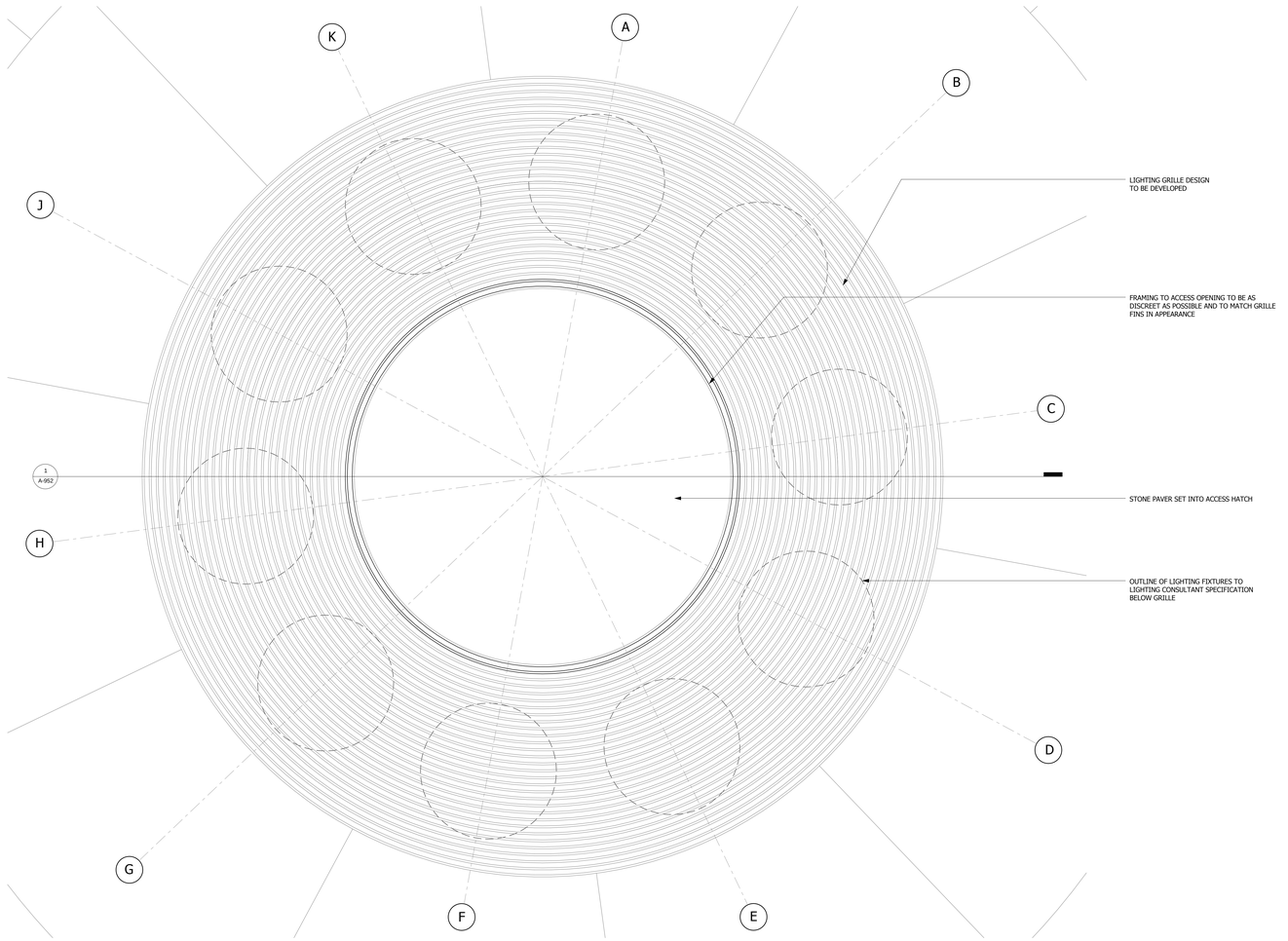

2 PEDESTAL CENTRAL LIGHT PLAN

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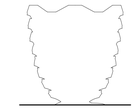
530 WEST 33RD STREET
NEW YORK, NY



Client
Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

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320 Park Avenue, 17th Floor
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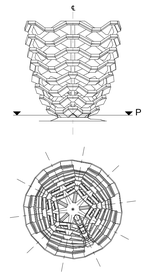
No.	Issue	Date
1	D.O.B. BUILDING PERMIT FILING	05/20/2016

Key Plan



Date: 05/29/15
Project No. 2208.00
Drawn By
Sheet Number

REGISTERED ARCHITECT
DAMIAN TITUS
026345
STATE OF NEW YORK

HYE-VS-A-952

Drawing Title

PEDESTAL LIGHTING DETAILS

Drawing Number
A-952.00

Damian Titus
Buildings
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Date: 12/07/2016
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SHEET 86 OF 86

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HUDSON YARDS VESSEL

DOCUMENT ISSUE 08

DATE: MARCH 23, 2015

STRUCTURAL DRAWING LIST

SHEET NO	SHEET NAME
S-001.00	COVER SHEET & DRAWING LIST
S-002.00	STRUCTURAL GENERAL NOTES
S-003.00	TOLERANCES
S-050.00	GENERAL ARRANGEMENT - SHEET I
S-051.00	GENERAL ARRANGEMENT - SHEET II
S-052.00	GENERAL ARRANGEMENT - SHEET III
S-060.00	GENERAL ARRANGEMENT - SPINE
S-070.00	DAMPER SYSTEM
S-261.00	DOGBONE LEVEL 11
S-262.00	DOGBONE LEVEL 11 - SPINE
S-271.00	DOGBONE LEVELS 1-3
S-272.00	DOGBONE LEVELS 1-3 - DETAILS
S-500.00	TYPICAL SECTION - DETAILS I
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S-545.00	NODE DETAILS
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S-860.00	CONNECTION FORCES - DOGBONES I
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S-865.00	BASE REACTIONS

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016.
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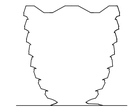
HUDSON YARDS VESSEL

TBD
XXX
NEW YORK, NY



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Related Companies
60 Columbus Circle
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320 Park Avenue, 17th Floor
New York, NY 10022
Tel: 212.986.7514 Fax: 212.986.7510

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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number HYE-VS-S-001
Drawing Title

COVER SHEET & DRAWING LIST

Drawing Number / I-SCAN Drawing Number
S-001.00

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GR GENERAL REQUIREMENTS

GR-1 AS USED IN THESE GENERAL NOTES:
"DRAWINGS" MEANS THE LATEST STRUCTURAL DESIGN DRAWINGS, UON.
"SPECIFICATIONS" MEANS THE LATEST PROJECT SPECIFICATIONS, UON.
"CONTRACT DOCUMENTS" IS DEFINED AS THE DESIGN DRAWINGS AND THE SPECFICATIONS
"SER" IS DEFINED AS THE STRUCTURAL ENGINEER OF RECORD FOR THE STRUCTURE IN ITS FINAL CONDITION.
"DESIGN PROFESSIONALS" IS DEFINED AS THE OWNER'S ARCHITECT AND SER.
"MEP" INCLUDES, BUT IS NOT LIMITED TO MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION.
"CONTRACTOR" IS DEFINED TO INCLUDE ANY OF THE FOLLOWING: GENERAL CONTRACTOR AND THEIR SUBCONTRACTORS, CONSTRUCTION MANAGER AND THEIR SUBCONTRACTORS, STRUCTURAL STEEL FABRICATOR OR STRUCTURAL STEEL ERECTOR.
"BASE BUILDING STRUCTURE" IS DEFINED AS THE STRUCTURAL FRAME DESIGNED BY THE EOR.
"STRUCTURE IN ITS FINAL CONDITION" MEANS ALL STRUCTURAL ELEMENTS SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS ARE INSTALLED AND COMPLETELY CONNECTED AND INSPECTED WITH NO OUTSTANDING NON-COMPLIANCE ISSUES.

GR-2 THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THE STRUCTURAL WORK WITH THE ARCHITECTURAL, CIVIL, MEP CONTRACT DOCUMENTS, AS WELL AS ANY OTHER APPLICABLE TRADES.

GR-3 THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE UNTIL THE CONSTRUCTION OF THE STRUCTURE REACHES ITS FINAL CONDITION.

GR-4 THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, INSTALLATION, AND REMOVAL OF TEMPORARY BRACING AND CONSTRUCTION SUPPORTS, FOR NEW AND EXISTING STRUCTURES, AS NECESSARY TO COMPLETE THE PROJECT. NO PORTION OF THE PROJECT WHILE UNDER CONSTRUCTION IS INTENDED TO BE STABLE IN THE ABSENCE OF THE CONTRACTOR'S TEMPORARY SUPPORTS AND BRACES. CONTRACTOR SHALL RETAIN A STRUCTURAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED TO DESIGN TEMPORARY BRACING AND CONSTRUCTION SUPPORTS.

GR-5 FINAL SPECIFICATIONS ARE AN INTEGRAL PART OF THE CONTRACT DOCUMENTS AND SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS.

GR-6 THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS AND COORDINATE WITH THE STRUCTURAL DRAWINGS, ARCHITECTURAL DRAWINGS, DRAWINGS FROM OTHER CONSULTANTS, PROJECT SHOP DRAWINGS AND FIELD CONDITIONS.

GR-7 IN CASES OF CONFLICT BETWEEN DRAWINGS AND/OR SPECIFICATIONS AND OTHER DISCIPLINES OR EXISTING CONDITIONS, CONTRACTOR SHALL NOTIFY THE DESIGN PROFESSIONALS AND OBTAIN CLARIFICATION PRIOR TO BIDDING AND PROCEEDING WITH WORK. IN GENERAL, THE DRAWINGS SHOW THE DESIGN INTENT AND THE ISSUED MODEL PROVIDES THE GEOMETRIC AND SURFACE DEFINITION.

GR-8 APPLY DETAILS, SECTIONS, AND NOTES ON THE DRAWINGS WHERE CONDITIONS ARE SIMILAR TO THOSE INDICATED BY DETAIL, DETAIL TITLE OR NOTE.

GR-9 ONLY USE DIMENSIONS INDICATED ON THE DRAWINGS. DO NOT SCALE DRAWINGS.

GR-10 ASSUME EQUAL SPACING BETWEEN ESTABLISHED DIMENSIONS, IF NOT INDICATED ON DRAWINGS.

GR-11 THE CONTRACTOR SHALL PROTECT EXISTING FACILITIES, STRUCTURES AND UTILITIES FROM DAMAGE.

GR-12 THE CONTRACTOR SHALL VERIFY THAT CONSTRUCTION LOADS DO NOT EXCEED THE CAPACITY OF THE STRUCTURE AT THE TIME THE LOAD IS APPLIED.

GR-13 THE CONTRACTOR SHALL COORDINATE THE BOTTOM OF BASE PLATE ELEVATIONS WITH THE AS-BUILT TOP OF SUPPORT ELEVATIONS.

GR-14 THE CONTRACTOR SHALL VERIFY ALL OPENING SIZES AND LOCATIONS WITH OTHER DISCIPLINES. THE DRAWINGS DO NOT SHOW ALL OPENINGS REQUIRED. ADDITIONAL OPENINGS, BLOCKOUTS AND SLEEVES MAY BE REQUIRED BY OTHER DISCIPLINES AND SHALL BE CONSTRUCTED USING THE TYPICAL DETAILS AND/OR THE CRITERIA INDICATED ON THE DRAWINGS. OPENINGS REQUIRED BUT NOT SHOWN ON THE STRUCTURAL DRAWINGS MUST BE APPROVED BY THE STRUCTURAL ENGINEER.

GR-15 ELEVATIONS INDICATED ONSTRUCTURAL DRAWINGS ARE BASED ON A PROJECT DATUM INDICATED ON THE ARCHITECTURAL DRAWINGS.

GR-16 IN GENERAL THE STRUCTURAL DRAWINGS PROVIDE THE STRUCTURAL CONCEPT AND TYPICAL DETAILS. REFER TO THE ARCHITECTRAL DRAWINGS FOR DESIGN INTENT. SEE ARCHITECTURAL, STRUCTURAL, CIVIL, MEP AND VERTICAL TRANSPORTATION CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION RELATING TO THE COORDINATION OF STRUCTURAL COMPONENTS.

GR-17 FABRICATION AND ERECTION TOLERANCES, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS 14TH EDITION BY THE AMERICAL INSTITUTE OF STEEL CONSTRUCTION (AISC-LRFD).

GR-18 IMMEDIATELY REPORT TO THE DESIGN PROFESSIONALS ANY ERRORS IN SHOP FABRICATION, DEFORMATIONS RESULTING FROM HANDLING AND TRANSPORTATION, AND IMPROPER ERECTION THAT AFFECTS THE ASSEMBLY AND FITTING OF PARTS. PREPARE DETAILS FOR CORRECTIVE WORK AND OBTAIN APPROVAL OF THE METHOD OF CORRECTION. APPROVED CORRECTIONS SHALL BE MADE EXPEDITIOUSLY AT THE SOLE EXPENSE OF THE CONTRACTOR.

CD CODES AND DESIGN CRITERIA

CD-1 PERFORM ALL CONSTRUCTION IN CONFORMANCE WITH THE BUILDING AND DESIGN CODES REFERENCED WITHIN THESE DOCUMENTS. THE PROJECT DOCUMENTS REFER TO THE FOLLOWING CODES AND STANDARDS, UON:

2014 NYC BUILDING CODE

STRUCTURAL CONCRETE:
"BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
THE AMERICAN CONCRETE INSTITUTE (ACI 318-2008)

CONCRETE MASONRY:
"BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY STRUCTURES"
THE AMERICAN CONCRETE INSTITUTE (ACI 530-2008)

STRUCTURAL STEEL:
"SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", [MARCH 9, 2005 THIRTEENTH EDITION]
CONFORMING TO THE PROVISIONS OF LOAD RESISTANCE FACTOR DESIGN, BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC-LRFD)

CD-2

LIVE LOADS:	100 PSF
LIVE LOAD REDUCTION FACTOR	0.4 (FOR GLOBAL ANALYSIS)

CD-3

SUPERIMPOSED DEAD LOADS:	60 PSF

CD-4 SNOW LOADS:

GROUND SNOW LOAD (Pg)	25 PSF
SNOW EXPOSURE FACTOR (Ce):	0.9
THERMAL FACTOR (Ct):	1.0
SNOW LOAD IMPORTANCE FACTOR (Is):	1.1
FLAT ROOF SNOW LOAD (Pf):	22 PSF

CD-5 WIND LOAD DESIGN DATA
WIND LOADS DETERMINED FOLLOWING WIND TUNNEL ANALYSIS BY RWDI

BASE SHEAR:	280 KIP
OVERTURNING MOMENT:	28,700 KIP-FT

CODE BASED PARAMETERS LISTED BELOW.

BASIC WIND SPEED, V	98 MPH
EXPOSURE CATEGORY	B
WIND IMPORTANCE FACTOR (Iw)	1.15
DIRECTIONALITY FACTOR(Kd)	0.85
TOPOGRAPHIC FACTOR (Kzt)	1.00
GUST EFFECT FACTOR (G)	0.85
EXTERNAL PRESSURE COEFFICIENT (Cp)	+0.8 WINDWARD WALL -0.5 LEEWARD WALL

THE DESIGN WIND LOADS ARE AS FOLLOWS:

HEIGHT ABOVE GROUND LEVEL	DESIGN WIND PRESSURE
150 FT	40 PSF
100 FT	38 PSF
0 TO 90 FT	34 PSF

CD-6 SEISMIC LOAD DESIGN DATA:

SEISMIC IMPORTANCE FACTOR (I)	1.25
STRUCTURAL OCCUPANCY CATEGORY	III
MAPPED SPECTRAL RESPONSE ACCELERATION	
AT SHORT PERIODS (Ss)	0.281g
AT ONE SECOND PERIODS (S1)	0.073g
SITE CLASS	C
SPECTRAL RESPONSE COEFFICIENT	
AT SHORT PERIODS (Sds)	0.225g
AT ONE SECOND PERIODS (Sd1)	0.083g
SEISMIC DESIGN CATEGORY	B
BASIC SEISMIC FORCE RESISTING SYSTEM	STEEL SYSTEM
DESIGN BASE SHEAR	208 KIPS
SEISMIC RESPONSE COEFFICIENT (Cs)	0.0224
RESPONSE MODIFICATION FACTOR (R)	3 FOR STEEL SYSTEM
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE PROCEDURE

CD-7 DISTRIBUTE THE MAXIMUM LOAD HUNG FROM ANY STRUCTURAL MEMBER FOR MEP DUCTWORK, PIPING ETC OVER THE MEMBER'S TRIBUTARY AREA IN A WAY THAT THE DESIGN SUPERIMPOSED DEAD LOADS LISTED IN CONTRACT DOCUMENTS ARE NOT EXCEEDED. THE CONTRACTOR SHALL COORDINATE THE LOADS OF ALL TRADES AND PROVIDE ADDITIONAL SUPPORT OR DISTRIBUTION FRAMING AS REQUIRED TO ACHIEVE THE ALLOWABLE LOAD DISTRIBUTION.

CD-8 STRUCTURAL COMPONENTS ARE NOT DESIGNED FOR VIBRATING EQUIPMENT.

SS STRUCTURAL STEEL

SS-1 STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS UNLESS OTHERWISE NOTED ON THE CONTRACT DOCUMENTS:

ROLLED SHAPES AND CHANNELS:	ASTM A572 OR A992, MIN. YIELD STRENGTH 50 KSI
ANGLES FOR TRUSSES AND BRACES:	ASTM A36 MIN YIELD STRENGTH 36 KSI
MISCELLANEOUS ANGLES:	ASTM A36
HOLLOW STRUCTURAL SECTIONS:	ASTM A500 GRADE B, MIN YIELD STRENGTH 42 KSI FOR ROUND AND 46 KSI FOR RECTANGULAR HSS
SEAMLESS PIPE:	ASTM A53 GRADE B, TYPE S, MIN YIELD STRENGTH 35 KSI.
PLATES:	ASTM A572, GRADE 50

SS-2 CONNECTION MATERIAL SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS OR AS NEEDED FOR CONNECTION DESIGN:

ANGLES:	ASTM A36
WTs:	ASTM A992
PLATES:	ASTM A572, MINIMUM YIELD STRENGTH 50 KSI
BOLTS:	ASTM A325 OR A490
NUTS:	ASTM A563
WASHERS:	ASTM F436
ANCHOR RODS:	ASTM F1554 GRADE 55 WITH WELDABILITY SUPPLEMENT S1
HEADED STUDS	ASTM A 108, GRADE 1010 THROUGH 1020 HEADED STUD TYPE, COLD-FINISHED CARBON STEEL, AWS D1.1, TYPE B. ¾" DIAMETER
WELD ELECTRODES:	E70XX

SS-3 WHERE NO CAMBER IS INDICATED, FABRICATE BEAMS SO THAT ANY NATURAL CAMBER IS UPWARD AFTER ERECTION.

SS-4 SPLICES SHALL BE ALLOWED ONLY AT LOCATIONS SPECIFICALLY INDICATED ON THE STRUCTURAL DRAWINGS UNLESS APPROVED OTHERWISE BY THE SER IN WRITING.

SS-5 PROVIDE HOLES IN ALL STEEL AS REQUIRED TO PREVENT ANY ACCUMULATION OF WATER. ALL PENETRATIONS THROUGH MAIN MEMBERS SHALL NOT EXCEED 1 1/8" DIA. AND SHALL BE GROUND SMOOTH. THESE DRAINS MUST BE KEPT CLEAN AND OPEN. TEMPORARY OPENINGS TO BE MADE GOOD TO THE SATISFACTION OF THE ARCHITECT AND PERMANENT OPENINGS TO BE AGREED IN ADVANCE.

SS-6 SHOW ALL COPES, HOLES, OPENINGS AND MODIFICATIONS REQUIRED IN STRUCTURAL STEEL MEMBERS FOR ERECTION OR THE WORK OF OTHER TRADES ON THE SHOP DRAWINGS FOR APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.

SS-7 FIELD MODIFICATION OF STRUCTURAL STEEL IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER.

SS-8 THE CONTRACTOR SHALL SUBMIT A STEEL ERECTION PROCEDURE, PREPARED UNDER THE SUPERVISION OF A STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE LOCATION OF THE PROJECT (THE CONTRACTOR'S ENGINEER) FOR REVIEW BY THE STRUCTURAL ENGINEER OF RECORD. THIS PROCEDURE MUST INCLUDE THE PROPOSED SURVEY REQUIRED BY THE STEEL SPECIFICATIONS. THE ERECTION PROCEDURE WILL COMPENSATE FOR THE DIFFERENCE BETWEEN THE TEMPERATURE AT TIME OF FABRICATION AND THE MEAN TEMPERATURE IN SERVICE.

SS-9 STEEL USING COMPLETE JOINT PENETRATION GROOVE WELDS THAT FUSE THROUGH THE THICKNESS OF THE FLANGE OR WEB SHALL HAVE A MINIMUM CHARPY V-NOTCH IMPACT TESTING VALUE AS FOLLOWS:

A. ASTM A6/A6M HOT-ROLLED SHAPES WITH A FLANGE THICKNESS EXCEEDING 2 INCHES AND BUILT-UP HEAVY SHAPES WITH PLATES EXCEEDING 2 INCHES IN THICKNESS: 20 FT-LB @ 70 DEG. F
B. REGARDLESS OF THICKNESS, ALL TRUSSES, LATERAL SYSTEM MEMBERS (INCLUDING COLUMNS, WIND GIRDERS, BRACES, ETC.): 20 FT-LB @ 70 DEG. F
C. STEEL EXPOSED TO TEMPERATURES IN SERVICE BELOW 50 DEG. F: 25 FT-LB @40 DEG. F.
D. WELD METAL: 20 FT-LB @ MINUS 20 DEG. F AND 40 FT-LB @ 70 DEG. F
E. WELD METAL EXPOSED TO TEMPERATURES IN SERVICE BELOW 50 DEG. F: 25 FT-LB @ MINUS 40 DEG. F
F. TESTING IS TO BE IN ACCORDANCE WITH ASTM A6/A6M, SUPPLEMENTARY REQUIREMENT S30, CHARPY V-NOTCH IMPACT TEST FOR STRUCTURAL SHAPES – ALTERNATE CORE LOCATION, AT ROLLED SHAPES AND ASTM A673 FOR PLATES, AT ANY PERMITTED LOCATIONS.

SS-10 COATINGS AND FINISHES TO BE IN ACCORDANCE WITH ARCHITECTURAL DRAWINGS. STEEL SUBSTRATE TO BE PREPARED IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS FOR THE APPROVED FINISHES. ASSUME BLAST CLEAN TO Sa2.5 USING SUITABLE TYPE AND SIZE OF ABRASIVE FREE FROM CONTAMINATION BY FINES, WATER AND OIL. REMOVE ABRASIVE RESIDUES.

SS-11 PREPARATION FOR SITE WELDING OF SHOP PAINTED STEELWORK. PREPARE AND PAINT STEELWORK INCLUDING WELD AREAS. GRIND OFF TO BARE STEEL AROUND EACH WELD AREA IMMEDIATELY BEFORE WELDING.

SS-12 GENERAL: FOR FABRICATION OF WORK WHICH WILL BE EXPOSED TO VIEW, USE ONLY MATERIALS WHICH ARE SMOOTH AND FREE OF SURFACE BLEMISHES INCLUDING PITTING, RUST, SCALE, SEAM MARKS, ROLLER MARKS, ROLLED TRADE NAMES AND ROUGHNESS. REMOVE SUCH BLEMISHES BY GRINDING, OR BY WELDING AND GRINDING, PRIOR TO CLEANING, TREATING AND APPLICATION OF SURFACE FINISHES.

SC STRUCTURAL STEEL CONNECTIONS

SC-1 ALL STEEL DETAILS AND CONNECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", AISC-LOAD AND RESISTANCE FACTOR DESIGN U.N.O..

SC-2 ALL CONNECTIONS, UNLESS INDICATED AS BEING FULLY DESIGNED ON THE STRUCTURAL DRAWINGS, SHALL BE DESIGNED AND DETAILED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE WHERE THE PROJECT IS LOCATED. THE DESIGN AND DETAILING SHALL COMPLY WITH ALL APPLICABLE CODES AND SPECIFICATION SECTIONS.

SC-3 UNLESS OTHERWISE NOTED, DETAILS INDICATED ON DRAWINGS INDICATE GENERAL CRITERIA FOR DESIGN AND DETAILING OF CONNECTIONS. DETAILS INDICATED ON DRAWINGS ARE NOT INTENDED TO CONVEY COMPLETE CONNECTOR SIZES, PLATE SIZES, WELD SIZES, NUMBER OF BOLTS, OR ANY OTHER SPECIFIC INFORMATION THAT IS OBTAINED THROUGH DESIGNING OF AN INDIVIDUAL CONNECTION FOR A GIVEN SET OF LOADS. THESE DETAILS DO NOT SHOW ERECTION AIDS. PROVIDE ERECTION AIDS AS REQUIRED AND REMOVE THEM AFTER WORK IS COMPLETE.

SC-4 SUBMIT CONNECTIONS NOT SPECIFICALLY DETAILED ON THE DRAWINGS TO THE SER FOR REVIEW PRIOR TO REVIEW OF SHOP DRAWINGS. FOR BIDDING PURPOSES, WHERE NO MOMENT IS INDICATED ON DRAWINGS PROVIDE FULL MOMENT CAPACITY OF MEMBER (.9 Fy Z) AND WHERE NO VERTICAL SHEAR IS INDICATED ON DRAWINGS PROVIDE FULL SHEAR CAPACITY (.54 Fy d tw).

SC-5 ALTERNATE CONNECTIONS TO THOSE SHOWN ON DRAWINGS WILL ONLY BE CONSIDERED ACCEPTABLE IF CONTRACTOR FORMALLY SUBMITS ALTERNATES AND THE SER APPROVES THE SUBMITTAL.

SC-6 FOR CONNECTION DESIGN AND DETAILING, SET CONNECTION WORK POINT AT INTERSECTION OF MEMBER CENTERLINES, UON.

SC-7 DESIGN ALL CONNECTIONS FOR FORCES INDICATED ON THE DRAWINGS. CONNECTION DESIGN FORCES INDICATED ON THE DRAWINGS ARE FACTORED UON.

SC-8 DESIGN OF MEMBERS IS BASED ON ASSUMPTION OF 7/8-INCH DIAMETER AND 1 1/8-INCH DIAMETER A325 OR A490 BOLTS. USE NO MORE THAN TWO BOLT DIAMETERS, ONE GRADE PER DIAMETER, SKIP ONE SIZE BETWEEN DIAMETERS.

SC-9 ELEMENT CONNECTION DESIGN NOTES

SEE PLANS AND ELEVATIONS FOR ELEMENT REACTIONS AND MOMENTS THAT ARE LARGER THAN THE VALUE SHOWN IN SCHEDULES.

DEVELOP THE LARGER OF THE ELEMENT SHEAR REACTION SCHEDULED, SHOWN ON PLANS OR SHOWN ON ELEVATIONS.

DEVELOP THE LARGER OF THE MOMENT SCHEDULED, SHOWN ON PLANS OR SHOWN ON ELEVATIONS.

DEVELOP THE LARGER OF THE AXIAL FORCE DENOTED AS P OR TF SHOWN ON PLANS OR SHOWN ON ELEVATIONS.

EXCEPT WHERE "SNUG TIGHT" INSTALLATION IS SPECIFICALLY PERMITTED ON DRAWINGS OR "SLIP CRITICAL" DETAILING IS REQUIRED, ALL HIGH STRENGTH BOLTS SHALL BE INSTALLED AS FULL PRETENSIONED BOLTS.

AT A MINIMUM ALL BOLTED MOMENT AND AXIAL CONNECTION SHALL HAVE PRETENSIONED BOLTS IN STANDARD HOLES.

BOLTED MOMENT CONNECTIONS AT CANTILEVERS AND BACKSPANS SHALL USE SLIP CRITICAL BOLTS.

DO NOT USE OVERSIZED OR SLOTTED HOLES FOR ANY CONNECTIONS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR APPROVED IN WRITING BY THE SER.

SC-10 ALL WELDING, U.N.O., SHALL CONFORM TO THE REQUIREMENTS OF THE STRUCTURAL WELDING CODE, ANSI/AWS D1.1, LATEST EDITION. ALL WELD SIZES SHALL BE THE LARGER OF THE SIZE REQUIRED BY CONNECTION FORCES, THE MINIMUM SIZE PER ANSI/AWS D1.1, OR 3/16 INCH MINIMUM FILLET WELD UON. ANY ANY WELD SIZES SHOWN ON THE DESIGN DRAWINGS ARE CONSIDERED EFFECTIVE WELD SIZES AND SHALL BE INCREASED IN ACCORDANCE WITH AWS AS REQUIRED BY GAPS OR SKEWS BETWEEN COMPONENTS.

SC-11 ASSEMBLE AND WELD BUILT-UP SECTIONS BY METHODS THAT WILL MAINTAIN TRUE ALIGNMENT OF AXES WITHOUT WARP.

SC-12 VERIFY THAT WELD SIZES, FABRICATION SEQUENCE, AND EQUIPMENT USED FOR EXPOSED STEELWORK WILL LIMIT DISTORTIONS TO ALLOWABLE TOLERANCES. PREVENT SURFACE BLEEDING OF BACKSIDE WELDING ON EXPOSED STEEL SURFACES.

SC-13 USE RUNOFF TABS AT ALL BEVEL AND FULL PENETRATION WELDS. REMOVE RUNOFF TABS BY NEAT CUTS AFTER WELD IS COMPLETED. GRIND SMOOTH WHERE REQUIRED BY DETAIL.

SC-14 WHERE REQUIRED BY DETAIL REMOVE WELD BACK UP BARS AND GRIND SMOOTH AFTER WELD IS COMPLETED.

SC-15 DESIGN, DETAIL, FURNISH AND INSTALL STIFFENERS, CONTINUITY PLATES, DOUBLER PLATES, OR OTHER NECESSARY ADDITIONAL LOCAL STRENGTHENING MEASURES AS REQUIRED. MEMBER SIZES INDICATED ON THE DRAWINGS ARE BASED ON MEMBER BEHAVIOR AWAY FROM CONNECTIONS.

SC-16 CLEAN AND PREPARE BEARING SURFACES AND SURFACES THAT WILL BE IN PERMANENT CONTACT BEFORE THE MEMBERS ARE ASSEMBLED.

SC-17 SPLICES WILL BE PERMITTED ONLY WHERE INDICATED ON THE CONTRACT DRAWINGS OR THE REVIEWED SHOP DRAWINGS. FASTEN SPLICES OF COMPRESSION MEMBERS ONLY AFTER SURFACES ARE CLEANED AND ABUTTING SURFACES HAVE BEEN BROUGHT COMPLETELY INTO CONTACT. FILL IN ANY REMAINING GAPS WITH STEEL SHIMS DRIVEN INTO PLACE AND CUT FLUSH. TACK WELD SHIMS TO EACH OTHER AND TO MEMBERS. USE RUNOFF TABS AT BEVEL WELD SPLICES. CUT OFF RUNOFF TABS AND GROUND SMOOTH AFTER WELD COMPLETION.

SC-18 ON EXPOSED WELDED CONSTRUCTION, REMOVE ERECTION BOLTS, FILL HOLES WITH PLUG WELDS, AND GRIND SMOOTH AT EXPOSED SURFACES. ON NON-EXPOSED WELDED CONSTRUCTION, REMOVE ERECTION BOLTS.

ST STRUCTURAL STEEL TESTING

ST-1 THE FOLLOWING SHOP AND FIELD INSPECTIONS, IN ADDITION TO ANY OTHER INSPECTIONS SPECIFIED ON THE CONTRACT DOCUMENTS WILL BE CARRIED OUT BY AN OWNER APPROVED TESTING AGENCY, WHO IS TO HAVE ACCESS TO ALL PARTS OF THE WORKSHOP WHERE STEELWORK IS BEING FABRICATED AND IS TO BRE PROVIDED WITH REASONABLE INSPECTION FACILITIES:

ST-2 SHOP INSPECTION OF STEEL SHALL INCLUDE ALIGNMENT AND STRAIGHTNESS OF MEMBERS, CAMBER, PREPARATION FOR CONNECTIONS, DIMENSIONAL CHECKS, TESTING OF SHOP BOLTS, WITNESSING OF WELDING PROCEDURES, TESTING OF CUTS, WELD ACCESS HOLES AND COPES OF HEAVY SHAPES AS DEFINED IN THIS SPECIFICATION, EXAMINATION AND TESTING OF COMPLETED WELDS, HEADED STUDS AND DEFORMED BAR ANCHORS, CUTTING OF HEAVY SHAPES, FINISHING OF COLUMN ENDS, CLEANING, PAINTING AND STORAGE OF MATERIAL.

ST-3 ALL SHOP FABRICATION SHALL BE INSPECTED IN THE SHOP. CAMBER SHALL BE VERIFIED IN A MINIMUM OF 10% OF ALL MEMBERS REQUIRING CAMBER. IF, IN THE OPINION OF THE SER AND TESTING AGENCY THIS TESTING DISCLOSES A LARGE RATIO (10% OR MORE) OF UNACCEPTABLE CAMBERS, THE REQUIRED PERCENTAGE OF TESTED CAMBERS MAY BE INCREASED BY THE SER TO 100% AT NO EXPENSE TO THE OWNER.

ST-4 FIELD INSPECTION OF STEEL SHALL INCLUDE CONNECTIONS, PROPER TENSIONING OF BOLTS, LEVELNESS, PLUMBNESS AND ALIGNMENT OF THE FRAME, CONFORMANCE TO AWS WELDING METHODS, EXAMINATION OF SURFACE BEFORE WELDING, EXAMINATION AND TESTING OF COMPLETED WELDS, HEADED STUDS AND DEFORMED BAR ANCHORS AND FIELD PAINTING, INCLUDING TOUCH-UP.

ST-5 CHECK QUALIFICATIONS OF THE FOLLOWING:
I. SHOP WELDING PROCEDURES AND PERSONNEL
II. SHOP STUD WELDING SETUP AND OPERATORS
III. SHOP BOLTING PROCEDURE AND CREW

ST-6 WHERE TESTING IS REQUIRED FOR LESS THAN 100% OF LOCATIONS, SELECT TEST LOCATIONS AT RANDOM AND THROUGHOUT THE PROJECT.

ST-7 REVIEW MILL CERTIFICATIONS FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.

ST-8 HIGH STRENGTH BOLTING: THE TESTING AGENCY INSPECTOR SHALL INSPECT HIGH STRENGTH BOLTED CONSTRUCTION IN ACCORDANCE WITH RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS," INCLUDING BUT NOT LIMITED TO:

I. SURFACE PREPARATION AND BOLT TYPE CONFORMS TO PLANS AND SPECIFICATIONS PRIOR TO START OF BOLTING OPERATIONS.
II. PROPER BOLT STORAGE AND HANDLING PROCEDURES PER CODES AND STANDARDS REFERENCED BY THIS SPECIFICATION ARE BEING FOLLOWED.
III. VISUALLY INSPECT ALL BOLTED CONNECTIONS.
IV. FOR ALL BOLTED CONNECTIONS THAT ARE INDICATED AS SNUG TIGHT, CONNECTIONS ARE PROPERLY COMPACTED AND BROUGHT TO THE SNUG TIGHT CONDITION PROGRESSING OUTWARD FROM THE MOST RIGID PART.
V. FOR ALL BOLTED CONNECTIONS THAT ARE INDICATED AS PRETENSIONED OR SLIP CRITICAL, PRE-INSTALLATION VERIFICATION TESTING IS PERFORMED BY THE INSPECTOR IN COOPERATION WITH THE CONTRACTOR IN ACCORDANCE WITH RCSC SECTION 9.2 AND SECTION 7.
VI. FOR ALL BOLTED CONNECTIONS THAT ARE INDICATED AS PRETENSIONED OR SLIP CRITICAL, THROUGH ROUTINE OBSERVATION, AS DEFINED IN RCSC 9.2.1, 9.2.3 OR 9.2.4, THAT THE PRETENSIONING METHODS OF RCSC 8.2.1, 8.2.3, OR 8.2.4, AS APPROPRIATE, ARE PERFORMED.
VII. "ROUTINE OBSERVATION" IS DEFINED AS OBSERVATION OF 10 BOLTS FOR EVERY 100 BOLTS WITH A MINIMUM OF 2 BOLTS PER CONNECTION.
VIII. RETEST BOLTED CONNECTIONS THAT FAIL INITIAL INSPECTION AFTER CORRECTION BY THE FABRICATOR OR ERECTOR.

ST-9 WELDING:

I. REVIEW OF SUBMITTALS: WELDING PROCEDURES INCLUDING PREQUALIFICATION, QUALIFICATIONS TEST AND, FOR HEAVY SHAPES AND HIGH RESTRAINT WELDS, THE WELDING PROCEDURE PREPARED BY THE CONTRACTOR'S ENGINEER OR WELDING CONSULTANT.
II. FULL PENETRATION WELDS: TEST ALL FULL PENETRATION WELDS FOR SOUNDNESS BY MEANS OF EITHER RADIOGRAPHIC OR ULTRASONIC TESTING IN ACCORDANCE WITH AWS D1.1 AND ASTM E164 PROCEDURES. ALL FLAWS IN PLATE OR FLANGE MATERIAL REVEALED DURING SUCH TESTS SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
III. PARTIAL PENETRATION WELDS: TEST ALL PARTIAL PENETRATION WELDS FOR SOUNDNESS BY MEANS OF VISUAL AND MAGNETIC PARTICLE INSPECTION, UNLESS OTHER METHODS ARE SPECIFIED IN THE CONTRACT DOCUMENTS. ALL FLAWS IN PLATE OR FLANGE MATERIAL REVEALED DURING SUCH TESTS SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
IV. TESTING OF WELDS AT HEAVY SHAPES AND HIGH RESTRAINT WELDS SHALL BE PERFORMED NOT LESS THAN 48 HOURS AFTER THE WELD HAS BEEN COMPLETED.
V. FILLET WELDS: VISUALLY INSPECT ALL FILLET WELDS. IN ADDITION TEST TEN PERCENT (10%) OF ALL FILLET WELDS USING A NON-DESTRUCTIVE METHOD, SUCH AS DYE PENETRANT OR MAGNETIC PARTICLE. SELECT TEST LOCATIONS RANDOMLY THROUGHOUT THE STRUCTURE, BUT TEST AT LEAST ONE WELD IN EACH LOCATION WITH 6 OR MORE WELDS PER CONNECTION. IF, IN THE OPINION OF THE SER AND TESTING AGENCY THIS TESTING DISCLOSES A LARGE RATIO (10% OR MORE) OF UNACCEPTABLE WELDS, THE REQUIRED PERCENTAGE OF TESTED WELDS MAY BE INCREASED BY THE SER TO 100%, ALL AT THE CONTRACTOR'S EXPENSE.
VI. INSPECTION AND TESTING BY THE TESTING AGENCY OF HIGH RESTRAINT WELDS AND WHERE HEAVY SHAPES ARE TO BE JOINED BY PARTIAL OR FULL PENETRATION WELDS IN TENSION:

A. JOINT PREPARATION: MONITOR FIT UP AND JOINT PREPARATION (BEVEL ANGLE, ETC.) FOR CONFORMANCE TO THE SUBMITTED WELDING PROCEDURES INCLUDING PREHEAT AND INTERPASS TEMPERATURE. MONITOR BASE METAL TEMPERATURE DURING WELDING OPERATIONS.
B. TEST FULL PENETRATION WELDS IN ACCORDANCE TO THE REQUIREMENTS OF THIS SPECIFICATION SECTION, ULTRASONICALLY IN ACCORDANCE WITH AWS D1.1 PROCEDURES. ON T OR CORNER JOINTS, PAY CAREFUL ATTENTION TO THE HEAT AFFECTED ZONE AND BASE METAL WHERE THE WELD SHRINKAGE STRESSES ARE IN THE THROUGH THICKNESS DIRECTION.
C. TEST PARTIAL PENETRATION BUTT JOINTS IN ACCORDANCE WITH THIS SPECIFICATION SECTION BY THE MAGNETIC PARTICLE METHOD. AT T OR CORNER JOINTS, IN ADDITION TO THE MAGNETIC PARTICLE TESTING, ULTRASONICALLY SCAN THE HEAT AFFECTED ZONE AND ADJACENT BASE METAL FROM FACE "C" PER AWS D1.1 TABLE 6.7 AND ANNEX K-7 TO DETECT LAMELLAR TEARS AND SHALL BE DONE WITH A COMPRESSION WAVE. THE TESTING AGENCY SHALL SUBMIT A TESTING PROCEDURE THAT INCLUDES EVALUATION (ACCEPTANCE CRITERION) PROCEDURES TO THE DESIGN PROFESSIONALS FOR REVIEW.

VII. AT HEAVY SHAPES AND HIGH RESTRAINT WELDS: PROVIDE PRE-PRODUCTION SAMPLE TESTING OF HEAT TREATMENT, OBSERVE FABRICATION, WELDING AND HEAT TREATMENT OF THE SAMPLES FOR CONFORMANCE WITH SUBMITTED WELDING PROCEDURES. ESTABLISH LOCATIONS OF TESTING COUPONS FOLLOWING AWS PROCEDURES. TEST COUPONS FOLLOWING AWS PROCEDURES TO VERIFY SATISFACTORY RESULTS USING THE WELDING PROCEDURE AND HEAT TREATMENT.

ST-10 CLEANING & PAINTING:

I. PRIOR TO SHOP PAINTING, EXAMINE ALL FABRICATED PIECES TO VERIFY PROPER CLEANING IN ACCORDANCE WITH THIS SPECIFICATION.
II. EXAMINE ALL SHOP PAINTING TO VERIFY CONFORMANCE WITH THIS SPECIFICATION.
III. EXAMINE LOADING AND UNLOADING OF STEEL TO VISUALLY OBSERVE THAT DAMAGE DOES NOT OCCUR DURING SHIPPING AND HANDLING.

ST-11 REMEDIAL WORK: THE TESTING AGENCY SHALL INDICATE TO THE CONTRACTOR WHERE REMEDIAL WORK MUST BE PERFORMED AND WILL MAINTAIN A CURRENT LIST OF WORK NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS. THIS LIST SHALL BE SUBMITTED TO THE DESIGN PROFESSIONALS AND OWNER ON A WEEKLY BASIS.

ST-12 CERTIFICATION: WHEN ALL WORK HAS BEEN APPROVED BY THE TESTING AGENCY, THE TESTING AGENCY SHALL CERTIFY IN A LETTER TO THE DESIGN PROFESSIONALS AND OWNER THAT THE INSTALLATION IS IN ACCORDANCE WITH THE DESIGN AND SPECIFICATION REQUIREMENTS (INCLUDING APPLICABLE CODES).

CI CONTROLLED INSPECTIONS

CI-1 THE FOLLOWING CONTROLLED INSPECTIONS ARE REQUIRED TO BE PERFORMED IN ACCORDANCE WITH THE BUILDING CODE OF THE CITY OF NEW YORK

ITEM	NYC CODE REF SECTION
STRUCTURAL STEEL - WELDING	BC 1704.3.1
STRUCTURAL STEEL - ERECTION AND BOLTING	BC 1704.3.3

COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

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IN ALL OTHER MATTERS THE CONTRACTOR SHALL SEEK THE OPINION OF THE ARCHITECT AND SER TO RESOLVE THE DISCREPANCY.

ABBREVIATION & SYMBOLS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
ADDL	ADDITIONAL	LONG	LONGITUDINAL
ADJ	ADJACENT	LP	LOW POINT
ALT	ALTERNATE	LW	LIGHTWEIGHT
APPRX	APPROXIMATE	LWC	LIGHTWEIGHT CONCRETE
ARCH	ARCHITECT OR ARCHITECTURAL	M	MOMENT
B/	BOTTOM OF	MATL	MATERIAL
B/B	BACK TO BACK	MAX	MAXIMUM
BLDG	BUILDING	MC	MOMENT CONNECTION(S)
BLK	BLOCK	MECH	MECHANICAL
BLKG	BLOCKING	MEP	MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION
BM	BEAM		
BOT	BOTTOM	MEZZ	MEZZANINE
BRDG	BRIDGING	MFR	MANUFACTURER
BRG	BEARING	MID	MIDDLE
BTWN	BETWEEN	MIN	MINIMUM
C	COMPRESSION	MISC	MISCELLANEOUS
C/C	CENTER TO CENTER	NIC	NOT IN CONTRACT
CIP	CAST-IN-PLACE	NO	NUMBER
CL	CENTER LINE	NOM	NOMINAL
CLR	CLEAR OR CLEARANCE	NS	NEAR SIDE
CMU	CONCRETE MASONRY UNIT	NTS	NOT TO SCALE
COL	COLUMN	NW	NORMAL WEIGHT
COMP	COMPRESSION	NWC	NORMALWEIGHT CONCRETE
CONC	CONCRETE	OC	ON CENTER
CONN	CONNECTION(S)	OD	OUTSIDE DIAMETER
CONST	CONSTRUCTION	OF	OUTSIDE FACE
CONT	CONTINUOUS	OH	OPPOSITE HAND
db	REINFORCING BAR DIAMETER	OPNG(S)	OPENING(S)
DBL	DOUBLE	OPP	OPPOSITE
DEG	DEGREE(S)	OSL	OUTSTANDING LEG
DET	DETAIL	P/T	POST-TENSIONED
DIA	DIAMETER	PC	PIECE
DIAG	DIAGONAL	PCY	POUNDS PER CUBIC YARD
DIM(S)	DIMENSION(S)	PERP	PERPENDICULAR
DL	DEAD LOAD	PG	PLATE GIRDER
DWG(S)	DRAWING(S)	PL	PLATE
DWL	DOWEL(S)	PRC	PRECAST
EA	EACH	PRLL	PARALLEL
ECC	ECCENTRICITY	PSF	POUNDS PER SQUARE FOOT
EF	EACH FACE	PSI	POUNDS PER SQUARE INCH
EL	ELEVATION	PT	POINT
ELEC	ELECTRICAL	RAD	RADIUS
ENGR	ENGINEER	REF	REFERENCE
EOS	EDGE OF SLAB	REINF	REINFORCE(D) (ING) OR (MENT)
EQ	EQUAL	REQD	REQUIRED
EQUIP	EQUIPMENT	SCHED	SCHEDULE(D)
EW	EACH WAY	SDL	SUPERIMPOSED DEAD LOAD
EXP	EXPANSION	SECT	SECTION
EXST	EXISTING	SER	STRUCTURAL ENGINEER OF RECORD
EXT	EXTERIOR		
F/F	FACE TO FACE	SF	SQUARE FOOT (FEET)
FIN	FINISH(ED)	SHT	SHEET
FLR	FLOOR	SIM	SIMILAR
FND	FOUNDATION	SOG	SLAB ON GRADE
FP	FIREPROOF(ING)	SP	SPACE
FS	FAR SIDE	SPEC(S)	SPECIFICATION(S)
FTG	FOOTING	STD	STANDARD
GA	GAGE, GAUGE	STL	STEEL
GALV	GALVANIZED	STR	STRUCTURE
GB	GRADE BEAM	STRCTL	STRUCTURAL
GEN	GENERAL	SYM	SYMMETRICAL
GR	GRADE	T	TENSION
HK	HOOK	T&B	TOP AND BOTTOM
HORIZ	HORIZONTAL	T/	TOP OF
HP	HIGH POINT	TEMP	TEMPERATURE OR TEMPORARY
HT	HEIGHT	TEN	TENSION
ID	INSIDE DIAMETER	THK	THICK OR THICKNESS
IF	INSIDE FACE	TYP	TYPICAL
INFO	INFORMATION	UON	UNLESS OTHERWISE NOTED
INT	INTERIOR	V	SHEAR
INTRM	INTERMEDIATE	VERT	VERTICAL
JST(S)	JOIST(S)	VIF	VERIFY IN FIELD
JT	JOINT	W/	WITH
K	KIPS (1,000 POUNDS)	W/O	WITHOUT
KLF	KIP PER LINEAR FOOT	WD	WOOD
KSF	KIP PER SQUARE FOOT	WP	WORK POINT
LL	LIVE LOAD	WPFG	WATERPROOFING
LLH	LONG LEG HORIZONTAL	WS	WATERSTOP
LLV	LONG LEG VERTICAL	WWR	WELDED WIRE REINFORCEMENT

DEPT OF BLDGS 121191183 Job Number
ES486303744 Scan Code

HUDSON YARDS VESSEL

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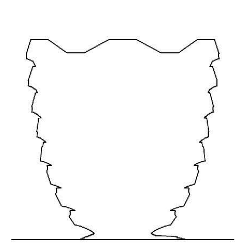
NEW YORK, NY



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No.	Issue	Date
04	NYC DOB FILING	20 MAY 2016
03	DOCUMENT ISSUE 03	20 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 05/20/16
Project No. 731
Drawn By
Sheet Number
HYE-VS-S-002

STATE OF NEW YORK · ELI B. GOTTLIEB · 080894 · LICENSED PROFESSIONAL ENGINEER

Damian Titus
NYC Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

Drawing Title
STRUCTURAL GENERAL NOTES

Drawing Number / B-SCAN Drawing Number
S-002.00
SHEET 2 OF 34

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Add-on Art Collection 03152015 Job Number Rush Order

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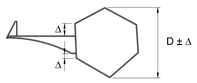
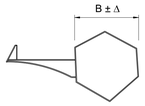


Δ = ± 3mm ($\frac{1}{8}$")

WIDTH OF FLANGES



Δ = ± 3mm ($\frac{1}{8}$")

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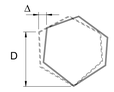
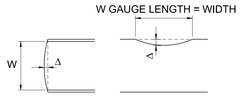


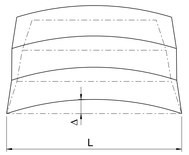
Δ = D/300 OR 3mm ($\frac{1}{8}$")
(WHICHEVER IS GREATER)

PLATE DISTORTION



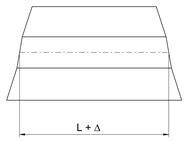
Δ = W/150 OR 3mm ($\frac{1}{8}$")

WEB OR FLANGE STRAIGHTNESS



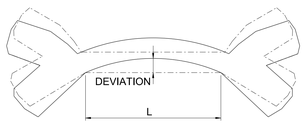
Δ = L/1000 OR 3mm Δ = ± 3mm ($\frac{1}{8}$")

LENGTH (ON CENTRE LINE)



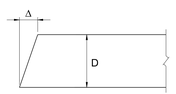
Δ = 3mm ($\frac{1}{8}$")

CURVED OR CAMBERED



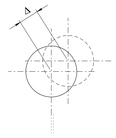
DEVIATION = L/1000 OR 6mm ($\frac{1}{4}$")

SQUARENESS OF ENDS
(FOR FULL CONTACT BEARING)



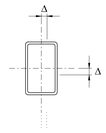
Δ = D/1000

POSITION OF HOLES



Δ = 1mm ($\frac{1}{16}$")

POSITION OF VESSEL AT BASE

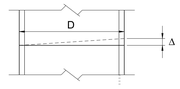


Δ = 5mm ($\frac{3}{16}$")

LEVEL OF COLUMN AT BASE

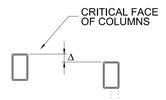
Δ = 5mm ($\frac{3}{16}$")

GAP BETWEEN BEARING SURFACES



Δ = (D/1000) + 1mm ($\frac{1}{16}$")

ALIGNMENT OF ADJACENT PERIMETER COLUMNS



Δ = 7mm ($\frac{9}{32}$")

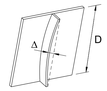
LANDING LEVEL

Δ = 5mm ($\frac{3}{16}$")

WEB STIFFENERS (STRAIGHTNESS IN PLANE WITH PLATE AFTER WELDING)

Δ = D/500 OR 3mm ($\frac{1}{8}$") WHICHEVER IS GREATER

WEB STIFFENERS (STRAIGHTNESS OUT OF PLANE TO PLATE AFTER WELDING)



Δ = D/250 OR 3mm ($\frac{1}{8}$") WHICHEVER IS GREATER

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Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

HUDSON YARDS VESSEL

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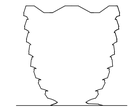
NEW YORK, NY



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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-003

Drawing Title

TOLERANCES

Drawing Number / B.SCAN Drawing Number

S-003.00

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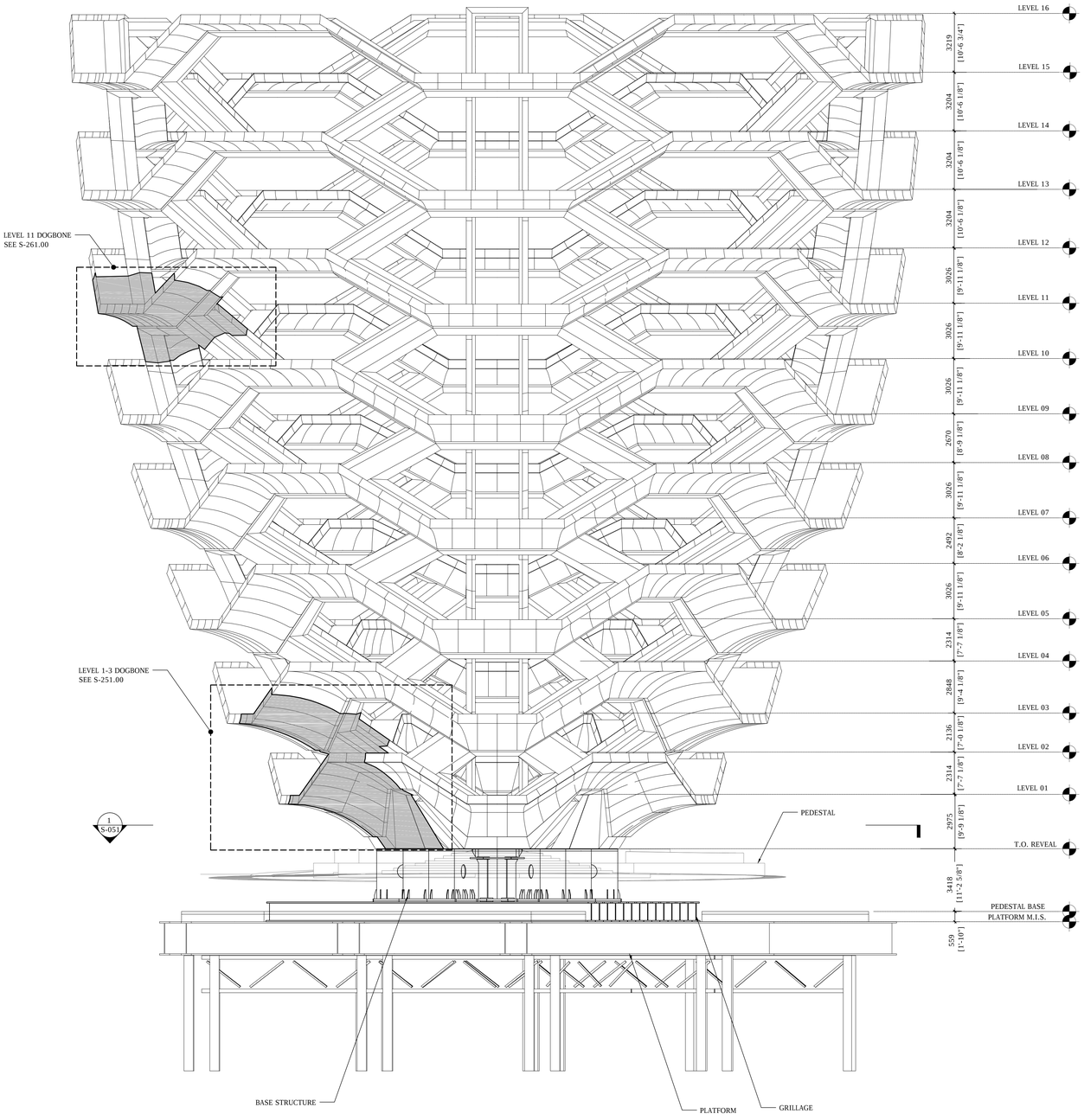

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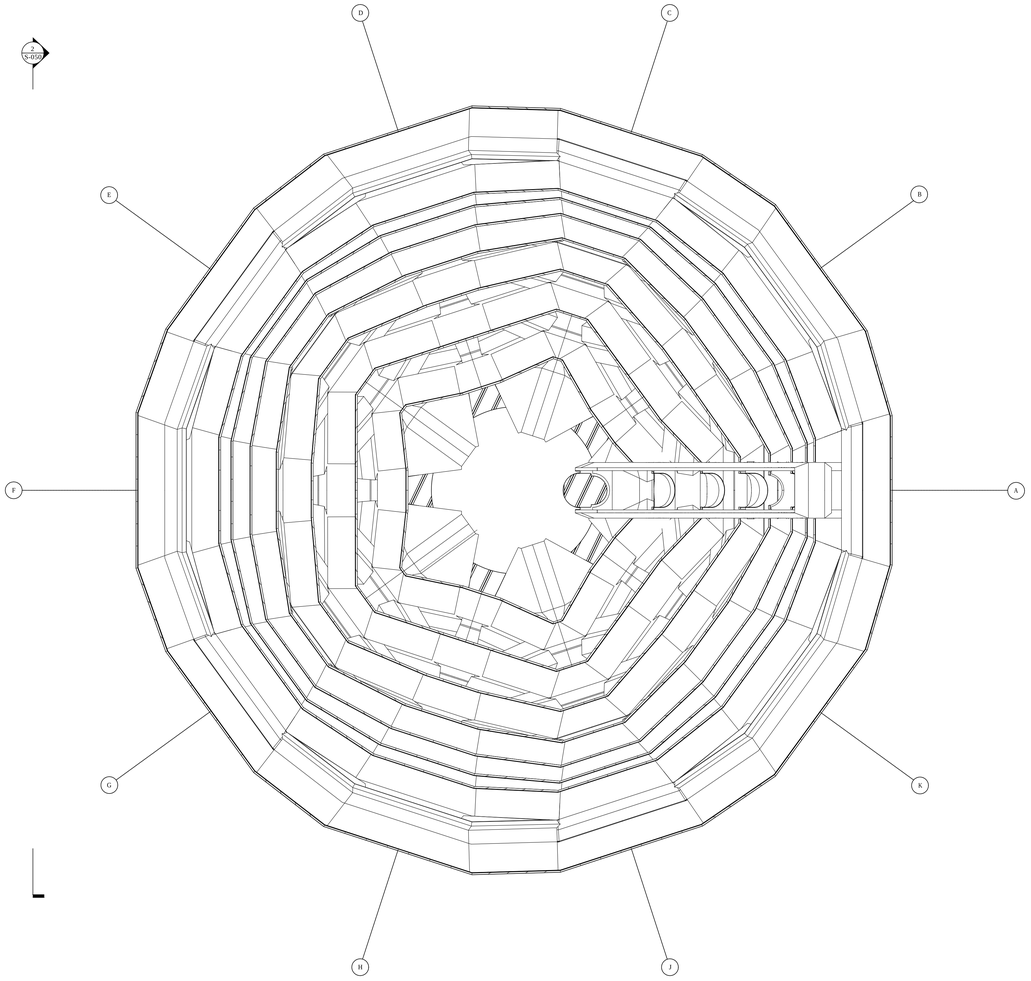

2 PLAN
NTS

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Buildings
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Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

TBD
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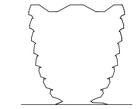
NEW YORK, NY



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03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-050

Drawing Title

GENERAL ARRANGEMENT SHEET II

Drawing Number / B.SCAN Drawing Number
S-050.00

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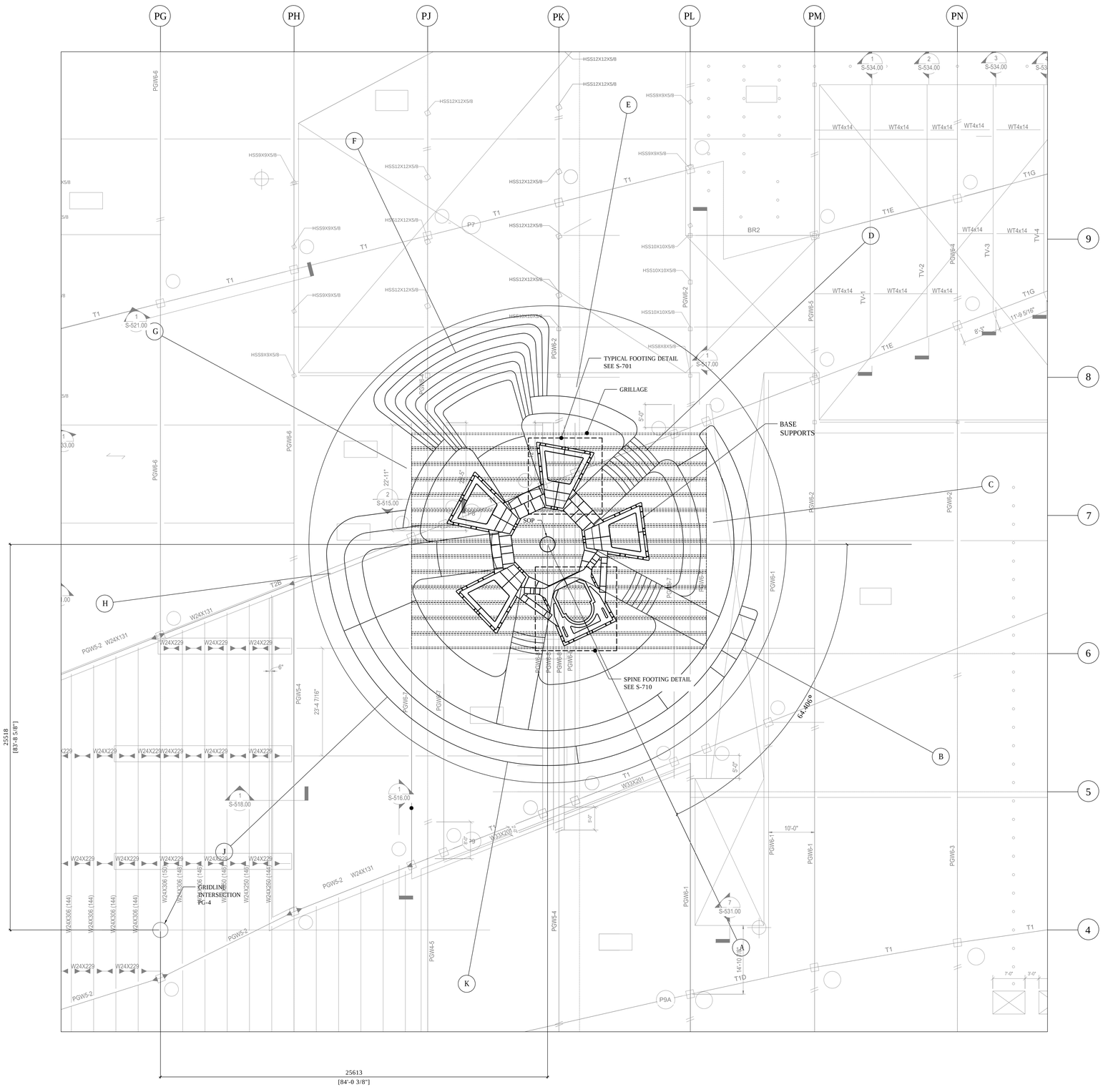

1 PLAN
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HUDSON YARDS VESSEL

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01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-051

Drawing Title

GENERAL ARRANGEMENT SHEET II

Drawing Number / I-SCAN Drawing Number

S-051.00

Damian Titus
BuildNYC
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016.
NYC Development Hub

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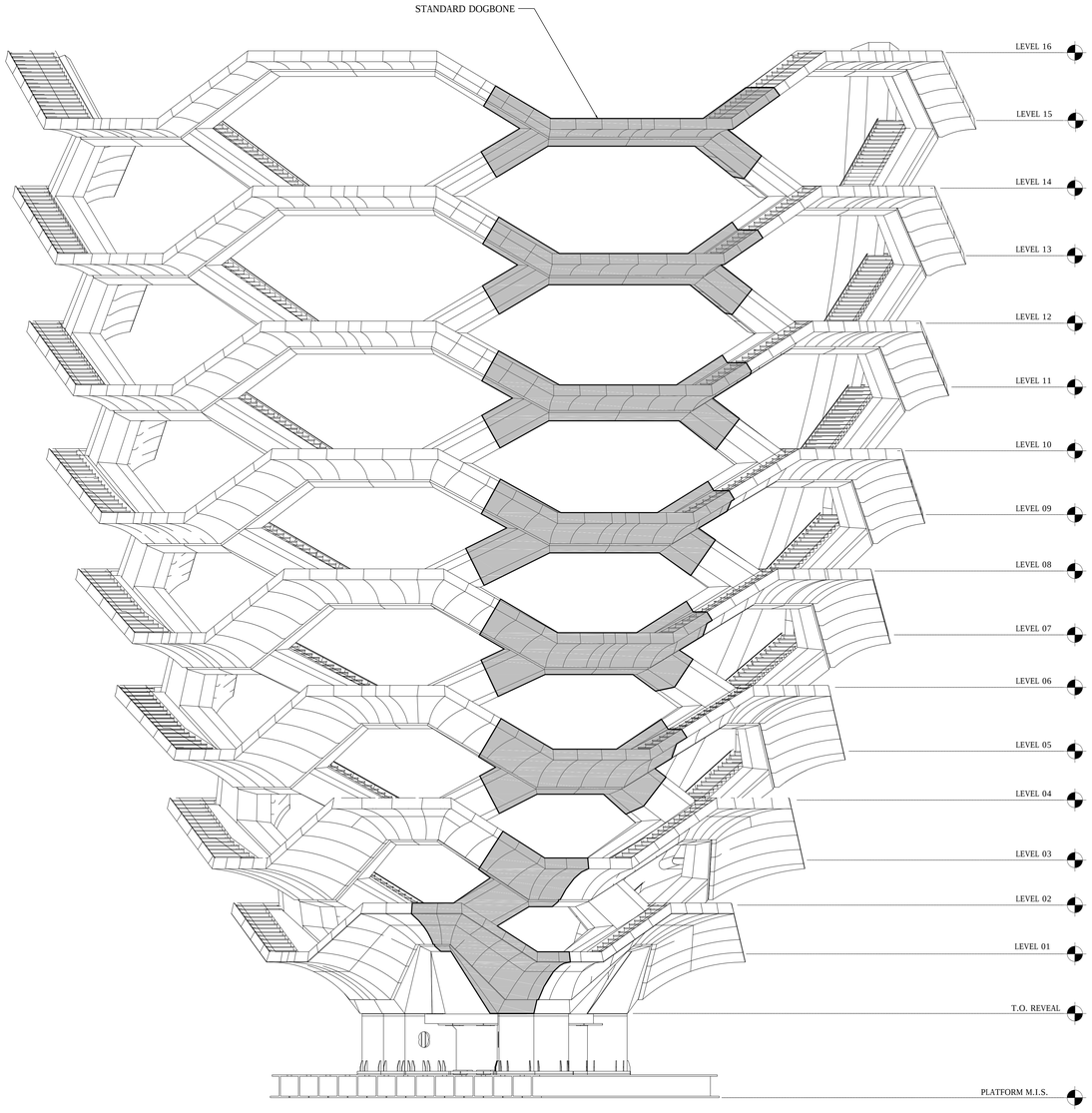
3715135 Job Code



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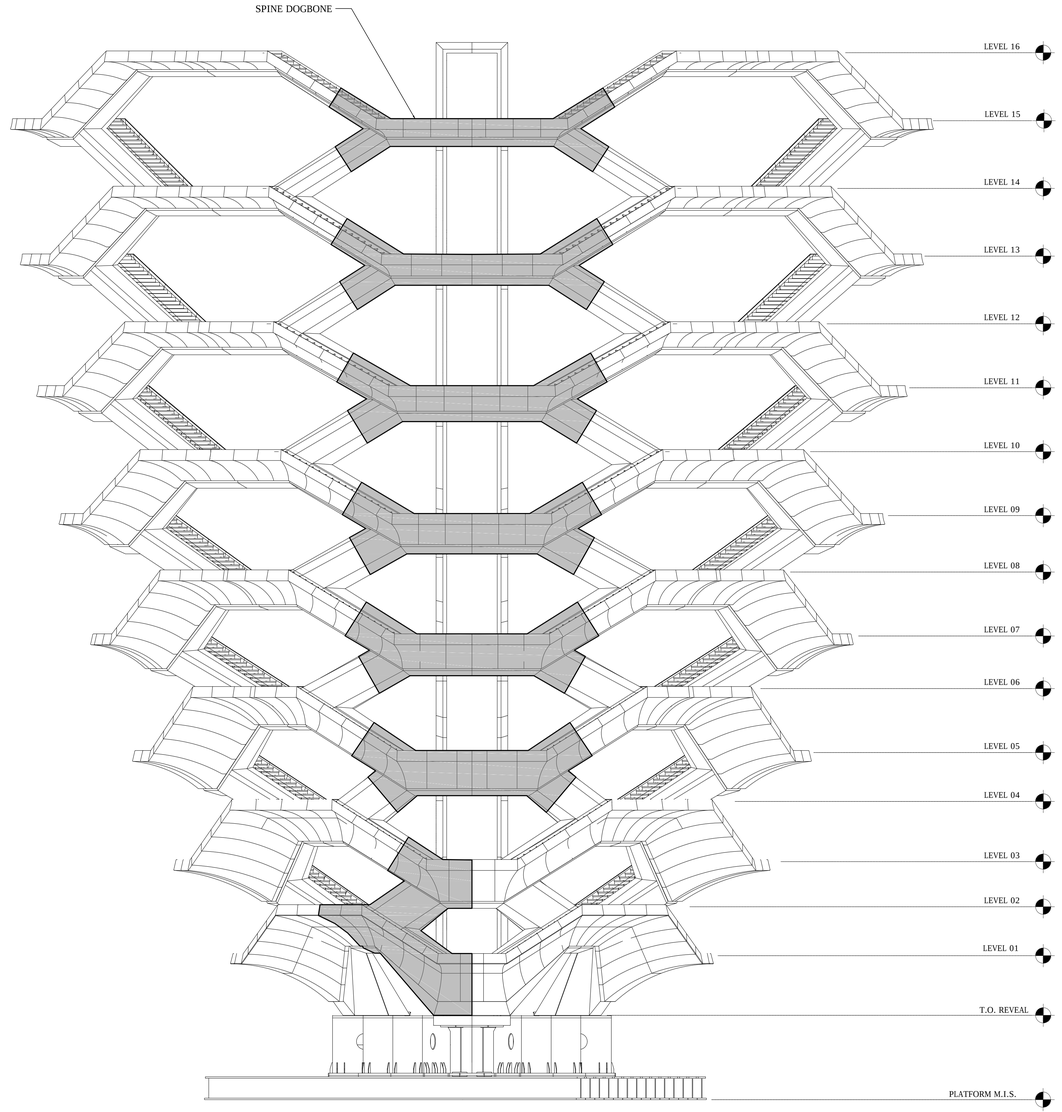

2 SPINE DOGBONE COMPONENTS
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COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

FOR VESSEL COMPONENTS THIS DRAWING SET IS TO BE CONSIDERED INTEGRAL WITH THE PROVIDED 3D MODELS AND MAY NOT BE CONSIDERED INDEPENDENTLY FROM THE MODELS. THE CONTRACTOR IS TO BASE THEIR BID UPON INFORMATION PROVIDED IN BOTH THE DRAWINGS AND 3D MODELS. IN MATTERS OF FORM AND GEOMETRY THE THREE DIMENSIONAL MODEL TAKES PRECEDENCE IN THE INSTANCE OF A DISCREPANCY BETWEEN DRAWING AND MODEL.

IN ALL OTHER MATTERS THE CONTRACTOR SHALL SEEK THE OPINION OF THE ARCHITECT AND SER TO RESOLVE THE DISCREPANCY.

Christian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
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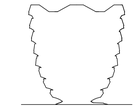
HUDSON YARDS VESSEL

TBD
XXX
NEW YORK, NY



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Related Companies
60 Columbus Circle
New York, NY 10023
Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
320 Park Avenue, 17th Floor
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77 Water Street
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Tel: 212.896.3000

No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-052

Drawing Title

GENERAL ARRANGEMENT SHEET III

Drawing Number / B-SCAN Drawing Number

S-052.00

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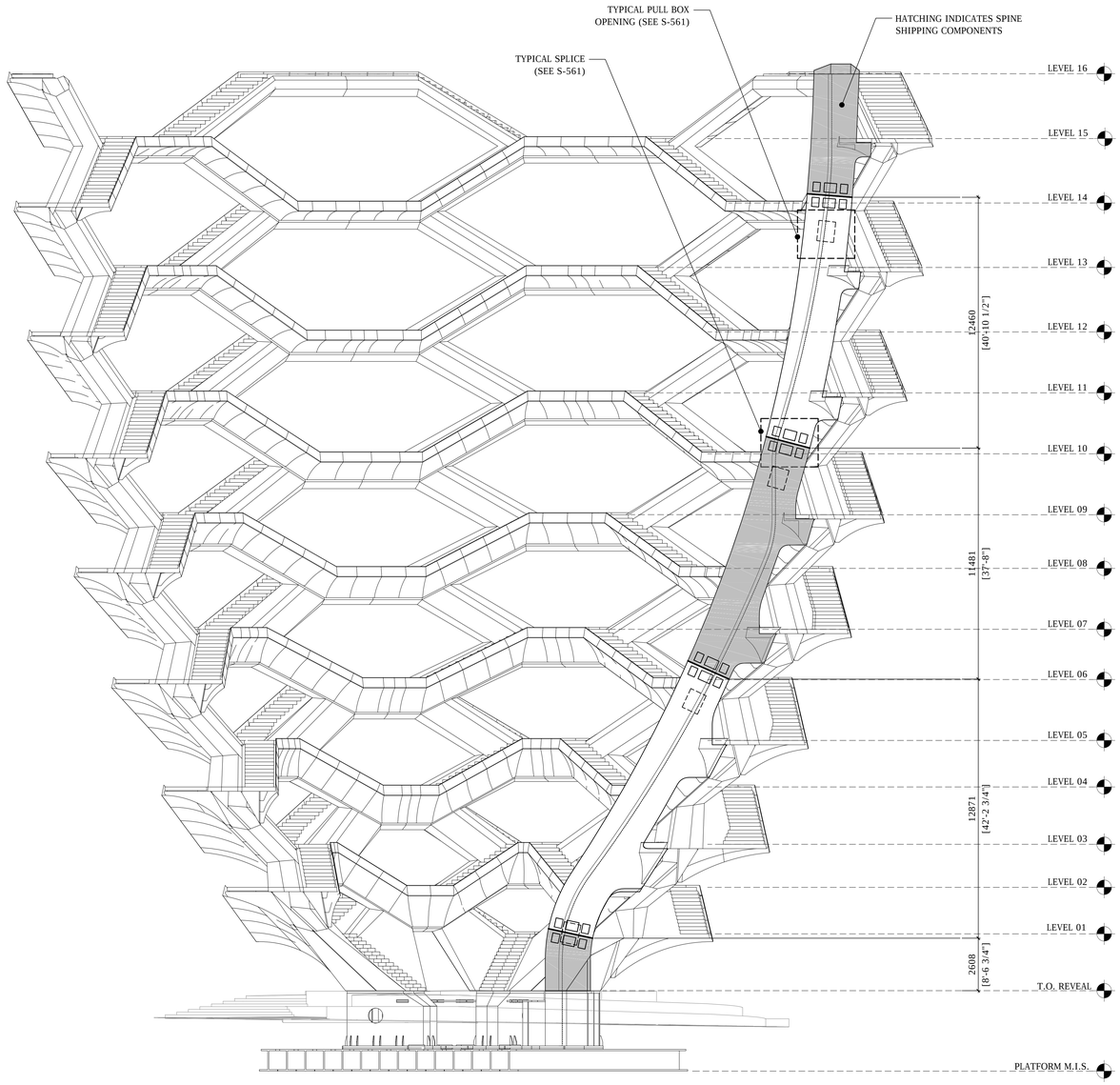

1 SECTION
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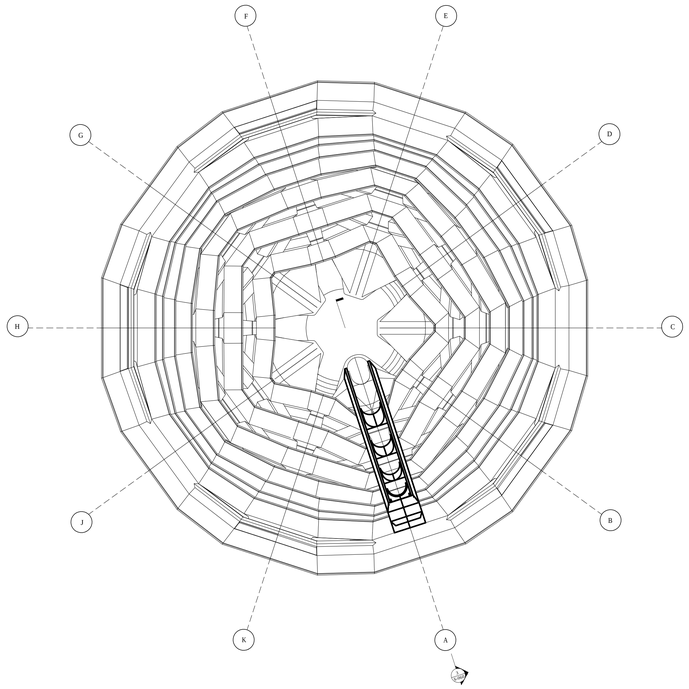

2 PLAN
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COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

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REFER TO S-560 FOR SPLICE DETAILS.

Damian Titus
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Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

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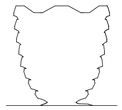
NEW YORK, NY



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03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number
HYE-VS-S-060
Drawing Title
GENERAL ARRANGEMENT SPINE
Drawing Number / B-SCAN Drawing Number
S-060.00

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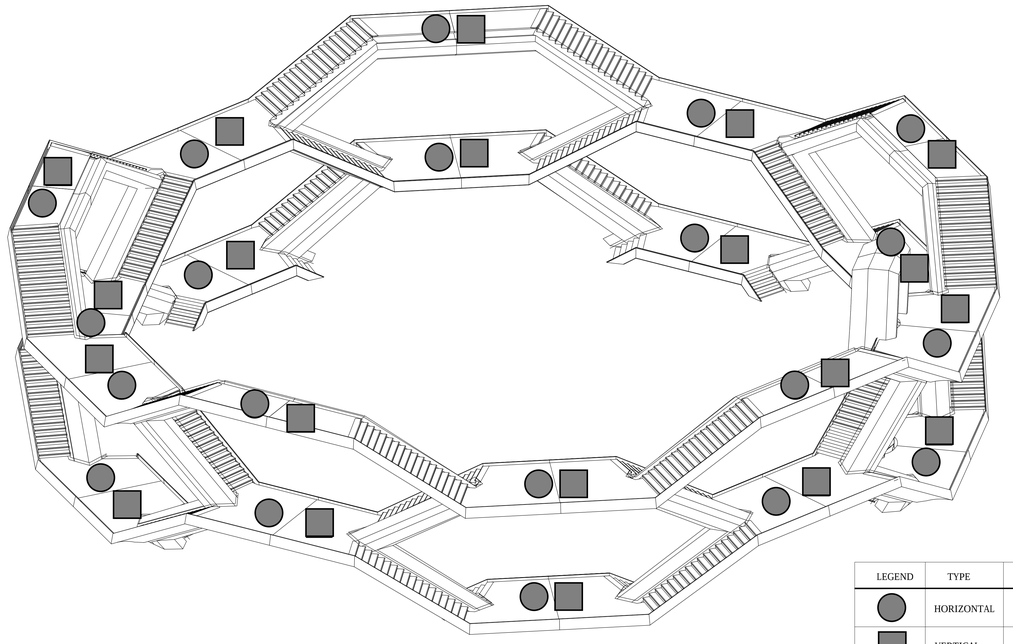
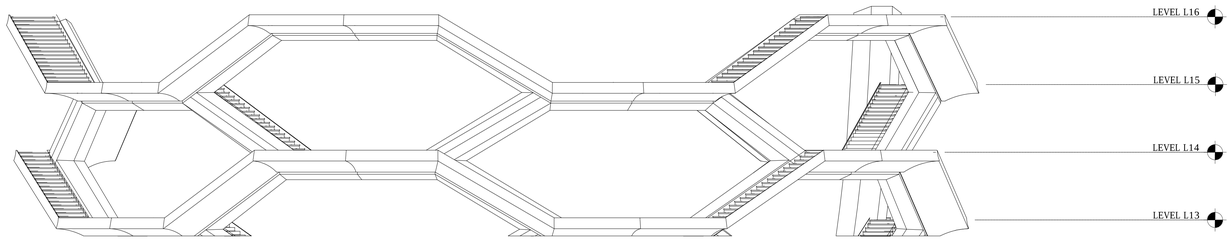
Kind of Activity 03172015DI Job Number Sheet Code



LEGEND	TYPE	MASS	QUANTITY
●	HORIZONTAL	6000 KG	20
■	VERTICAL	6000 KG	20

1 AXONOMETRIC VIEW OF UPPER LEVELS
PRELIMINARY TMD LAYOUT



2 ELEVATION
1:100

NOTES:
-THE INFORMATION ON THIS DRAWING IS PRELIMINARY AND TO BE FINALIZED BASED ON DYNAMIC SIMULATION AND AN APPROVED SET OF VIBRATION CRITERIA FOR EACH INTENDED OPERATING SCENARIOS. THE FOLLOWING PARAMETERS ARE TO BE FINALIZED:
-NUMBER, SIZE, LOCATION AND PROPERTIES TO BE COORDINATED WITH TMD SUPPLIER
-ACCESS OPENINGS AND REQUIRED REINFORCEMENT
-MOUNTING DETAILS AND ACCESS FOR INSTALLATION, MAINTENANCE AND ADJUSTMENT.

COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

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Brendan Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016.
NYC Development Hub

HUDSON YARDS VESSEL

TBD
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NEW YORK, NY

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01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-070

Drawing Title

DAMPING SYSTEM

Drawing Number / I-SCAN Drawing Number

S-070.00

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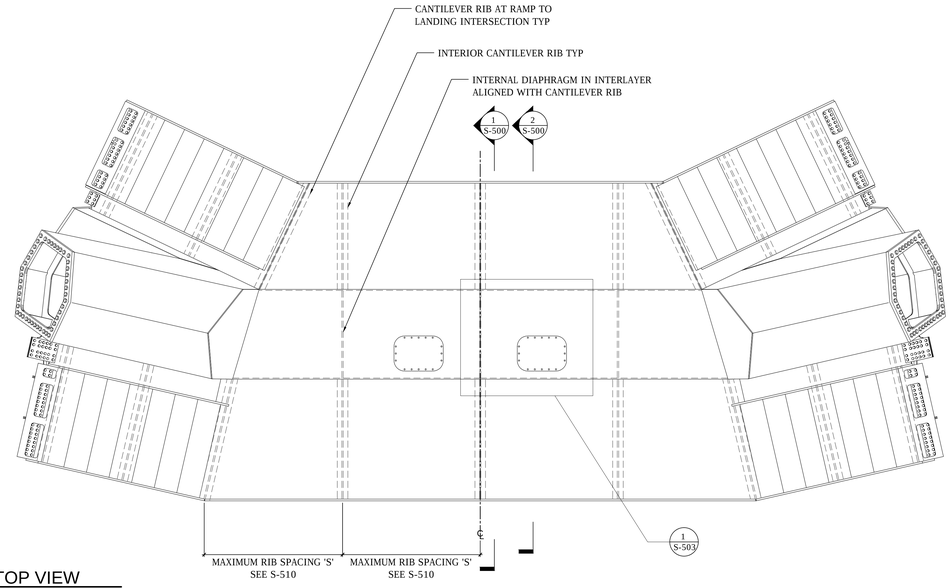

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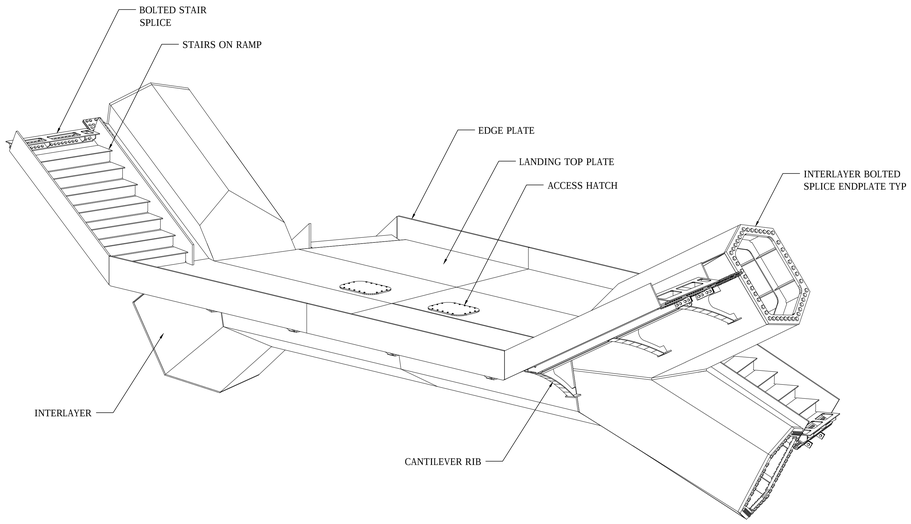
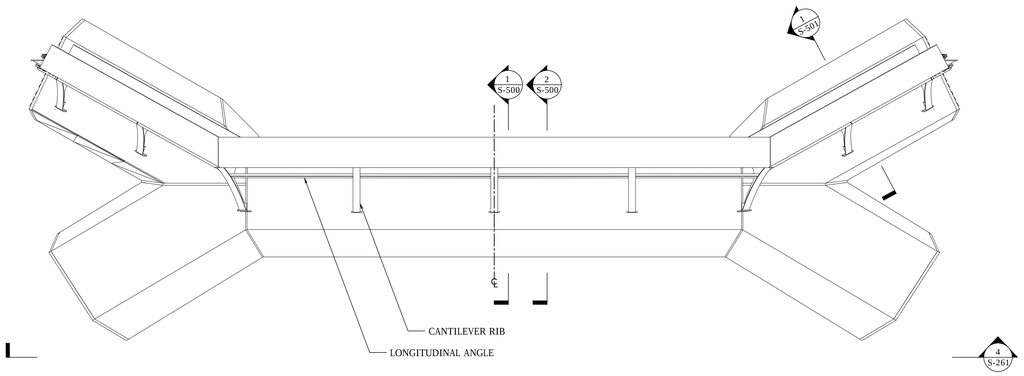


3 TOP AXONOMETRIC



2 ELEVATION
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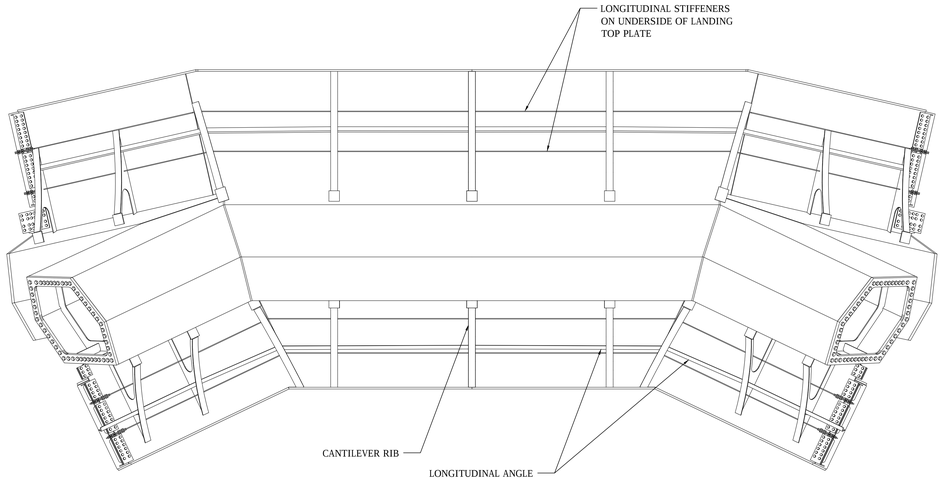

4 BOTTOM VIEW
1:30

COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

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REFER TO ARCHITECTURAL DRAWINGS FOR SOFFIT DETAILS.

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

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NEW YORK, NY

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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-261

Drawing Title

DOGBONE LEVEL 11

Drawing Number / R-SCAN Drawing Number

S-261.00

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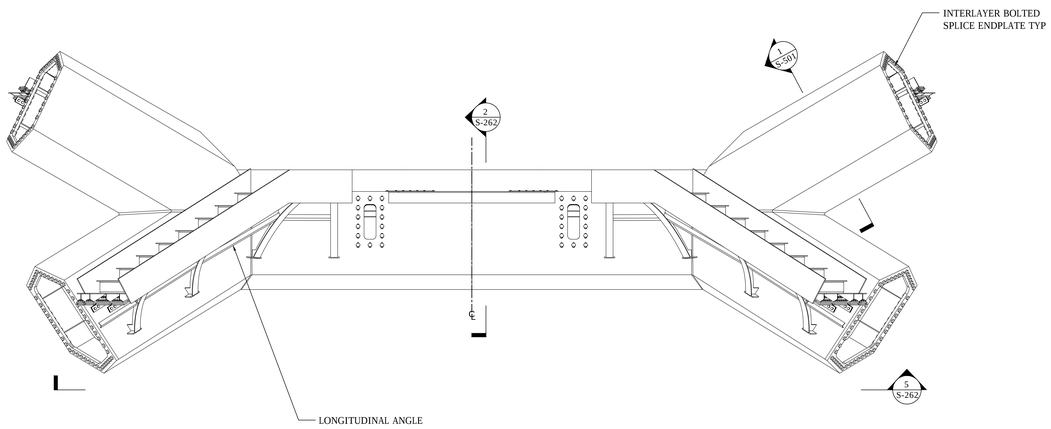
4647-06 BARCODE 3215135 Job Number
E3215135 Bar Code



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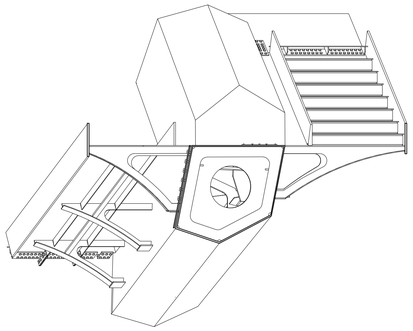

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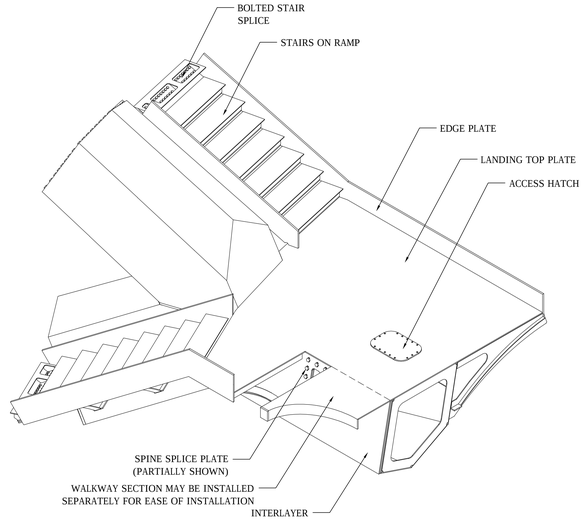

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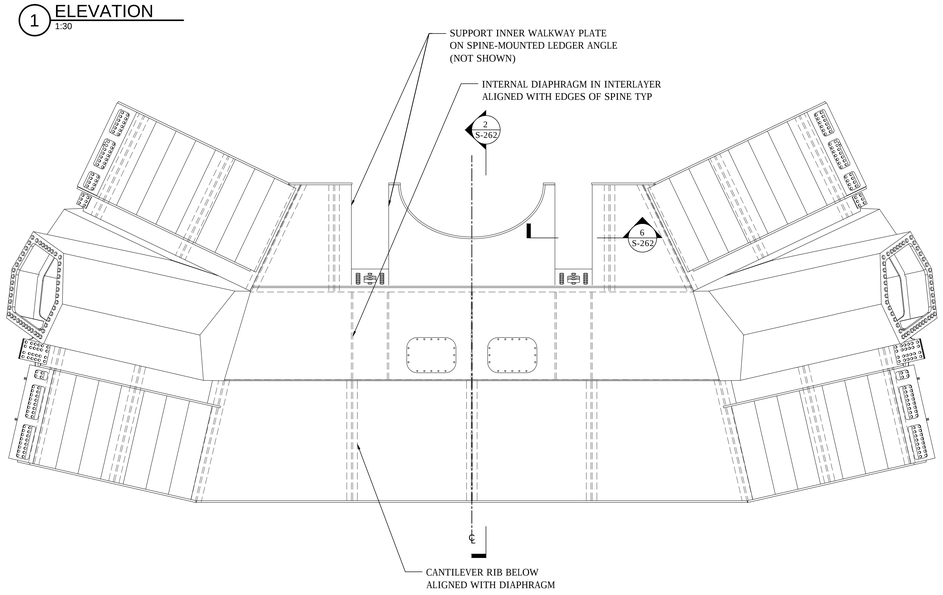

4 TOP VIEW
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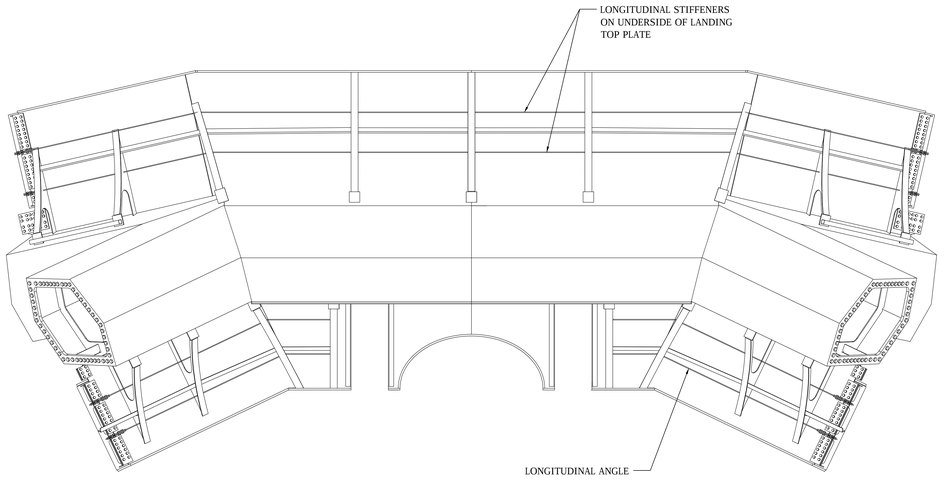

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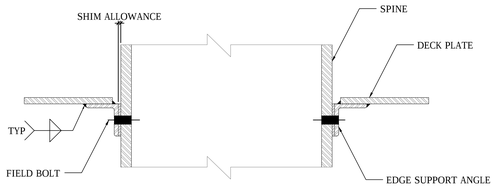

6 SECTION
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COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

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REFER TO ARCHITECTURAL DRAWINGS FOR SOFFIT DETAILS.

Damian Intus
BuildSigned
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

TBD
XXX
NEW YORK, NY

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Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-262

Drawing Title

DOGBONE LEVEL 11
SPINE

Drawing Number / B.SCAN Drawing Number

S-262.00

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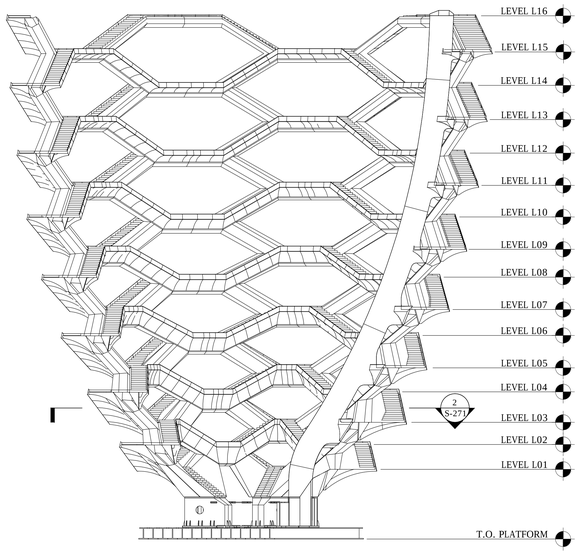

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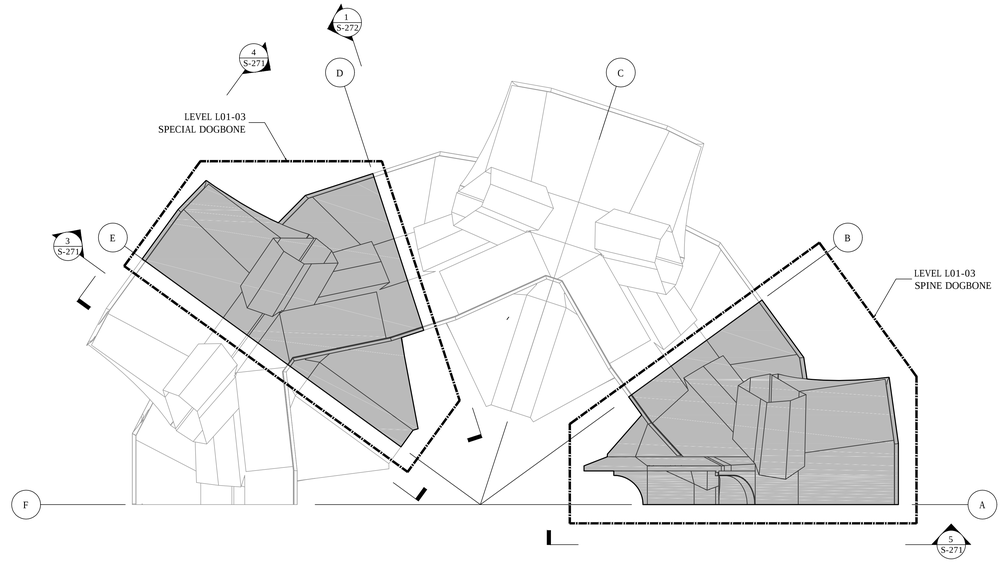

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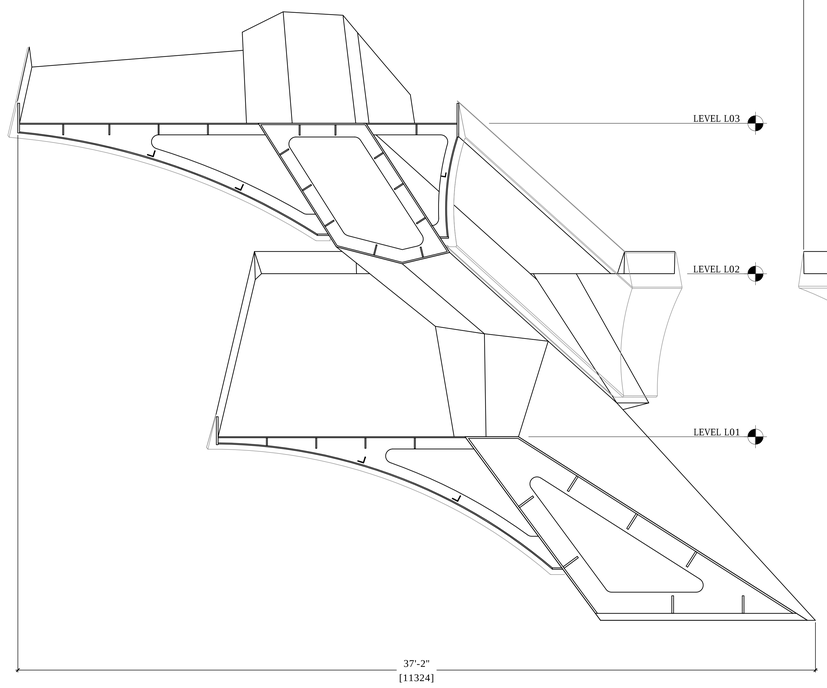

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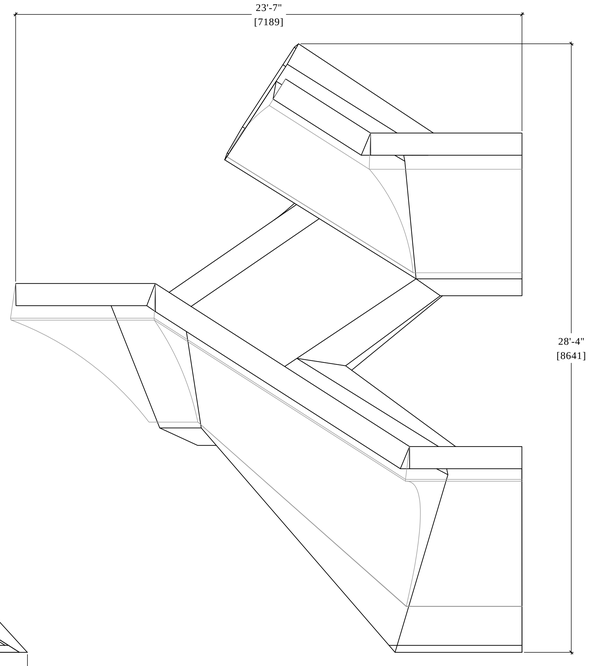

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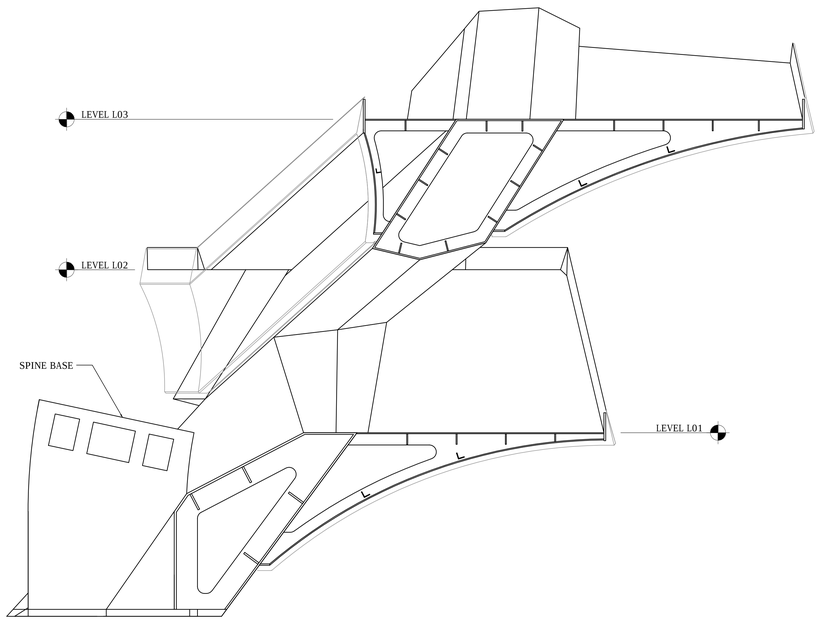

5 SECTION
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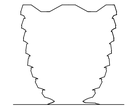
HUDSON YARDS VESSEL

TBD
XXX
NEW YORK, NY



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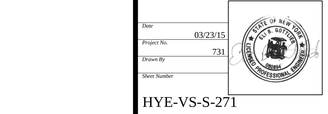
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan



Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-271

Drawing Title

SPECIAL DOGBONE
LEVEL L01-03

Drawing Number / B.SCAN Drawing Number

S-271.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

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Filename: C:\Users\MGeslig\Documents\Work\Vessel\CAD\Auto\CAD\Submittal (03172015)\DI-08 (03232015)\HYE-VS-S-271R1.dwg Plotted by: Geslig, Michael Plot Time: 3/23/2015 1:25 PM

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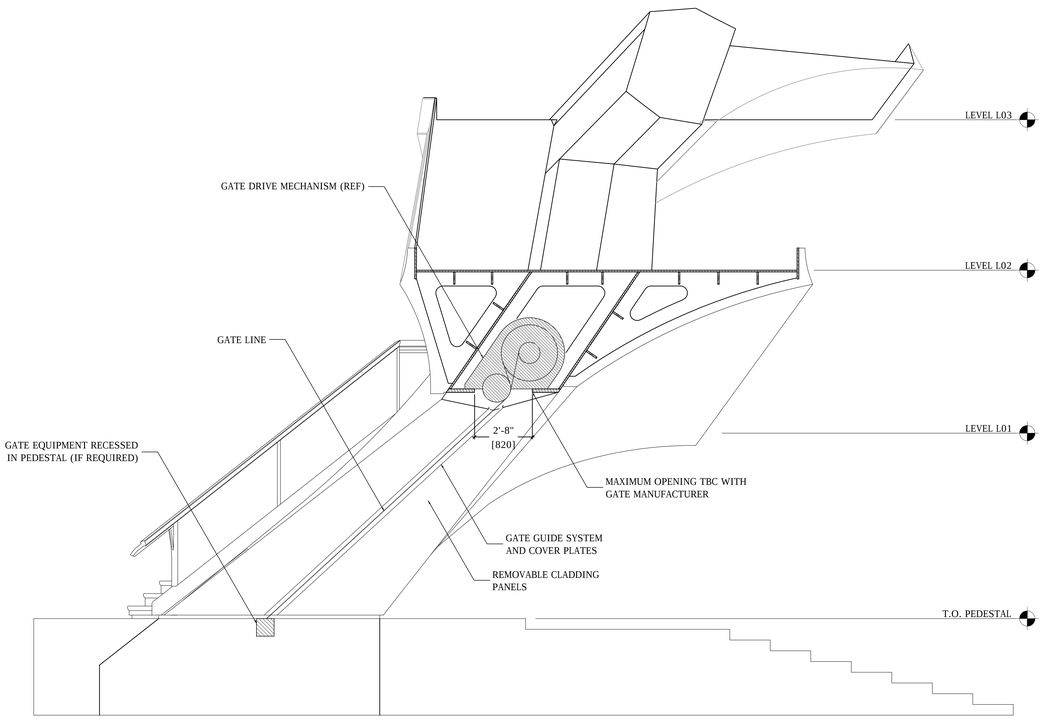
Esd1d5f2d93 Sheet Code



1 SECTION
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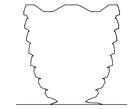
NOTES:
-THE INFORMATION ON THIS DRAWING IS PRELIMINARY AND TO BE FINALIZED BASED ON COORDINATION WITH AUTOMATIC GATE SUPPLIER. THE FOLLOWING PARAMETERS ARE TO BE FINALIZED:
-GATE OPENING DIMENSIONS
-ACCESS OPENINGS IN STRUCTURE, IF ANY, AND REQUIRED REINFORCEMENT
-MOUNTING DETAILS AND ACCESS FOR INSTALLATION, MAINTENANCE AND ADJUSTMENT.

HUDSON YARDS VESSEL

TBD
XXX
NEW YORK, NY



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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-272

Drawing Title

SPECIAL DOGBONE DETAILS

Drawing Number / B-SCAN Drawing Number
S-272.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016.
NYC Development Hub

Filename: C:\Users\MGodig\Documents\Work\Vessel\CAD\AutoCAD\Submittal 03172015\D\D.08 03322015\HYE-VS-S-272R1.dwg Plotted by: Godig, Michael Plot Time: 3/23/2015 1:25 PM

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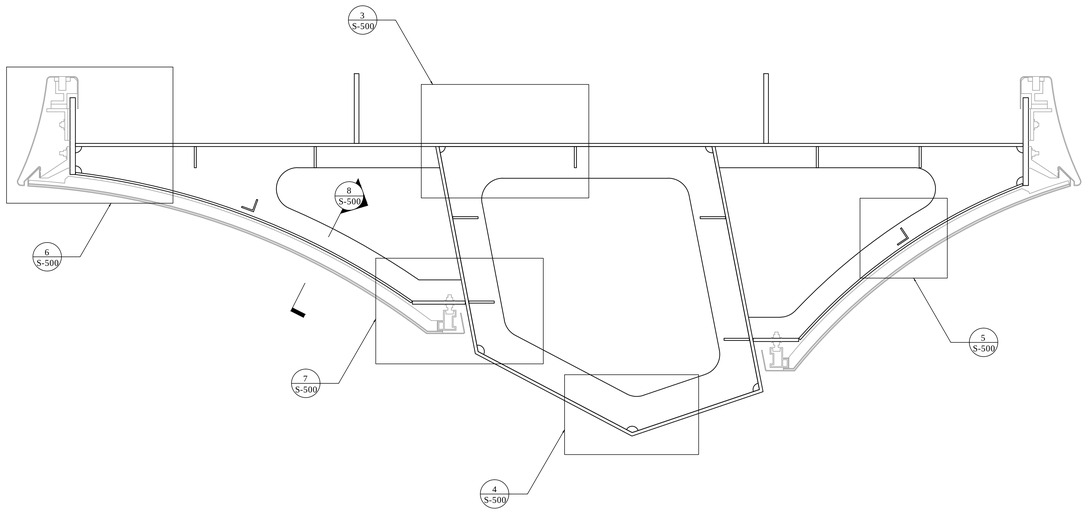

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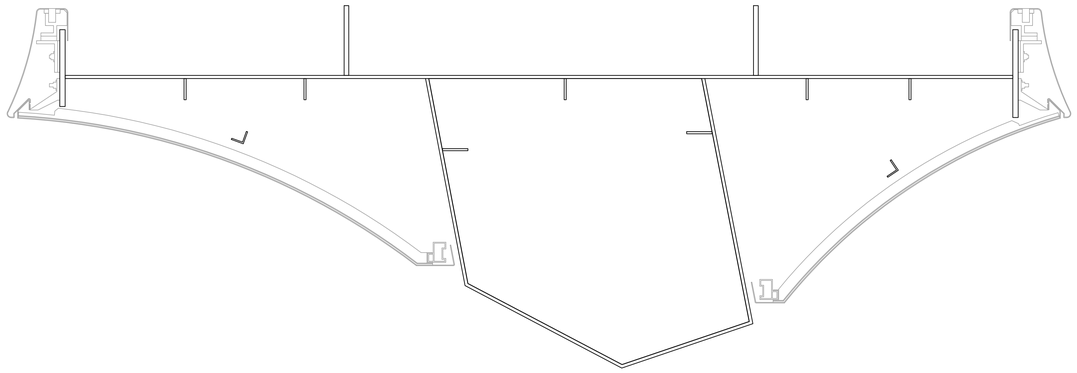

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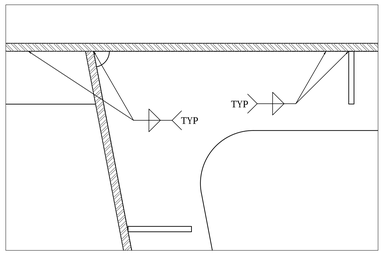

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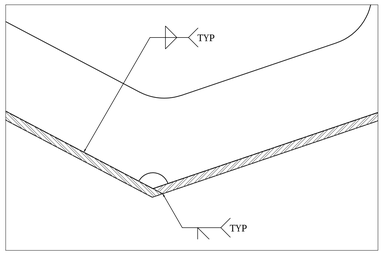

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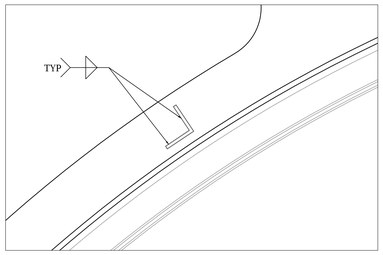

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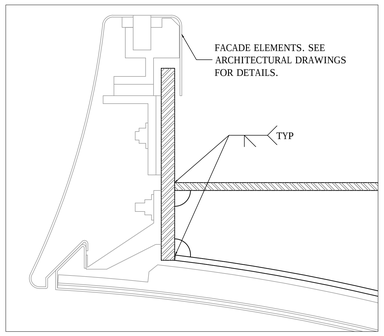

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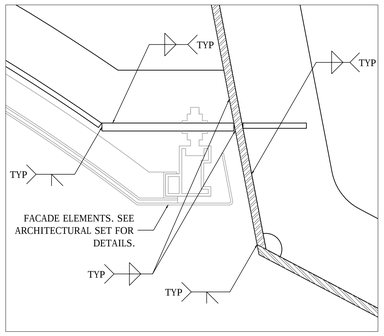

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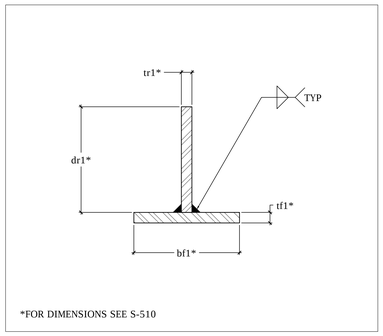

8 DETAIL
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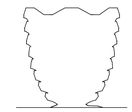
YARDS VESSEL

TBD
XXX
NEW YORK, NY



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No.	Issue	Date
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-500
Drawing Title

TYPICAL SECTIONS
DETAILS I

Drawing Number / A/SCAN Drawing Number
S-500.00

Damian Titus
NYC Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

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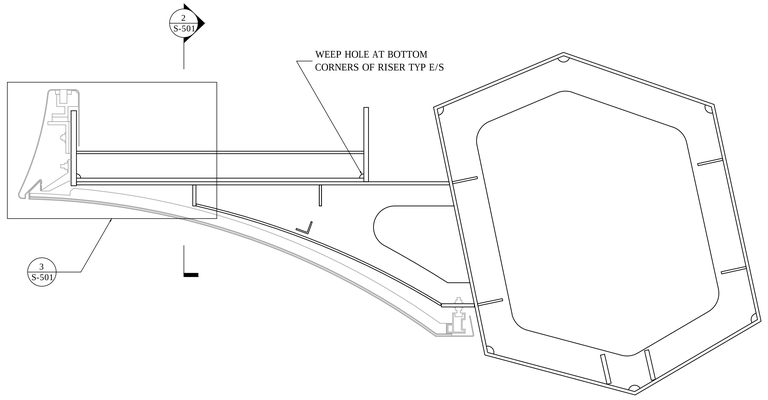
Filename: C:\Users\MGedig\Documents\Work\Vessel\CAD\AutoCAD\Submittal 03172015\DH-08 03220151HYE-VS-S-500R3.dwg Plotted by: Gedig, Michael Plot Time: 3/23/2015 1:25 PM



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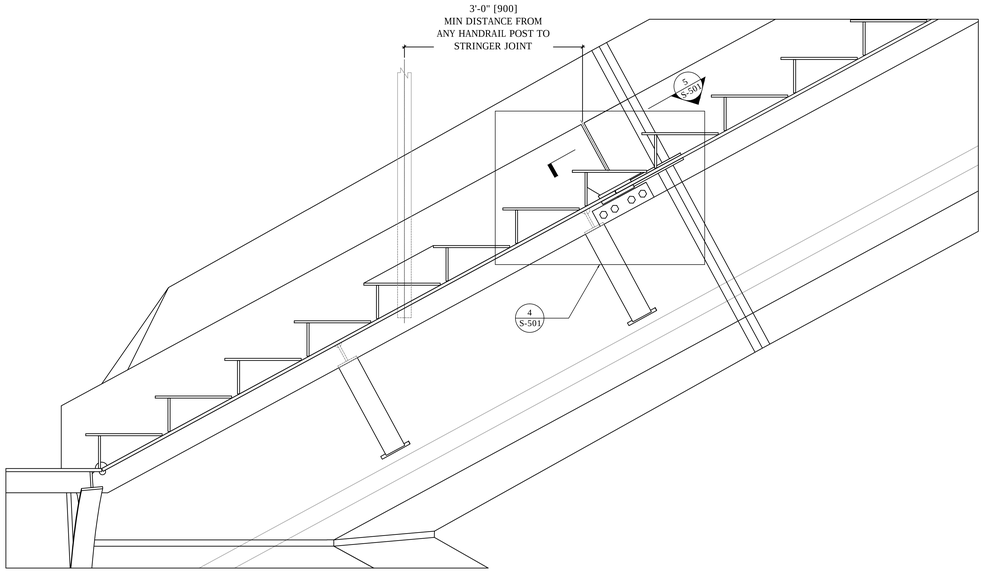

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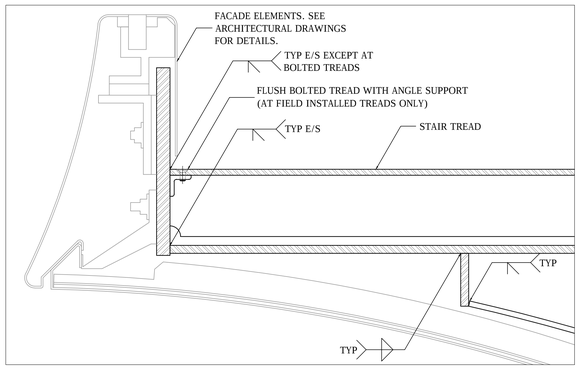

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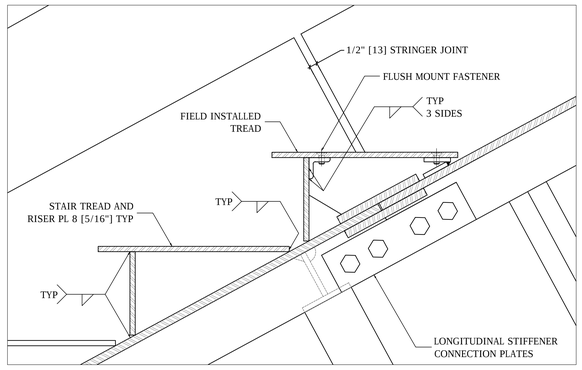

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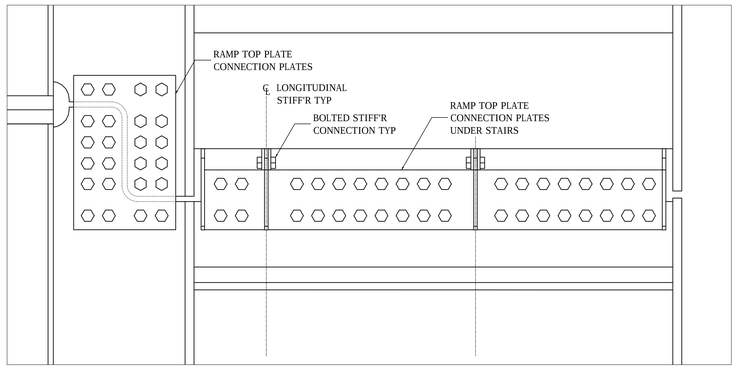

5 DETAIL
1:6

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

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XXX
NEW YORK, NY

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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-501
Drawing Title

TYPICAL SECTIONS
DETAILS II

Drawing Number / BASCAN Drawing Number
S-501.00

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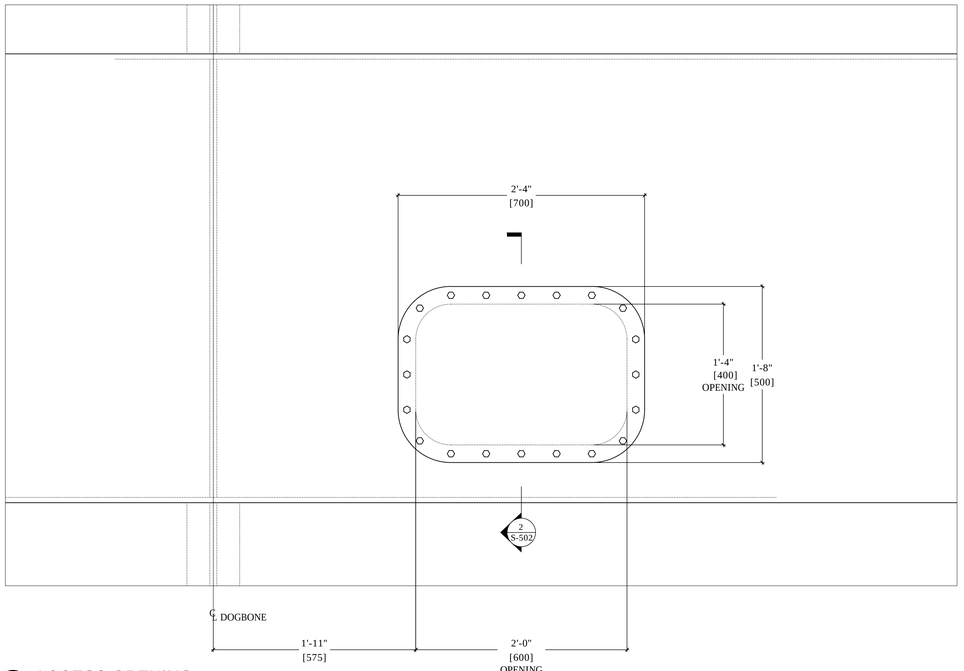

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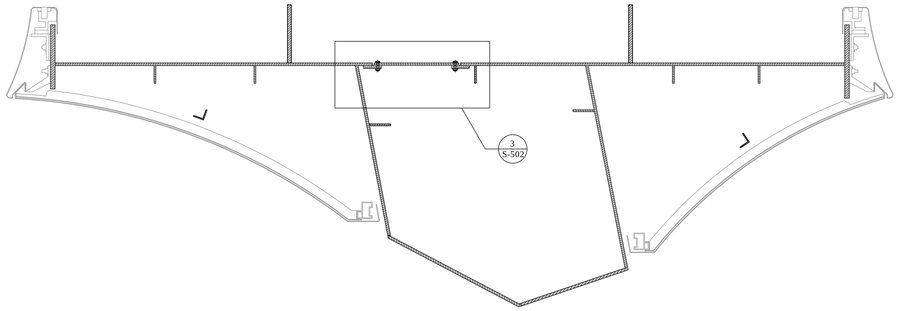

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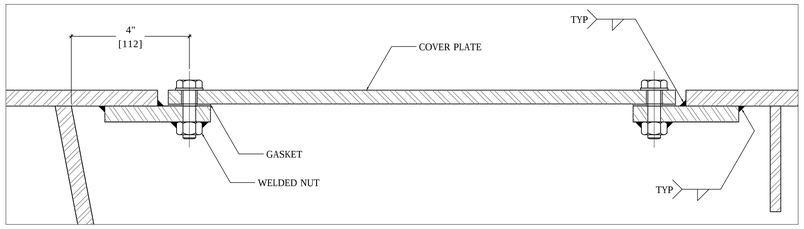

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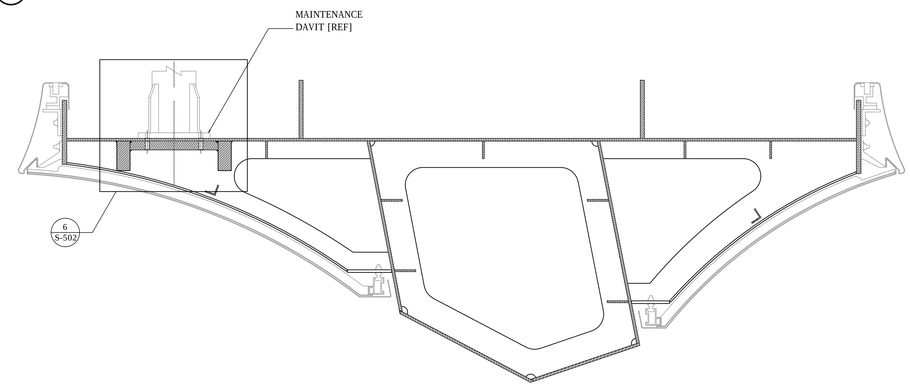

4 MAINTENANCE DAVIT
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5 SECTION
1:12

6 SECTION AT ACCESS OPENING
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7 SECTION AT ACCESS OPENING
1:4

8 SECTION AT ACCESS OPENING
1:4

HUDSON YARDS VESSEL

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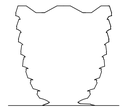

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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-502

Drawing Title

TYPICAL SECTIONS
DETAILS III

Drawing Number / B-SCAN Drawing Number

S-502.00

Damian Titus
Buildings
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Under Directive 2 of 1975
Date: 12/07/2016:
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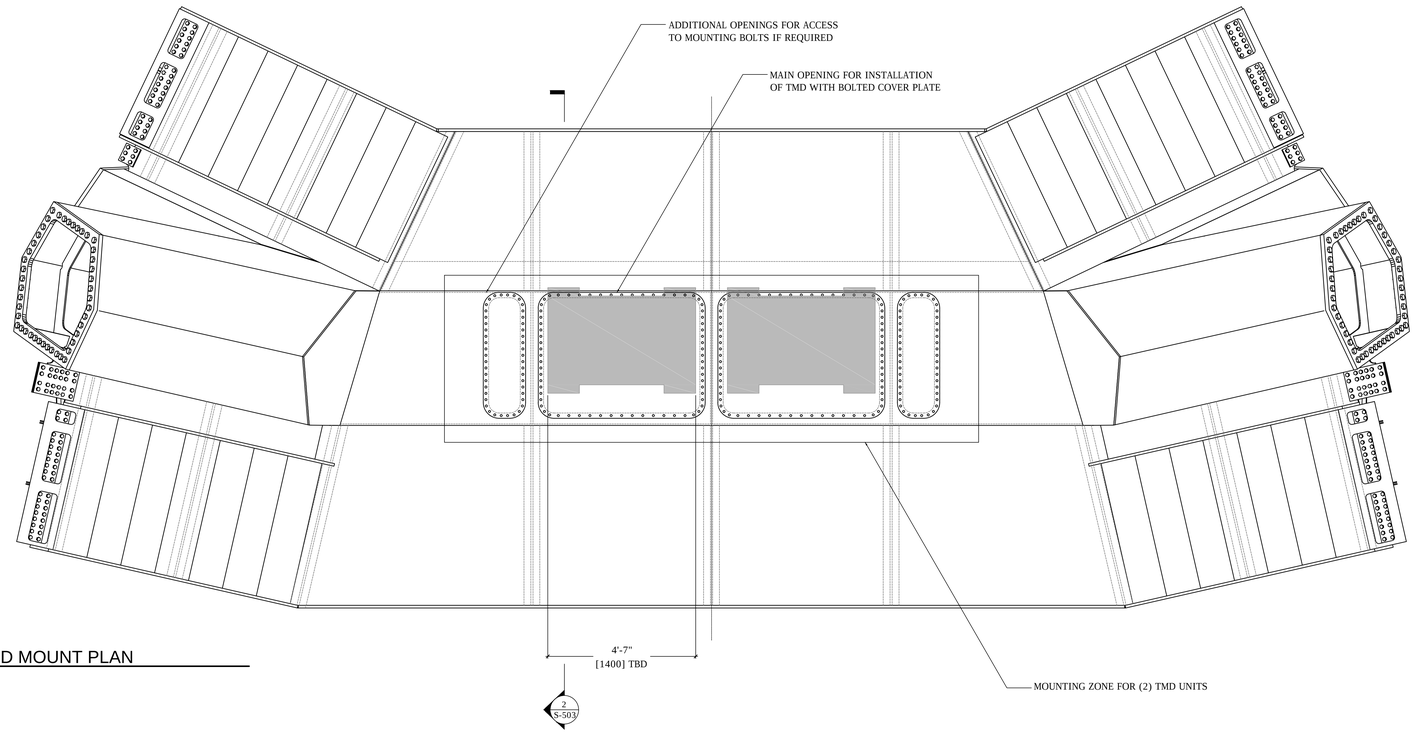

1 TMD MOUNT PLAN
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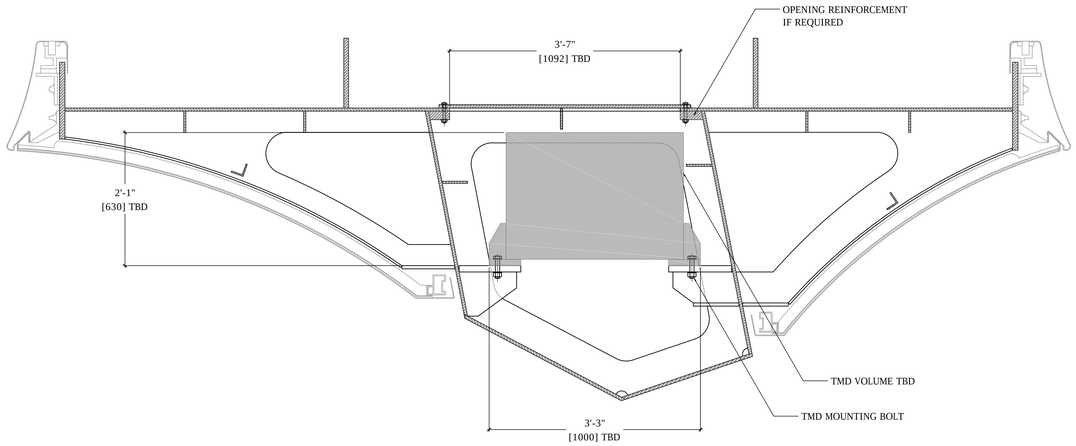

2 SECTION
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NOTES:
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  -NUMBER, SIZE, LOCATION AND PROPERTIES TO BE COORDINATED WITH TMD SUPPLIER
  -ACCESS OPENINGS AND REQUIRED REINFORCEMENT
  -MOUNTING DETAILS AND ACCESS FOR INSTALLATION, MAINTENANCE AND ADJUSTMENT.

HUDSON YARDS VESSEL

TBD
XXX
NEW YORK, NY

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02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Damian Titus
DOB Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-503
Drawing Title

TYPICAL SECTIONS
TMD MOUNT DETAILS

Drawing Number / BASCAN Drawing Number
S-503.00

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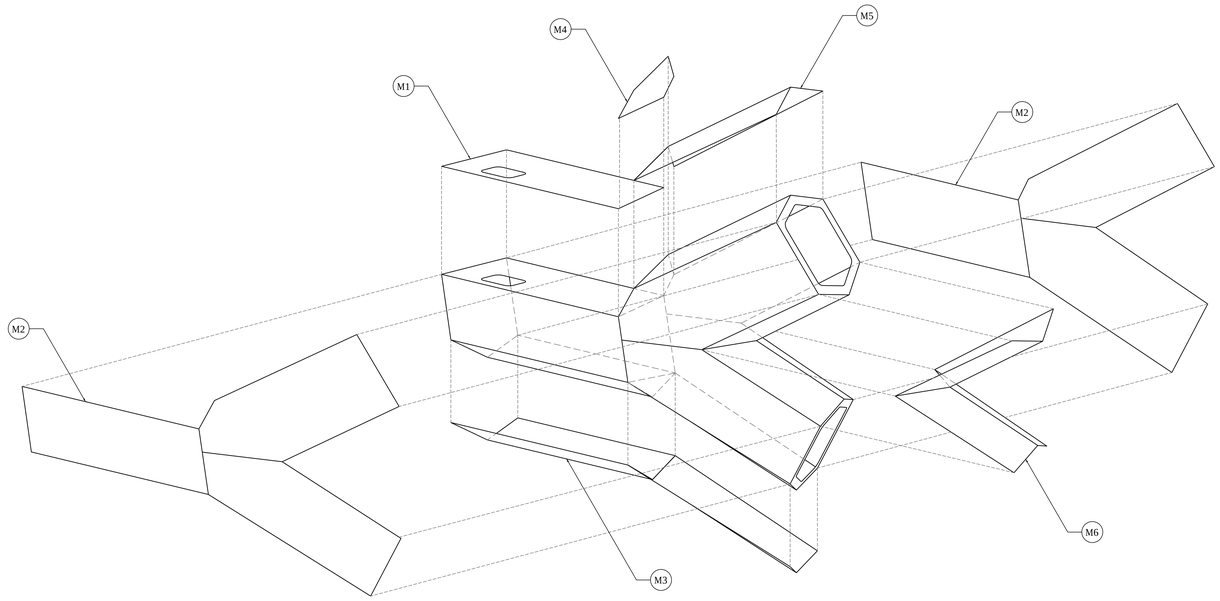
Job Number
Drawing Number



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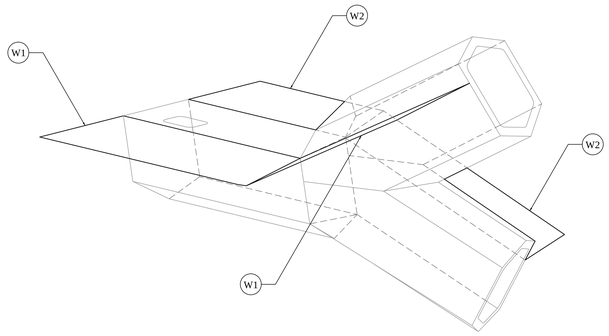

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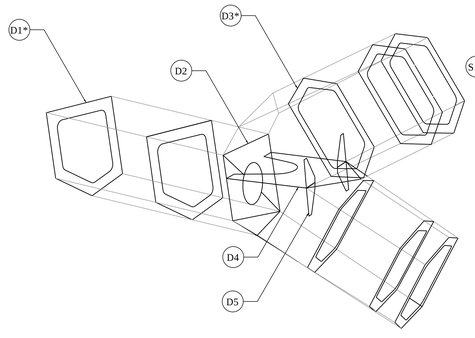
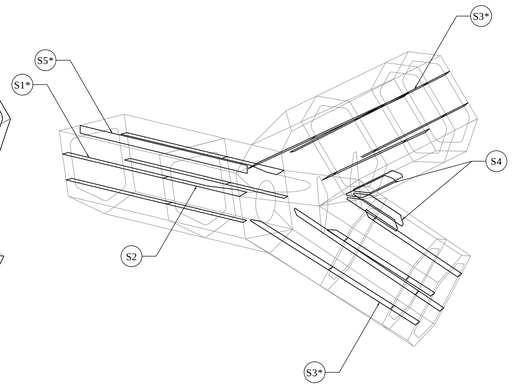


3 DIAPHRAGM PLATES
*NUMBER AND LOCATION OF PLATES IS INDICATIVE ONLY



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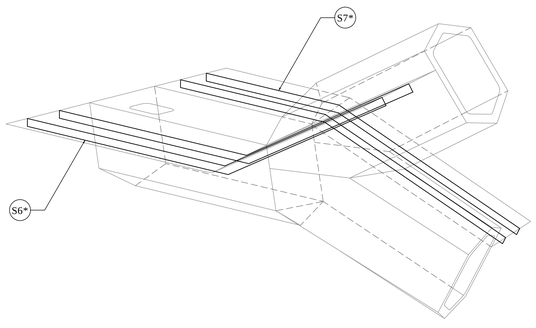

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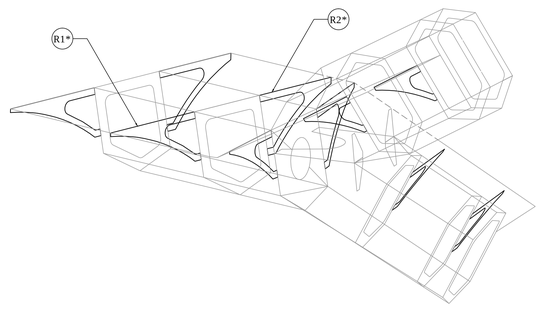
*NUMBER AND LOCATION OF PLATES IS INDICATIVE ONLY



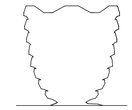
6 RIB PLATES
*NUMBER AND LOCATION OF PLATES IS INDICATIVE ONLY

	MAIN PLATES (INTERLAYER)						WALKWAY PLATES		DIAPHRAGM PLATES					STIFFENER PLATES							RIB PLATES			
LEVEL	M1	M2	M3	M4	M5	M6	W1	W2	D1	D2	D3	D4	D5	S1	S2	S3	S4	S5	S6	S7	R1 STEM	R1 FLANGE	R2 STEM	R2 FLANGE
L01	25	25	25	25	25	25	12	12	30@2000	30	30@2000	30	30	25X250@1000	30	25X250@1000	30X300	25X250@1000	12X120@500	12X120@500	12X120	12X120	12X120	12X120
L02	25	25	25	25	25	25	12	12	30@2000	30	30@2000	30	30	25X250@1000	30	25X250@1000	30X300	25X250@1000	12X120@500	12X120@500	12X120	12X120	12X120	12X120
L03	12	20	20	20	20	20	12	12	25@2000	25	25@2000	30	30	20X200@800	30	20X200@800	25X200	12X120@500	12X120@500	12X120@500	12X120	12X120	12X120	12X120
L04	12	20	20	20	20	20	12	12	25@2000	25	25@2000	30	30	20X200@800	30	20X200@800	25X200	12X120@500	12X120@500	12X120@500	12X120	12X120	12X120	12X120
L05	12	20	20	20	20	20	12	12	25@2000	25	25@2000	30	30	20X200@800	30	20X200@800	25X200	12X120@500	12X120@500	12X120@500	12X120	12X120	12X120	12X120
L06	12	20	20	20	20	20	12	12	25@2000	25	25@2000	30	30	20X200@800	30	20X200@800	25X200	12X120@500	12X120@500	12X120@500	12X120	12X120	12X120	12X120
L07	12	15	15	15	15	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100
L08	12	15	15	15	15	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100
L09	12	15	15	15	15	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100
L10	12	15	15	15	15	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100
L11	12	15	15	15	15	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100
L12	12	15	15	15	15	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100
L13	12	15	15	15	15	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100
L14	12	15	15	15	15	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100
L15	12	15	15	15	15	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100
L16	12	15	15	N/A	N/A	15	12	12	20@2000	20	20@2000	30	30	15X150@600	30	15X150@600	20X200	12X120@500	12X120@500	12X120@500	10X100	10X100	10X100	10X100

6 PLATE DIMENSIONS
FINAL PLATE CONFIGURATION TO BE BASED ON A REVIEW OF FABRICATOR DETAILS

HUDSON YARDS VESSEL

TBD
XXX
NEW YORK, NY



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Related Companies
60 Columbus Circle
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Tel: 212.801.1000 Fax: 212.801.1048

Oxford Properties Group
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Tel: 212.896.3000

No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-510

Drawing Title

TYPICAL DETAILS
PLATE DIMENSIONS

Drawing Number / B-SCAN Drawing Number

S-510.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

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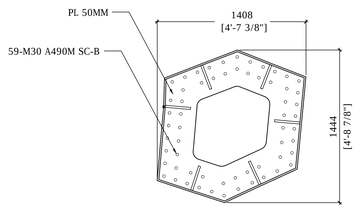

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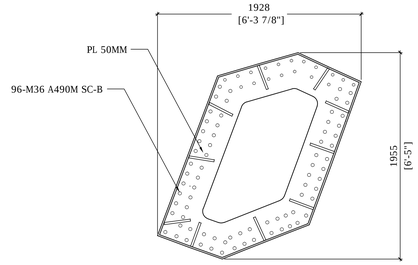

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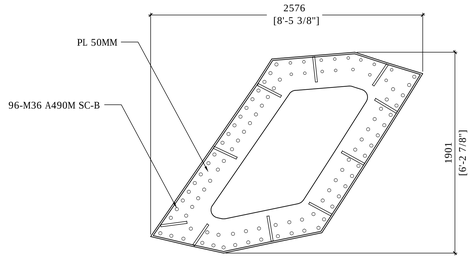

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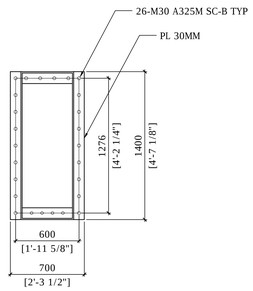

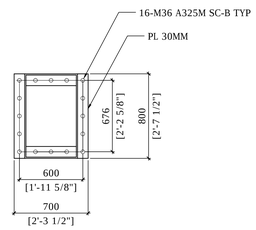

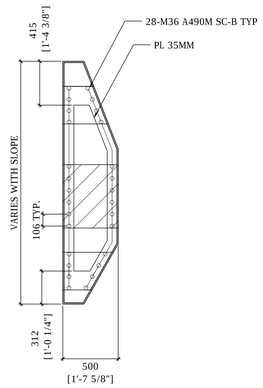

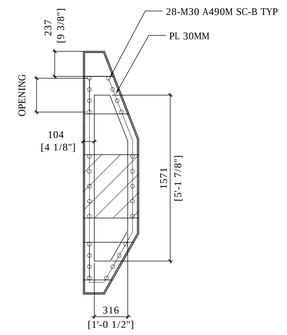

4 INTERLAYER-SPINE CONNECTION L05-L11
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5 INTERLAYER-SPINE CONNECTION L15
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6 SPINE CONNECTION L03-L09
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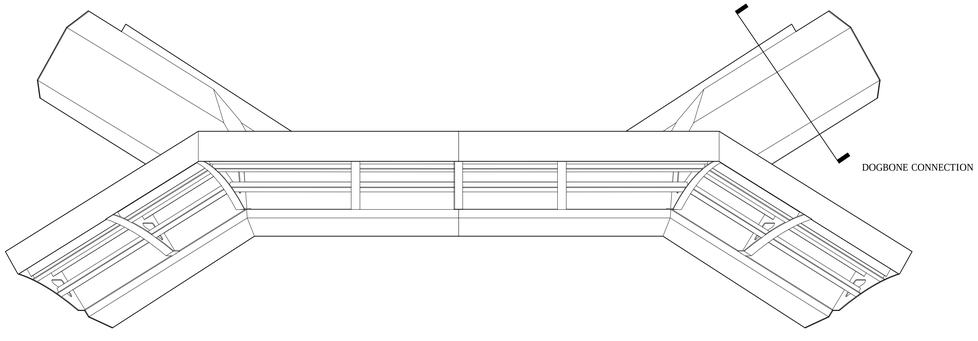
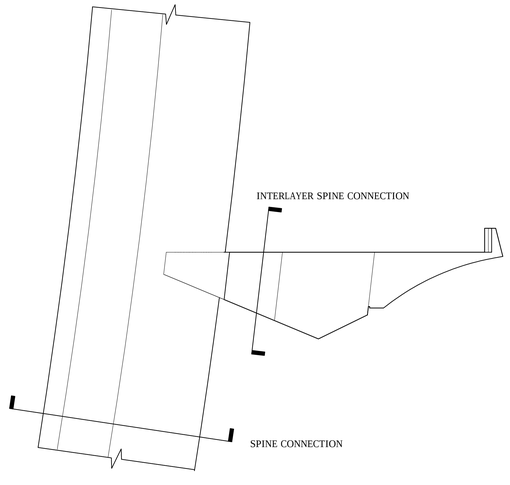
7 SPINE CONNECTION L11-L15
1:20





COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

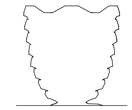
FOR VESSEL COMPONENTS THIS DRAWING SET IS TO BE CONSIDERED INTEGRAL WITH THE PROVIDED 3D MODELS AND MAY NOT BE CONSIDERED INDEPENDENTLY FROM THE MODELS. THE CONTRACTOR IS TO BASE THEIR BID UPON INFORMATION PROVIDED IN BOTH THE DRAWINGS AND 3D MODELS. IN MATTERS OF FORM AND GEOMETRY THE THREE DIMENSIONAL MODEL TAKES PRECEDENCE IN THE INSTANCE OF A DISCREPANCY BETWEEN DRAWING AND MODEL.

IN ALL OTHER MATTERS THE CONTRACTOR SHALL SEEK THE OPINION OF THE ARCHITECT AND SER TO RESOLVE THE DISCREPANCY.

FOR SPINE CONNECTION BOLT LAYOUT IS POSITIONED TO SUIT ACCESS OPENINGS FOR MEP SPLICE.

HUDSON YARDS VESSEL

TBD
XXX
NEW YORK, NY



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Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-540

Drawing Title

SPLICE DETAILS

Drawing Number / B-SCAN Drawing Number

S-540.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

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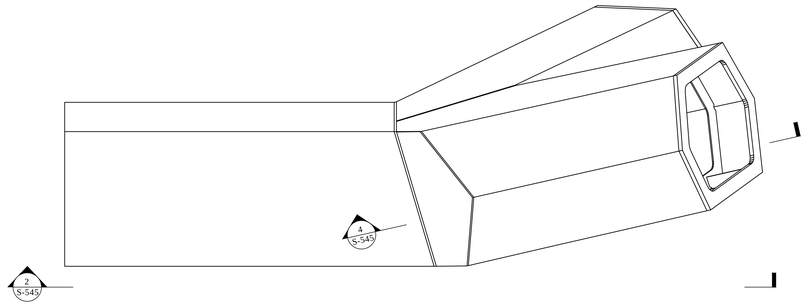

1 TYPICAL DOGBONE INTERLAYER PLAN
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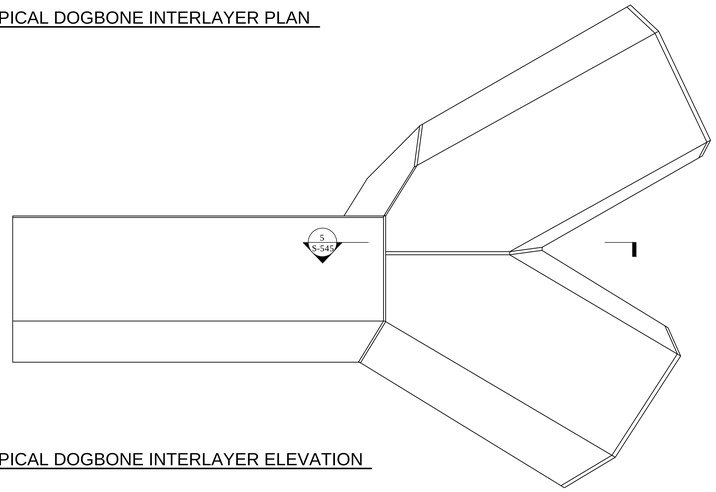

2 TYPICAL DOGBONE INTERLAYER ELEVATION
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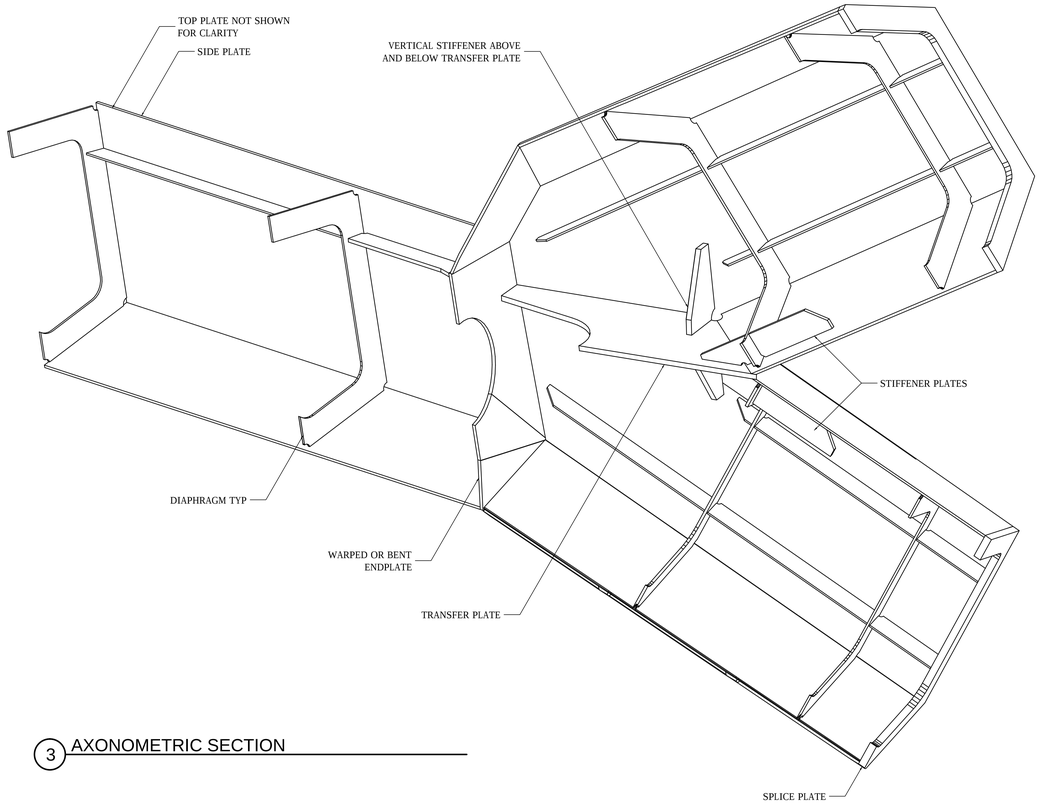

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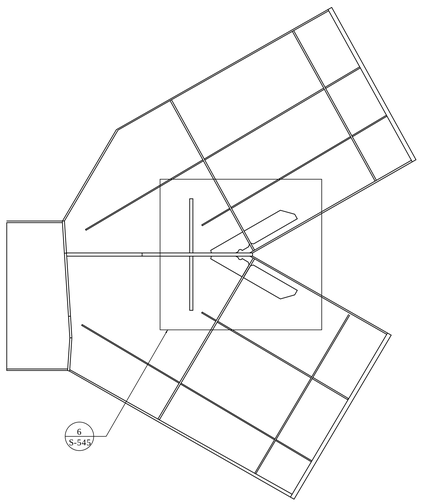

4 DETAIL
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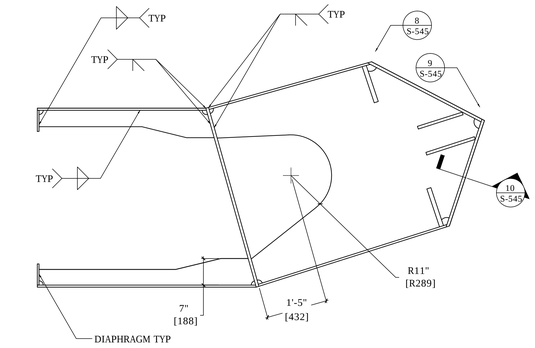

5 DETAIL
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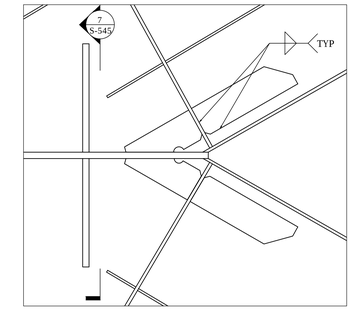

6 DETAIL
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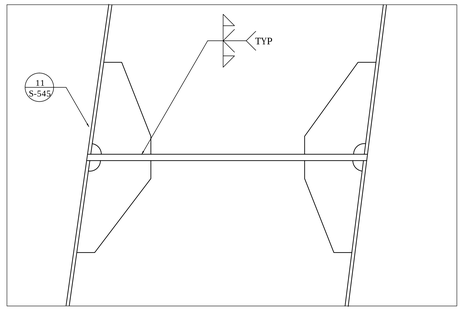

7 DETAIL
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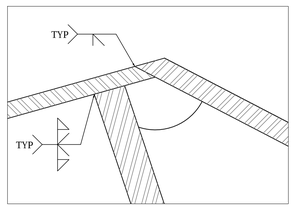

8 DETAIL
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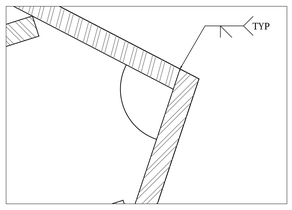

9 DETAIL
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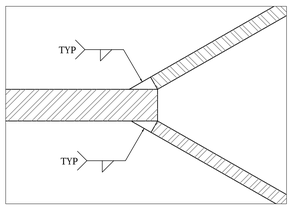

10 DETAIL
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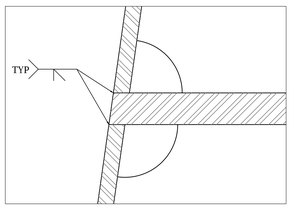

11 DETAIL
1:2

NOTE: FINAL WELD CONFIGURATION AND SEQUENCE TO BE BASED ON REVIEW OF FABRICATOR DETAILS

COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

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REFER TO ARCHITECTURAL DRAWINGS FOR SOFFIT DETAILS.

Empire Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

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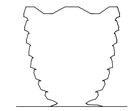
NEW YORK, NY



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Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-545
Drawing Title

NODE DETAILS

Drawing Number / B-SCAN Drawing Number
S-545.00

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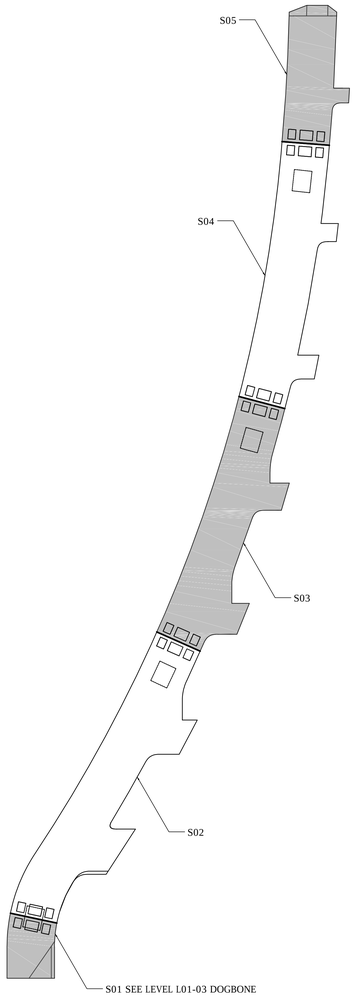

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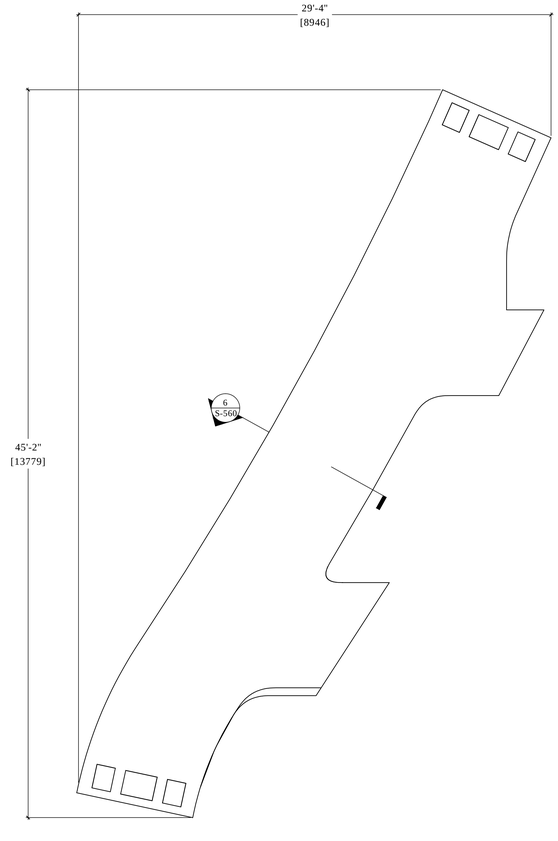

2 SPINE S02
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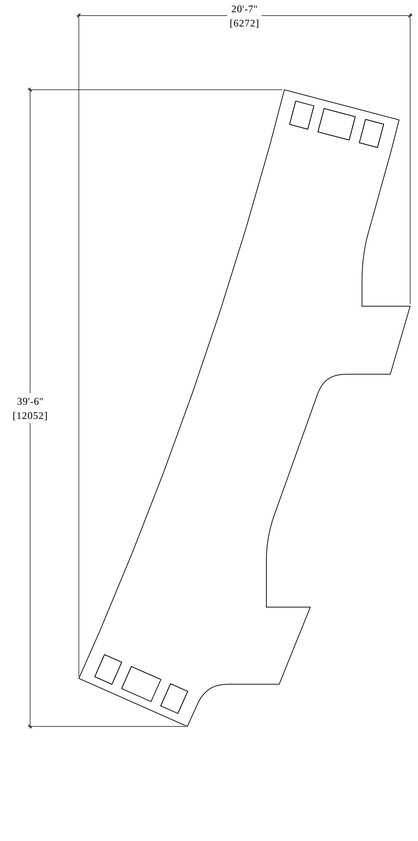

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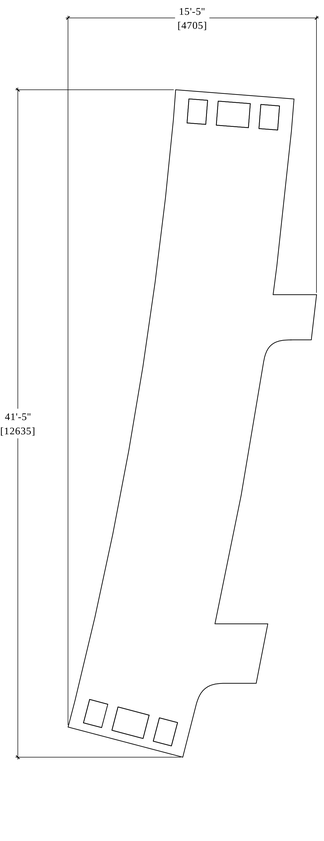

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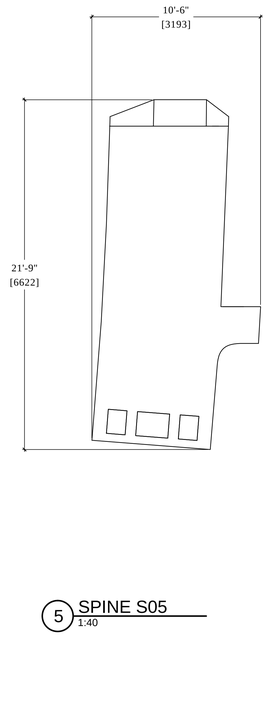

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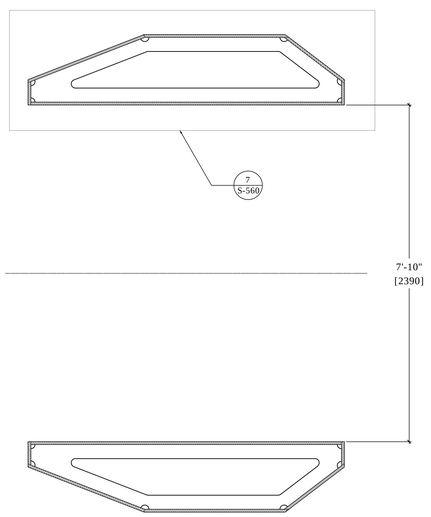

6 SECTION
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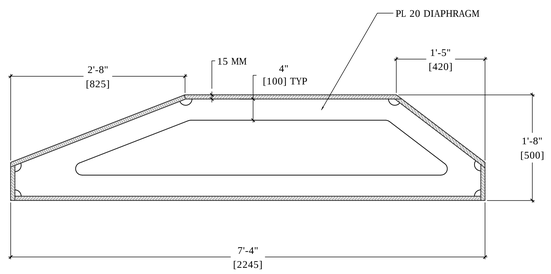

7 DETAIL
1:10

COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

FOR VESSEL COMPONENTS THIS DRAWING SET IS TO BE CONSIDERED INTEGRAL WITH THE PROVIDED 3D MODELS AND MAY NOT BE CONSIDERED INDEPENDENTLY FROM THE MODELS. THE CONTRACTOR IS TO BASE THEIR BID UPON INFORMATION PROVIDED IN BOTH THE DRAWINGS AND 3D MODELS. IN MATTERS OF FORM AND GEOMETRY THE THREE DIMENSIONAL MODEL TAKES PRECEDENCE IN THE INSTANCE OF A DISCREPANCY BETWEEN DRAWING AND MODEL.

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REFER TO ARCHITECTURAL DRAWINGS FOR SOFFIT DETAILS.

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

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VESSEL

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No.	Issue	Date
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-560

Drawing Title

SPINE DETAILS
SHEET I

Drawing Number / B-SCAN Drawing Number

S-560.00

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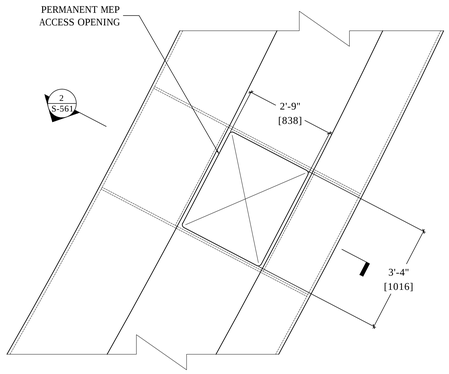
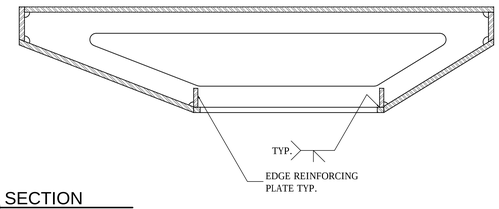
Filename: C:\Users\MGeldig\Documents\Work\Vessel\CAD\Aute\CAD\SS\submittal (03172015)\01-08 03232015\HYE-VS-S-560R1.dwg Plotted by: Geldig, Michael Plot Time: 3/23/2015 1:25 PM

Plot Date/Time 03/23/2015 13:15:25 Job Number Plot Code



1 ELEVATION AT PULL BOX
1:20



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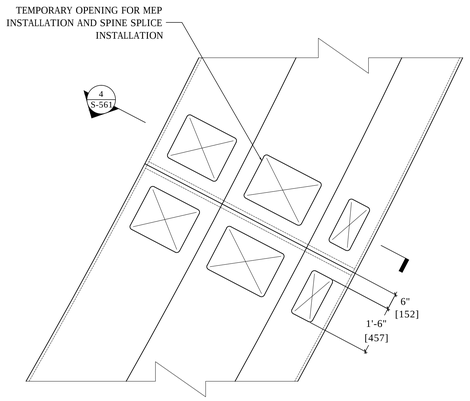

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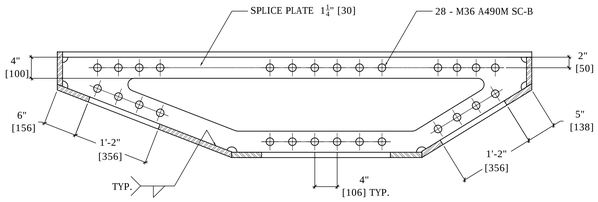

4 SECTION
1:10

NOTES:
-DETAILS FOR CLOSURE PLATES TO MEP OPENINGS TO BE DEVELOPED WITH ARCHITECT
-WHERE APPROPRIATE OPENINGS FOR PULL BOXES AND SPLICES MAY BE COMBINED

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Under Directive 2 of 1975
Date: 12/07/2016.
NYC Development Hub

HUDSON YARDS VESSEL

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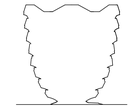
NEW YORK, NY



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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-561

Drawing Title

SPINE DETAILS
SHEET II

Drawing Number / R-SCAN Drawing Number
S-561.00

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Filename: C:\Users\MGedig\Documents\Work\Vessel\CAD\AutoCAD\Submittal 03\1720\15\D\D.08 03220\15\HYE-VS-S-561R1.dwg Plotted by: Gedig, Michael Plot Time: 3/23/2015 1:25 PM

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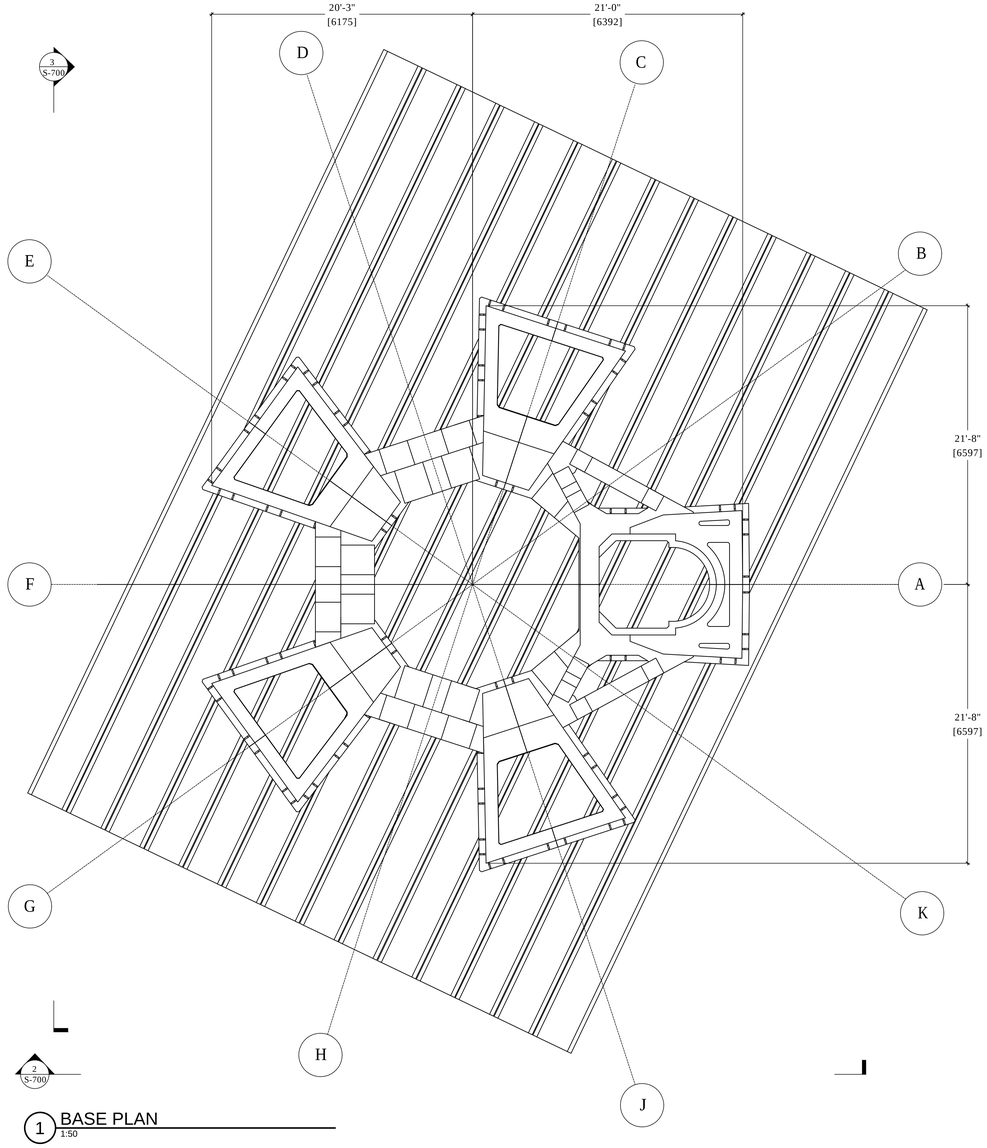

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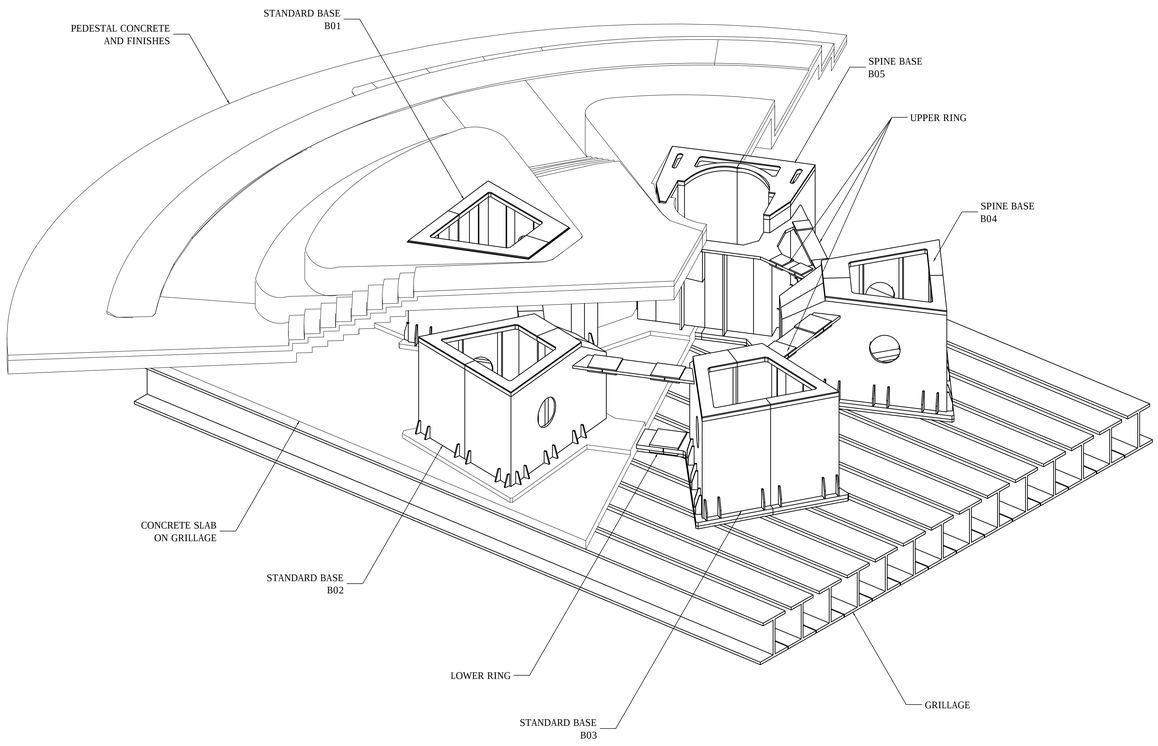

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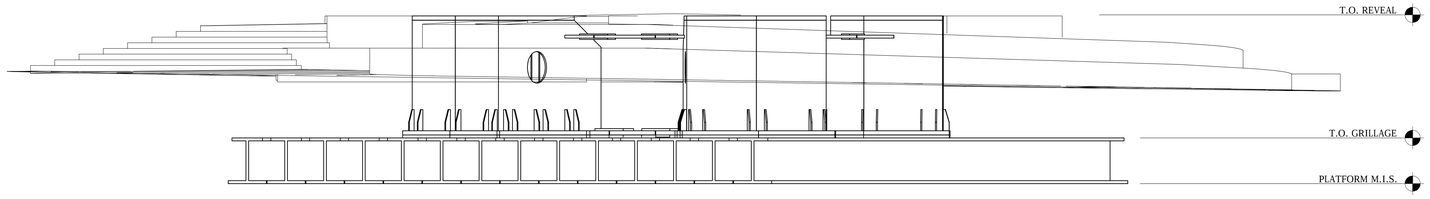
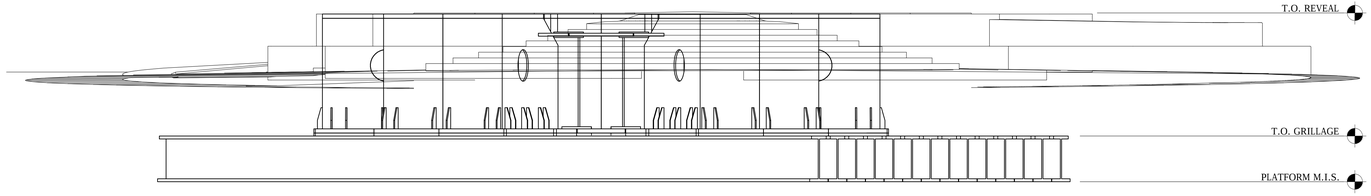


2 BASE SOUTH ELEVATION
1:50



3 BASE WEST ELEVATION
1:50

COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

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Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-700
Drawing Title

BASE STRUCTURE
GENERAL ARRANGEMENT

Drawing Number / B.SCAN Drawing Number
S-700.00

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Filename: C:\Users\MGedig\Documents\Work\Vessel\CAD\AutoCAD\Submittal 03172015\D-08 03232015\HYE-VS-S-700R2.dwg Plotted by: Gedig, Michael Plot Time: 3/23/2015 1:25 PM

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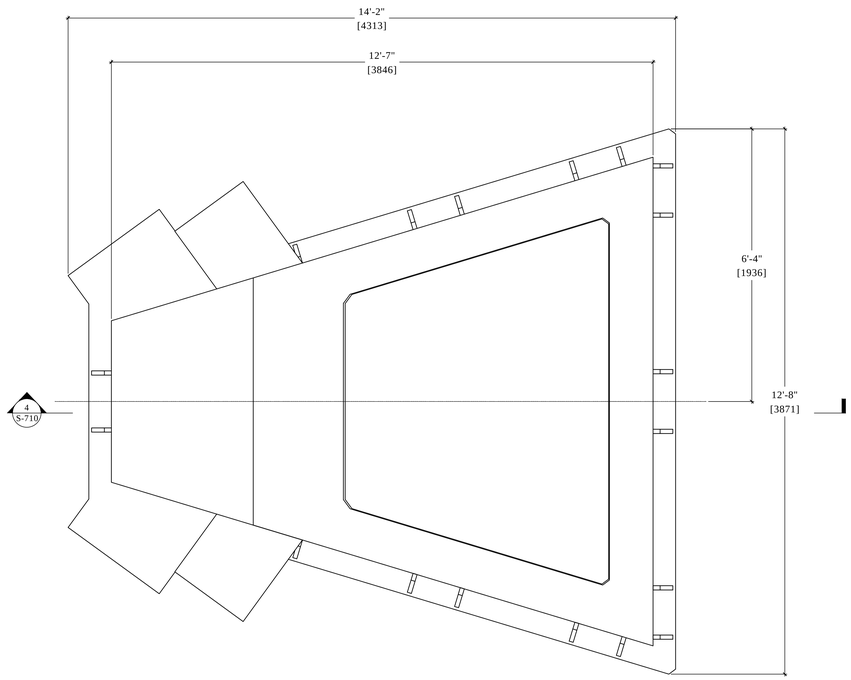

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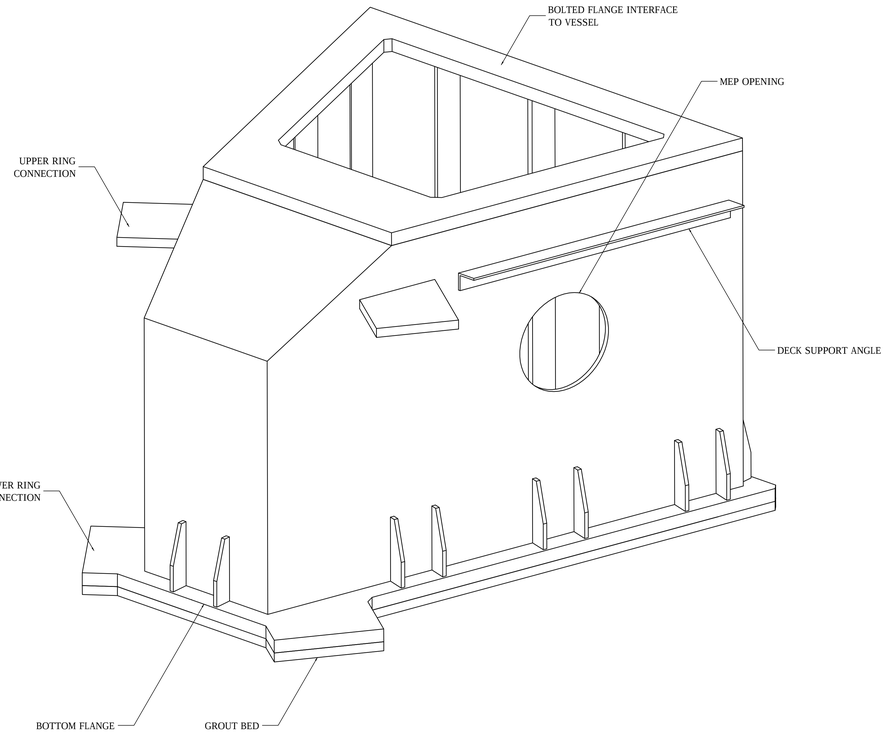

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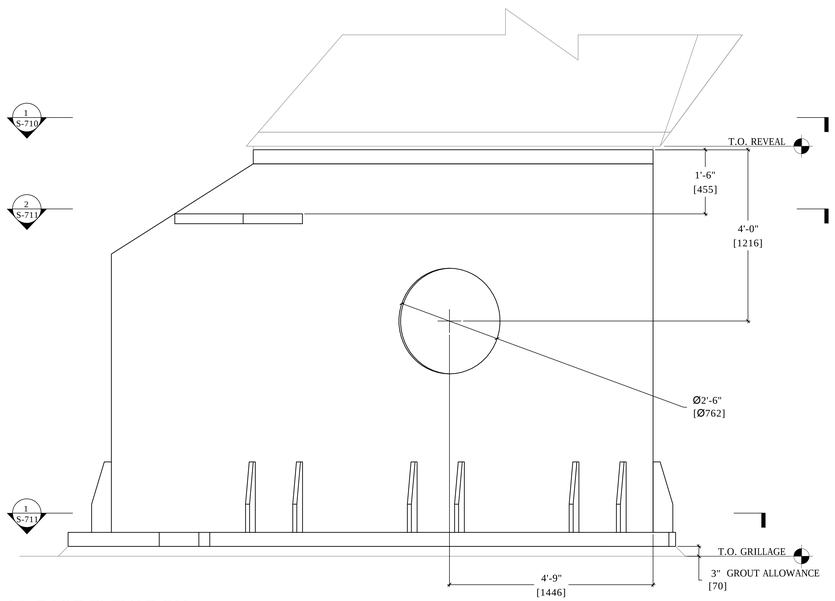

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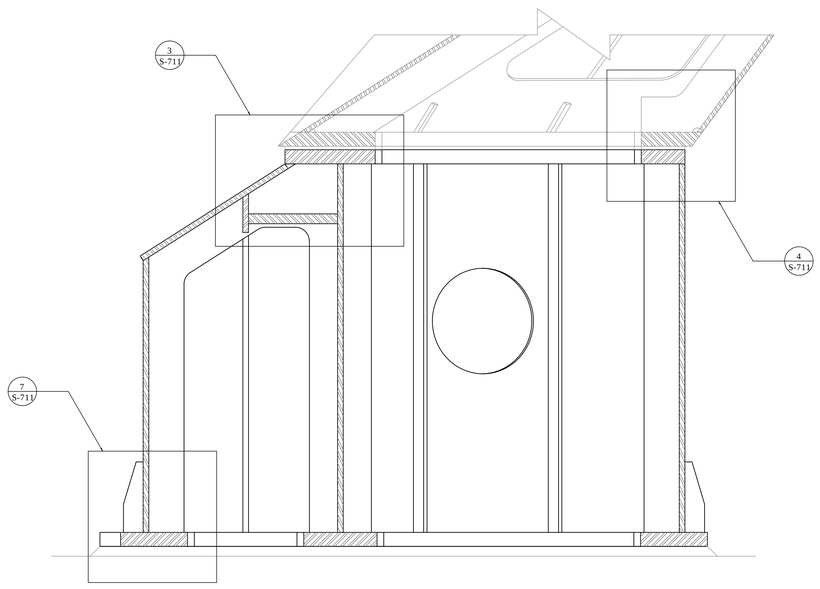

4 BASE ELEVATION
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Under Directive 2 of 1975
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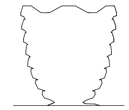

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No.	Issue	Date
03.	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-710

Drawing Title

STANDARD BASE
GENERAL ARRANGEMENT

Drawing Number / BASCAN Drawing Number

S-710.00

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Filename: C:\Users\MGodig\Documents\Work\Vessel\CAD\AutoCAD\Submittal 03172015\D\D-08 03232015HYE-VS-S-710R2.dwg Plotted by: Godig, Michael Plot Time: 3/23/2015 1:25 PM

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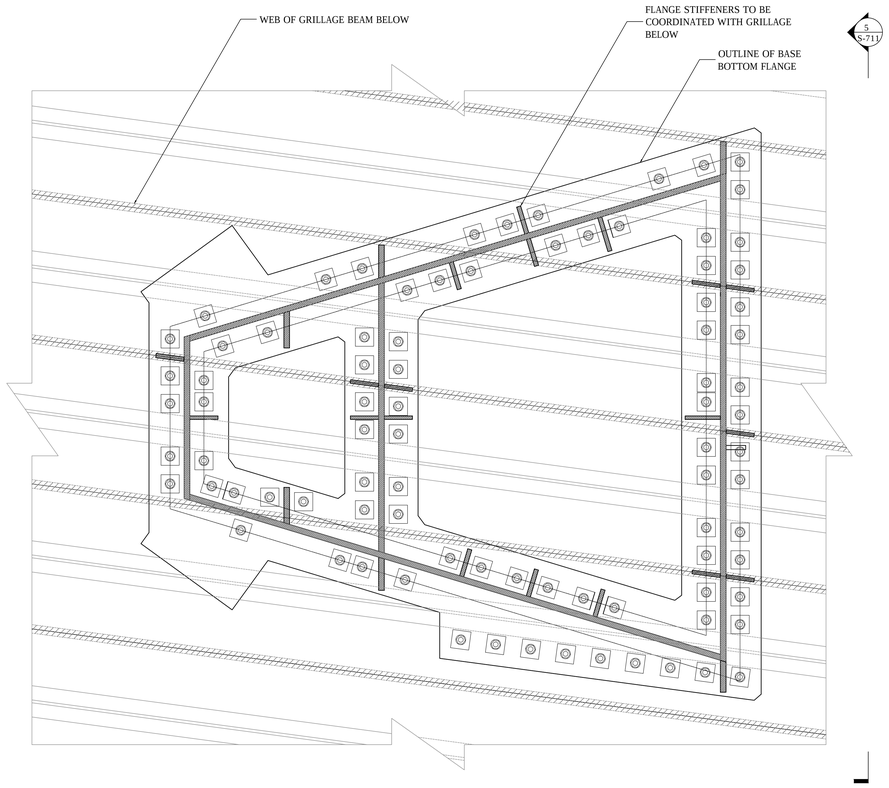

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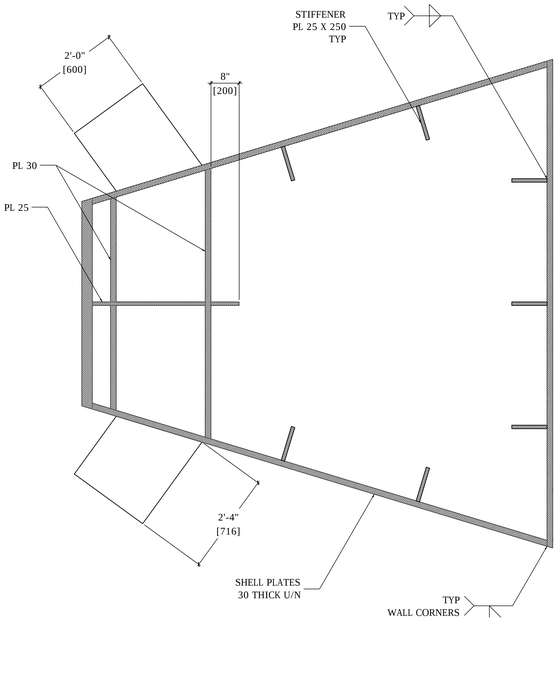

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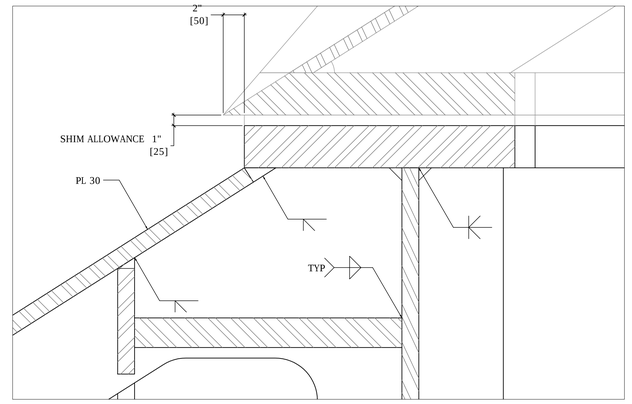

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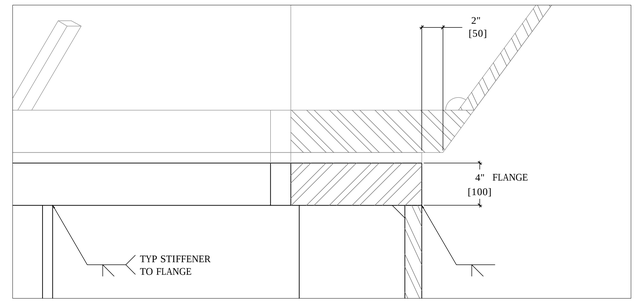

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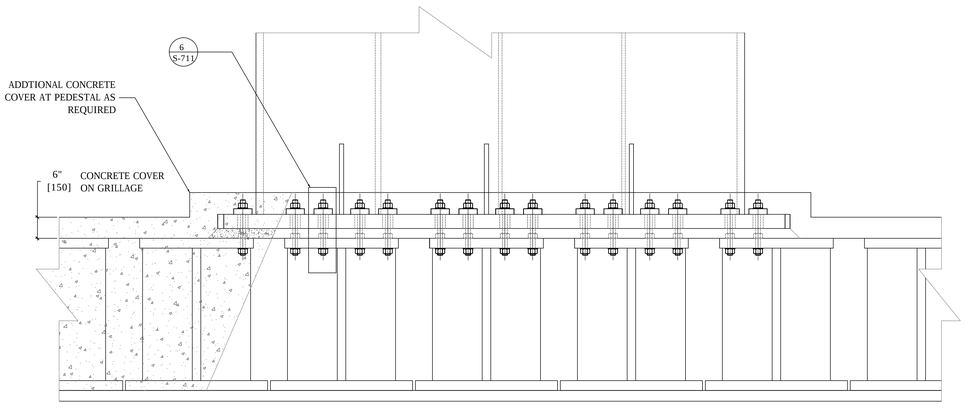

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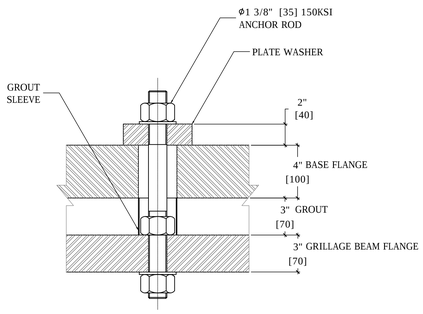

6 DETAIL
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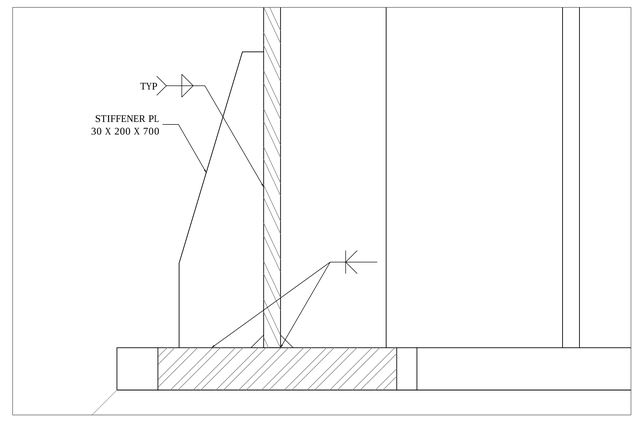

7 DETAIL
1:5

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Damian Titus
Buildings

APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

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No.	Issue	Date
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-711

Drawing Title

STANDARD BASE DETAILS

Drawing Number / BASCAN Drawing Number

S-711.00

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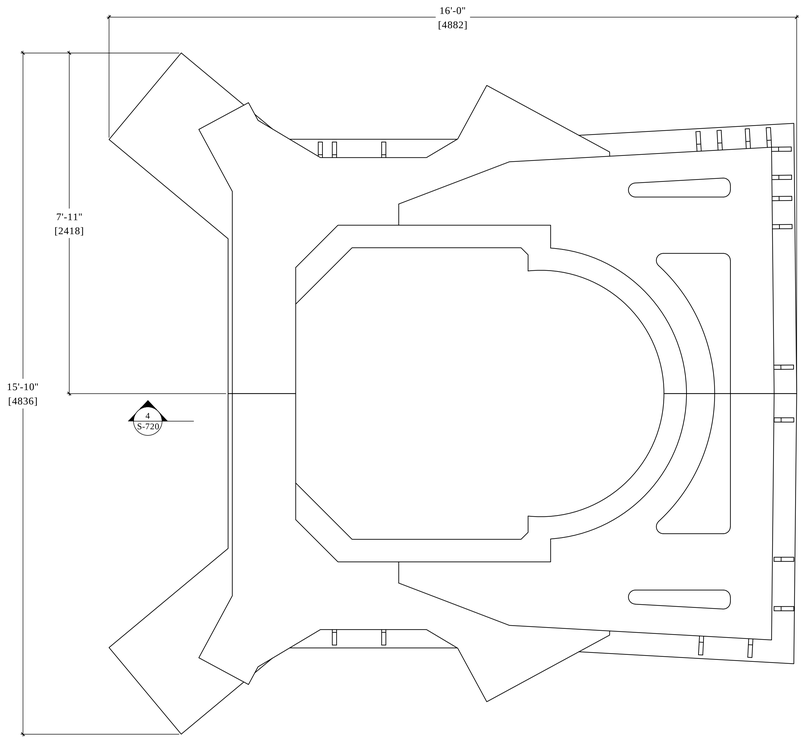
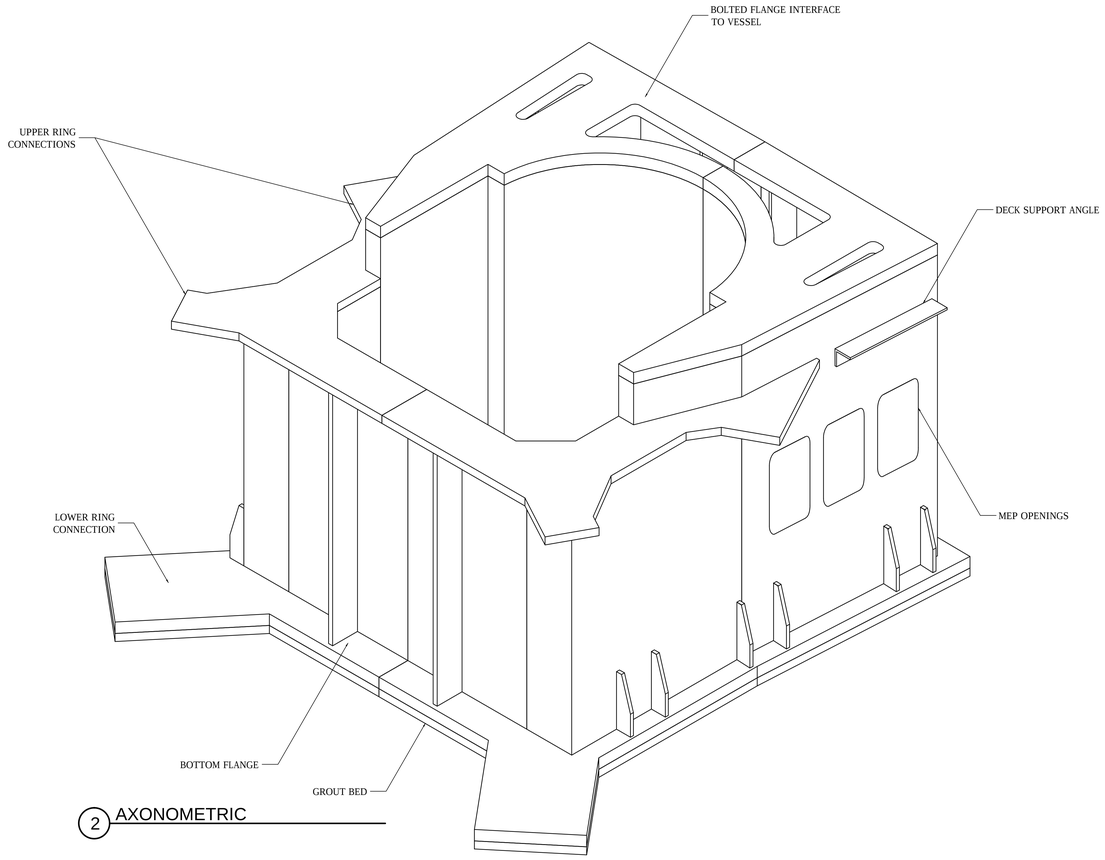


1 BASE PLAN
1:15



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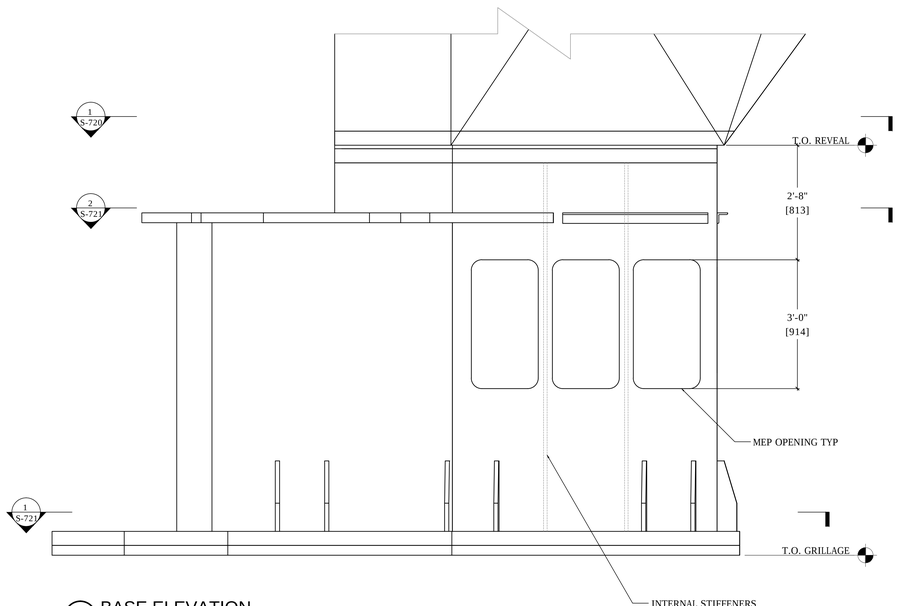

3 BASE ELEVATION
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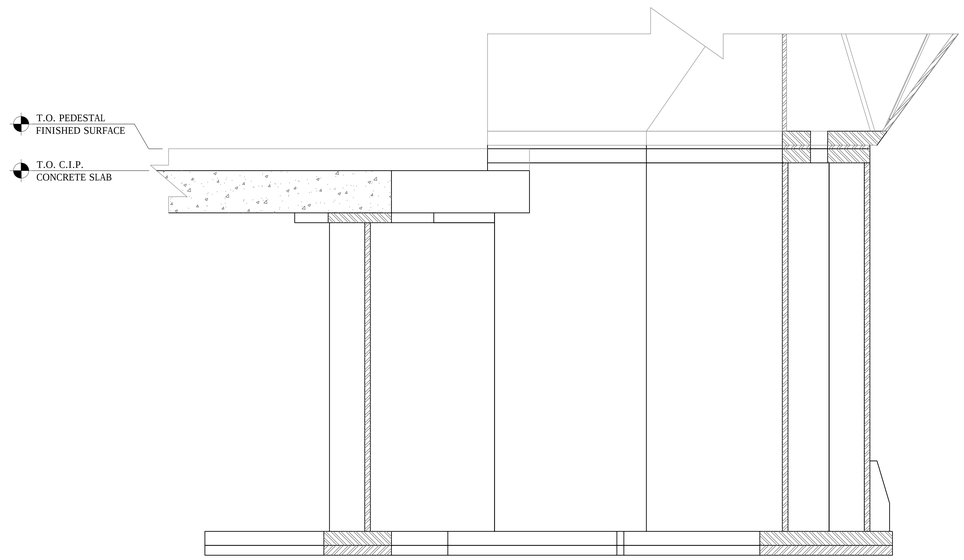

4 BASE ELEVATION
1:15

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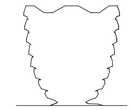
XXX
NEW YORK, NY



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Related Companies
60 Columbus Circle
New York, NY 10023
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Oxford Properties Group
320 Park Avenue, 17th Floor
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Tel: 212.986.7514 Fax: 212.986.7510

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Architects & Planning Consultants
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77 Water Street
New York, NY 10005
Tel: 212.896.3000

No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-720
Drawing Title

SPINE BASE
GENERAL ARRANGEMENT

Drawing Number / B.SCAN Drawing Number
S-720.00

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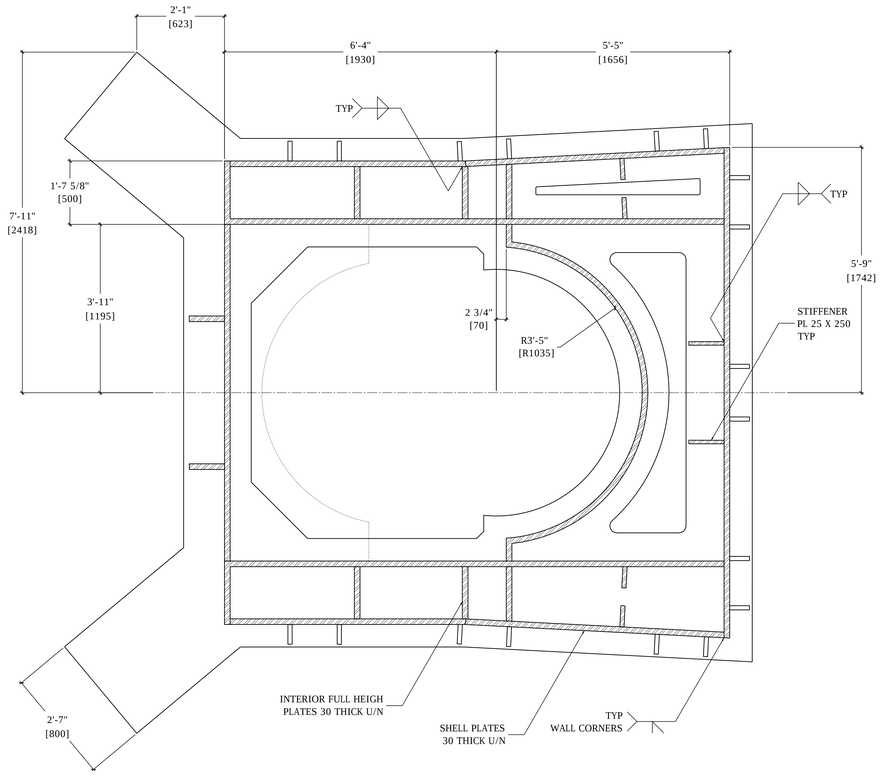
Filename: C:\Users\MGedig\Documents\Work\Vessel\CAD\Arch\CAD\Submittal 03172015\SD\08 03232015\HYE-VS-S-720R1.dwg Plotted by: Gedig, Michael Plot Time: 3/23/2015 1:26 PM

4501-06 Archive 20150105 Job Number
E3-FRM-S125 Sheet Order



1 SECTION
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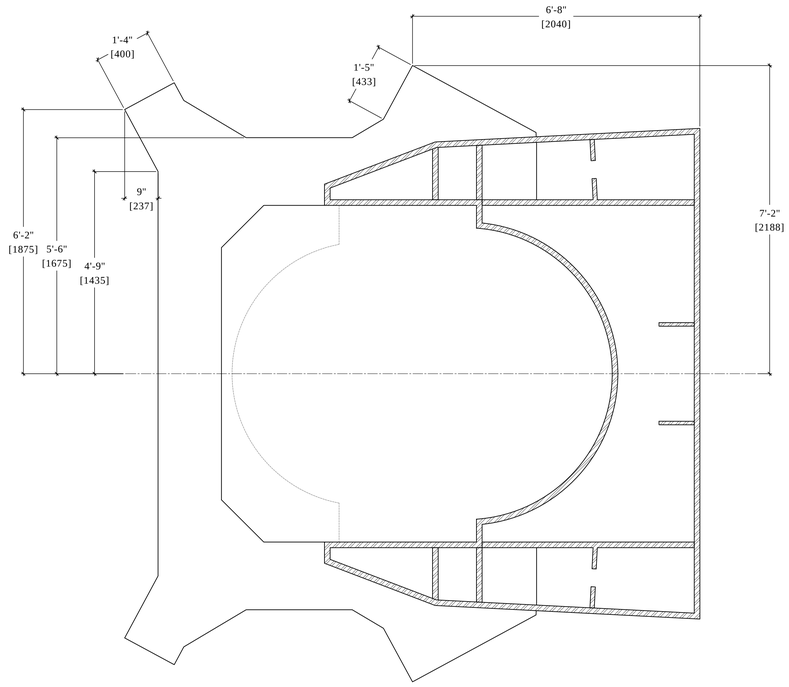

2 SECTION
1:15

COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

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Damian Titus

DOB Now: Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

TBD
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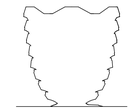

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Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-721

Drawing Title

SPINE BASE DETAILS

Drawing Number / b:SCAN Drawing Number
S-721.00

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4501-06 Architectural Drawings Job Number Sheet Code

ASSUMED TONNAGE IS 2300-2500T (METRIC).

DETAILED BREAKDOWN BASED ON AN AVERAGE OF 2400T (METRIC) SHOWN BELOW.

Breakdown by Level

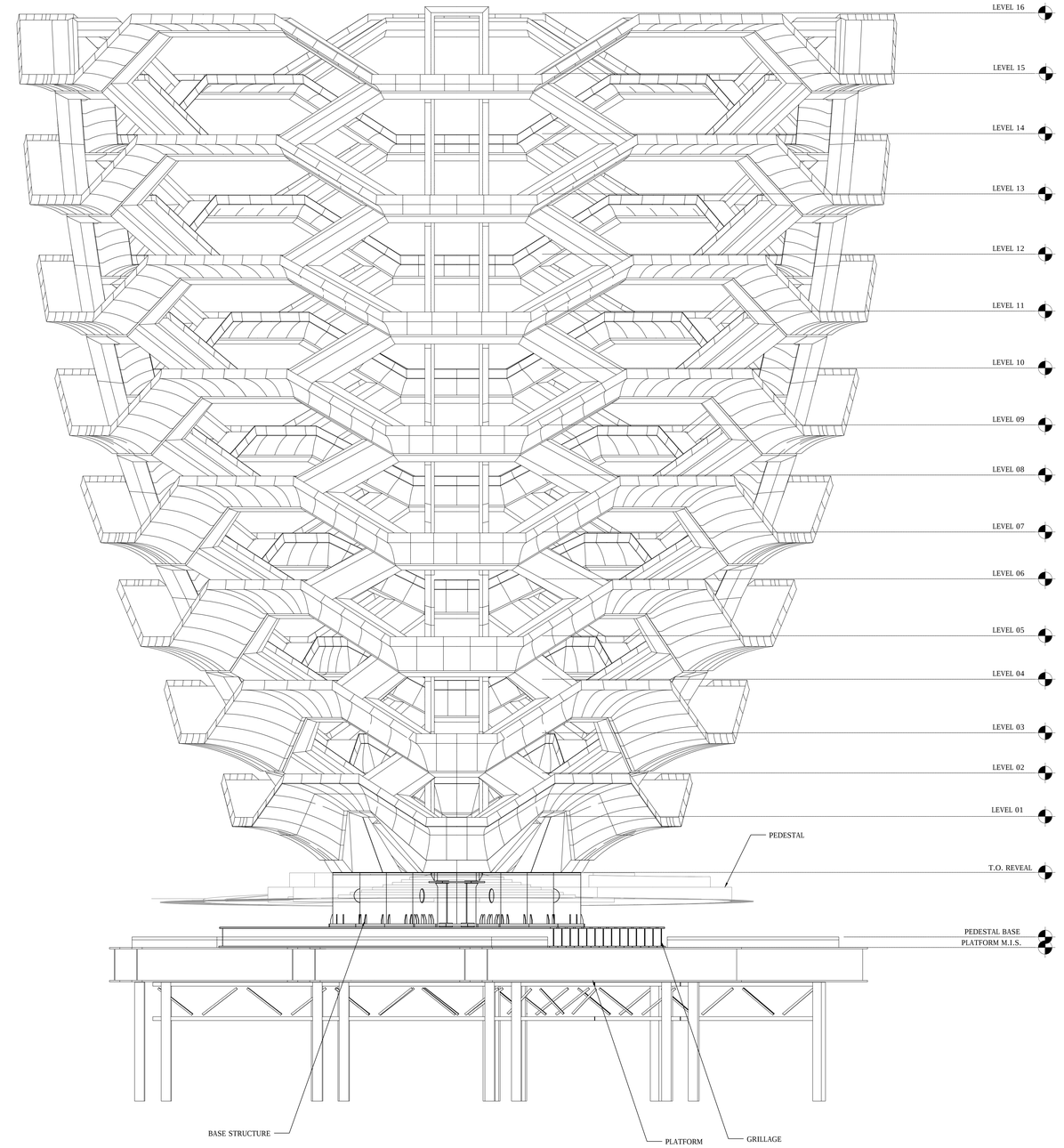
Level	Metric Tons	Imperial Tons
16	35	39
15	100	110
14	130	143
13	150	165
12	135	149
11	160	176
10	145	160
9	170	187
8	140	154
7	170	187
6	140	154
5	190	209
4	145	160
3	185	204
2	155	171
1	250	275
Total	**2400**	**2640**

Breakdown by Plate

Primary Plates	Metric Tons	Imperial Tons
10mm	*65*	72
12mm	*315*	347
15mm	*730*	803
20mm	*280*	308
25mm	*160*	176
Stiffeners/Diaphragms (8mm)	225	248
Soffit support (8-15mm)	125	138
Splices	500	550
Total	**2400**	**2640**

Vessel Pedestal

Base	180	200
Elevator Support Steel	15	17
Grillage	630	695



1 ELEVATION
1:100

COORDINATION WITH ARCHITECTURAL DRAWINGS AND 3D MODEL

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ALL STEEL GRADE 50 U.O.N.

Damian Titus
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

TBD
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Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-800

Drawing Title

TONNAGE BREAKDOWN

Drawing Number / BASCAN Drawing Number

S-800.00

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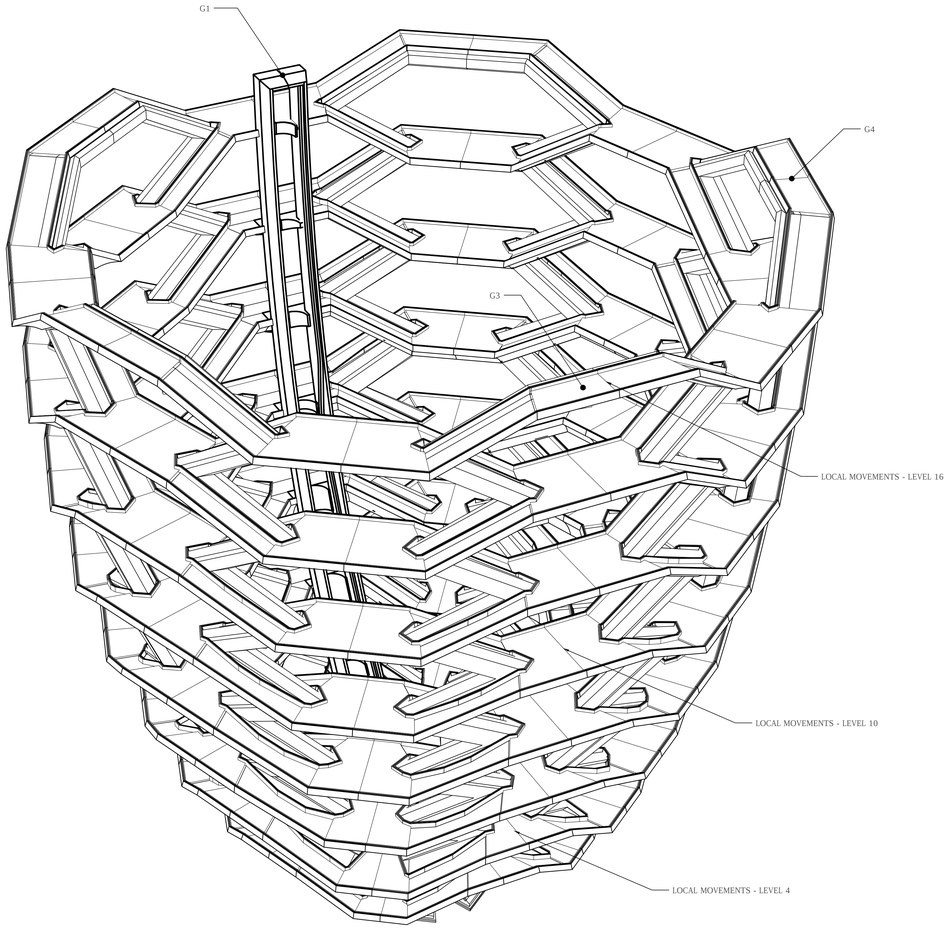
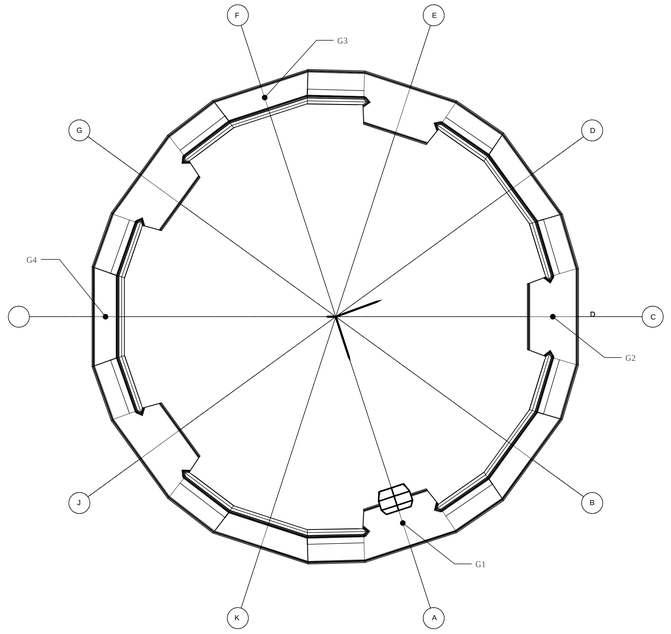


1 3D VIEW - GLOBAL MOVEMENT POINTS
1:100



2 TOP LEVEL PLAN - GLOBAL MOVEMENT POINTS
1:200

GLOBAL MOVEMENTS - LEVEL 04							
JOINT	CASE	X (mm)	Y (mm)	Z (mm)	X (Inch)	Y (Inch)	Z (Inch)
G1	DEAD	15.8	-1.8	-25.9	0.62	-0.07	-1.02
G1	SDEAD	6.5	-0.3	-12.6	0.26	-0.01	-0.50
G1	LIVE	4.9	-0.2	-9.6	0.19	-0.01	-0.38
G1	WINDX	9.1	0.0	-8.3	0.36	0.00	-0.33
G1	WINDY	-0.2	5.9	0.3	-0.01	0.23	0.01
G1	LIVE HALF	16.7	-0.3	-22.6	0.66	-0.01	-0.89
G2	DEAD	15.2	-1.0	-13.3	0.60	-0.04	-0.52
G2	SDEAD	6.3	0.4	-7.6	0.25	0.01	-0.30
G2	LIVE	4.6	0.4	-5.8	0.18	0.01	-0.23
G2	WINDX	8.8	-0.1	-3.1	0.35	0.00	-0.12
G2	WINDY	0.0	6.3	-4.7	0.00	0.25	-0.18
G2	LIVE HALF	15.8	-0.1	-9.4	0.62	0.00	-0.37
G3	DEAD	16.7	-2.7	3.4	0.66	-0.11	0.14
G3	SDEAD	5.6	-0.4	-1.6	0.22	-0.02	-0.06
G3	LIVE	3.8	-0.4	-2.1	0.15	-0.01	-0.08
G3	WINDX	11.5	-0.6	7.7	0.45	-0.02	0.30
G3	WINDY	-0.4	7.4	-0.3	-0.02	0.29	-0.01
G3	LIVE HALF	21.0	-1.3	15.7	0.83	-0.05	0.62
G4	DEAD	18.6	-3.3	-8.8	0.73	-0.13	-0.35
G4	SDEAD	7.0	-1.1	-5.5	0.28	-0.04	-0.22
G4	LIVE	5.1	-1.0	-4.8	0.20	-0.04	-0.19
G4	WINDX	11.3	-0.3	1.4	0.45	-0.01	0.05
G4	WINDY	-0.4	7.8	5.9	-0.02	0.31	0.23
G4	LIVE HALF	21.2	-0.7	1.1	0.83	-0.03	0.04

GLOBAL MOVEMENTS - LEVEL 10							
JOINT	CASE	X (mm)	Y (mm)	Z (mm)	X (Inch)	Y (Inch)	Z (Inch)
G1	DEAD	40.1	-4.5	-39.8	1.58	-0.18	-1.57
G1	SDEAD	16.4	-0.8	-19.3	0.64	-0.03	-0.76
G1	LIVE	12.0	-0.7	-14.8	0.47	-0.03	-0.58
G1	WINDX	22.7	-0.3	-15.0	0.89	-0.01	-0.59
G1	WINDY	-0.6	16.3	0.5	-0.02	0.64	0.02
G1	LIVE HALF	50.9	-1.3	-41.9	2.00	-0.05	-1.65
G2	DEAD	35.2	-6.3	-22.9	1.39	-0.25	-0.90
G2	SDEAD	13.1	-1.6	-15.7	0.52	-0.06	-0.62
G2	LIVE	9.2	-1.4	-12.7	0.36	-0.06	-0.50
G2	WINDX	21.9	-0.7	-4.8	0.86	-0.03	-0.19
G2	WINDY	-0.4	16.6	-10.7	-0.02	0.65	-0.42
G2	LIVE HALF	46.8	-2.9	-16.6	1.84	-0.11	-0.65
G3	DEAD	32.9	-5.7	-5.0	1.30	-0.22	-0.20
G3	SDEAD	8.4	-0.9	-15.1	0.33	-0.04	-0.60
G3	LIVE	5.3	-0.9	-13.8	0.21	-0.04	-0.54
G3	WINDX	25.0	-1.1	14.6	0.99	-0.04	0.57
G3	WINDY	-0.8	18.5	-0.4	-0.03	0.73	-0.02
G3	LIVE HALF	51.8	-2.5	29.7	2.04	-0.10	1.17
G4	DEAD	37.4	-5.5	-20.3	1.47	-0.22	-0.80
G4	SDEAD	12.1	-1.8	-17.7	0.48	-0.07	-0.70
G4	LIVE	8.3	-1.6	-15.3	0.33	-0.06	-0.60
G4	WINDX	25.2	-0.7	3.6	0.99	-0.03	0.14
G4	WINDY	-0.8	18.7	11.6	-0.03	0.74	0.46
G4	LIVE HALF	53.5	-1.0	2.8	2.10	-0.04	0.11

GLOBAL MOVEMENTS - LEVEL 16							
JOINT	CASE	X (mm)	Y (mm)	Z (mm)	X (Inch)	Y (Inch)	Z (Inch)
G1	DEAD	57.4	-7.7	-43.0	2.26	-0.30	-1.69
G1	SDEAD	18.2	-1.4	-21.2	0.72	-0.06	-0.83
G1	LIVE	12.0	-1.3	-15.6	0.47	-0.05	-0.61
G1	WINDX	39.1	-0.7	-17.5	1.54	-0.03	-0.69
G1	WINDY	-1.0	30.0	0.6	-0.04	1.18	0.02
G1	LIVE HALF	90.1	-2.4	-49.6	3.55	-0.10	-1.95
G2	DEAD	52.1	-7.8	-36.7	2.05	-0.31	-1.44
G2	SDEAD	14.2	1.4	-33.4	0.56	0.05	-1.31
G2	LIVE	9.0	0.4	-25.1	0.35	0.02	-0.99
G2	WINDX	38.5	-0.9	-5.6	1.51	-0.03	-0.22
G2	WINDY	-1.0	30.2	-13.6	-0.04	1.19	-0.53
G2	LIVE HALF	87.1	-1.3	-26.8	3.43	-0.05	-1.06
G3	DEAD	50.0	-9.1	-18.6	1.97	-0.36	-0.73
G3	SDEAD	7.8	-1.6	-37.8	0.31	-0.06	-1.49
G3	LIVE	4.4	-1.6	-29.7	0.17	-0.06	-1.17
G3	WINDX	42.2	-1.6	17.6	1.66	-0.06	0.69
G3	WINDY	-1.2	32.5	-0.4	-0.05	1.28	-0.02
G3	LIVE HALF	94.0	-3.8	35.9	3.70	-0.15	1.41
G4	DEAD	53.7	-10.8	-35.6	2.11	-0.43	-1.40
G4	SDEAD	11.3	-7.9	-40.4	0.44	-0.31	-1.59
G4	LIVE	6.9	-6.0	-31.1	0.27	-0.24	-1.23
G4	WINDX	42.0	-1.3	4.4	1.65	-0.05	0.17
G4	WINDY	-1.1	32.8	14.1	-0.04	1.29	0.56
G4	LIVE HALF	95.4	-3.6	0.7	3.75	-0.14	0.03

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OUTLINE DEFLECTIONS ARE PROVIDED IN THE TABLES ABOVE IN ORDER TO ASSIST FABRICATOR IN DETERMINING THE RANGE OF MOVEMENT TO BE ACCOMMODATED IN THE FABRICATION AND ERECTION. A FULL BREAKDOWN OF ALL LANDINGS AND LEVELS WILL BE DEVELOPED DURING DESIGN ASSIST BASED UPON THE INTENDED CONSTRUCTION SEQUENCE.

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

HUDSON YARDS VESSEL

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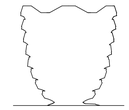

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Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-850

Drawing Title

MOVEMENTS

Drawing Number / BASCAN Drawing Number

S-850.00

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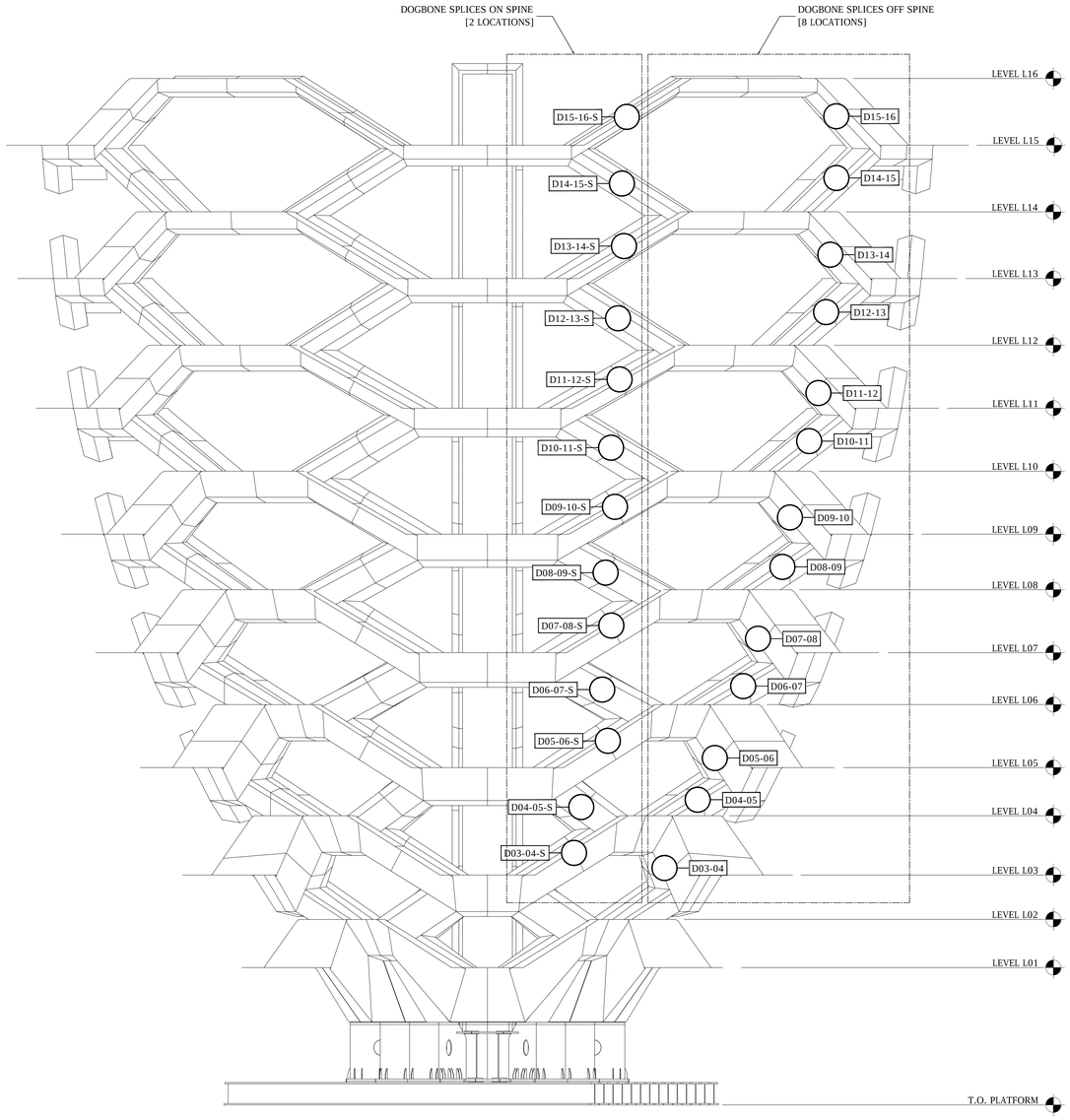
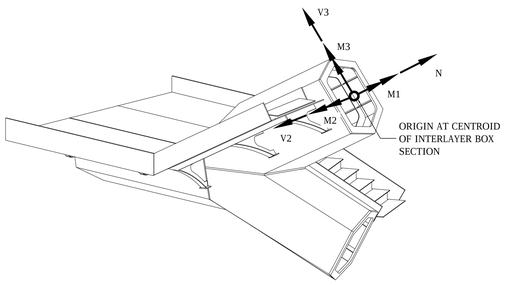


1 ELEVATION
1:100



2 COORDINATE SYSTEM

DOGBONE SPLICE D01-02

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-1075	-420	-2325	-795	-1622	-1070	U-1.2D+1.6W+L20
N MAX	9271	1457	-2732	4161	10431	5358	U-1.2D+1.6W+L23
V2 MIN	-771	-1593	-6872	-1093	-1042	-3290	U-1.2D+1.6W+L10
V2 MAX	6429	1602	-287	1907	5173	2579	U-1.2D+1.6W+L44
V3 MIN	2817	-1526	-7519	-2741	1664	-3806	U-1.2D+1.6L+S-T3-60-40
V3 MAX	965	184	-287	946	1905	1191	U-1.2D+1.6W+L60
M1 MIN	-691	-293	-7417	-2980	-1197	-3910	U-1.2D+1.6W+L60
M1 MAX	8723	217	-726	4193	7881	5353	U-1.2D+1.6L+S+T2
M2 MIN	-1075	-418	-2325	-795	-1622	-1070	U-1.2D+1.6W+L20
M2 MAX	9271	1457	-2732	4161	10472	5358	U-1.2D+1.6L+S+T3
M3 MIN	-733	-441	-7272	-2951	-1450	-3978	U-1.2D+1.6L+S+T3+60+40
M3 MAX	8796	361	-726	4129	7811	5382	U-1.2D+1.6L+S+T2+60+40
MIN	-1075	-1593	-7519	-2980	-1622	-3978	
MAX	9271	1602	-287	4193	10472	5382	

DOGBONE SPLICE D02-03

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	22	-161	-4153	-997	-1639	-386	U-1.2D+1.6W+L53
N MAX	6039	539	-3404	2781	-1406	1501	U-1.2D+1.6L+S-T3
V2 MIN	1032	-250	-6671	-1895	-3014	-1132	U-1.2D+1.6L+S+T
V2 MAX	5139	539	-848	1592	-623	780	U-1.2D+1.6L+S+T2
V3 MIN	2938	-209	-7517	-2173	-3576	-1341	U-1.2D+1.6L+S-T3-60-40
V3 MAX	2826	141	-803	763	-651	556	U-1.2D+1.6L+S-T4-60-40
M1 MIN	1165	-204	-6754	-2296	-2885	-1110	U-1.2D+1.6L+S-T4-60-40
M1 MAX	4365	464	-848	2877	-623	916	U-1.2D+1.6L+S-T2-60-40
M2 MIN	3130	-209	-7517	-2173	-3576	-1431	U-1.2D+1.6L+S-T3
M2 MAX	2400	148	-2092	1602	-419	251	U-1.2D+1.6L+S-T3
M3 MIN	180	-232	-7079	-2173	-3576	-1625	U-1.2D+1.6L+S-T2-60-40
M3 MAX	5965	467	-1602	2810	-834	1560	U-1.2D+1.6L+S-T3-60-40
MIN	22	-250	-7517	-2296	-3576	-1625	
MAX	6039	539	-803	2877	-419	1560	

DOGBONE SPLICE D03-04

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-942	-187	-4203	-3068	-1189	-1178	U-1.2D+1.6W+L10
N MAX	5113	302	-3477	4417	1884	4065	U-1.2D+1.6W+L23
V2 MIN	-449	-369	-6329	-4854	-795	-4025	U-1.2D+1.6L+S+T1+60+40
V2 MAX	4976	302	-1717	4673	1440	4023	U-1.2D+1.6L+S+T4+60+40
V3 MIN	2187	-340	-7540	-5247	248	-3247	U-1.2D+1.6L+S-T3
V3 MAX	1558	233	-1446	1919	184	1177	U-1.2D+1.6L+S-T4
M1 MIN	152	-340	-7285	-5319	-489	-3261	U-1.2D+1.6L+S+T3+60+40
M1 MAX	3895	302	-1468	5442	1247	3225	U-1.2D+1.6L+S+T3+60+40
M2 MIN	-942	-221	-4391	-3068	-1189	-1178	U-1.2D+1.6W+L10
M2 MAX	5113	280	-3356	4417	1884	4065	U-1.2D+1.6W+L23
M3 MIN	-828	-339	-6329	-4854	-1097	-4025	U-1.2D+1.6L+S+T3+60+40
M3 MAX	5113	302	-1447	4417	1884	4065	U-1.2D+1.6W+L23
MIN	-942	-369	-7540	-5319	-1189	-4025	
MAX	5113	302	-1446	5442	1884	4065	

DOGBONE SPLICE D04-05

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-707	-381	-4096	-1428	-996	-452	U-1.2D+1.6W+L17
N MAX	3411	352	-2281	1750	10	361	U-1.2D+1.6W+L59
V2 MIN	-326	-507	-6383	-800	-1204	-520	U-1.2D+1.6L+S-T4
V2 MAX	2417	484	-1333	1205	287	191	U-1.2D+1.6L+S-T2
V3 MIN	1079	-471	-7107	-2443	-997	-716	U-1.2D+1.6L+S-T3
V3 MAX	1806	390	-994	905	23	228	U-1.2D+1.6L+S-T4-60-40
M1 MIN	632	-399	-6975	-2451	-961	-360	U-1.2D+1.6L+S-T3-60-40
M1 MAX	3337	393	-996	2516	209	114	U-1.2D+1.6L+S-T3
M2 MIN	552	-366	-4818	-1544	-1598	-553	U-1.2D+1.6L+S-T
M2 MAX	1772	419	-3212	1508	370	141	U-1.2D+1.6W+L10
M3 MIN	-645	-404	-6372	-2098	-1114	-844	U-1.2D+1.6L+S-T2-60-40
M3 MAX	3398	368	-2330	1750	55	423	U-1.2D+1.6W+L17
MIN	-707	-507	-7107	-2451	-1598	-844	
MAX	3411	484	-994	2516	370	423	

DOGBONE SPLICE D05-06

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-1427	-113	-2665	-1536	-1922	-1320	U-1.2D+1.6L+S-T2
N MAX	3344	255	-2527	3054	167	2521	U-1.2D+1.6L+S-T2
V2 MIN	-1138	-270	-6102	-3581	-1674	-2496	U-1.2D+1.6L+S-T3
V2 MAX	2730	266	-1816	3601	2	1998	U-1.2D+1.6L+S-T4
V3 MIN	215	-255	-6207	-3559	-895	-2050	U-1.2D+1.6L+S-T3
V3 MAX	1273	112	-1133	1446	-255	849	U-0.9D+1.6W12
M1 MIN	-281	-255	-6106	-3582	-1057	-1980	U-1.2D+1.6L+S+T3+60+40
M1 MAX	2728	255	-1580	3602	-5	1993	U-1.2D+1.6L+S+T3
M2 MIN	-1144	-195	-3885	-2204	-2114	-1191	U-1.2D+1.6L+S-T1-60-40
M2 MAX	3295	149	-1590	2806	362	2434	U-1.2D+1.6W+L23
M3 MIN	-1417	-270	-5173	-3095	-1925	-2496	U-1.2D+1.6L+S-T3
M3 MAX	3344	258	-1929	3054	167	2521	U-1.2D+1.6L+S-T2
MIN	-1427	-270	-6207	-3582	-2114	-2496	
MAX	3344	266	-1133	3602	362	2521	

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Damian Titus
Buildings
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DOGBONE SPLICE D06-07

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-284	-146	-3164	-1252	-358	-290	U-1.2D+1.6W+L17
N MAX	2462	193	-1857	1537	255	733	U-1.2D+1.6W+L59
V2 MIN	-5	-242	-5625	-2126	-485	-533	U-1.2D+1.6L+S-T
V2 MAX	1714	277	-1376	1900	550	482	U-1.2D+1.6L+S-T-60-40
V3 MIN	739	-188	-5660	-2128	-181	-486	U-1.2D+1.6L+S-T3
V3 MAX	1360	211	-999	777	131	627	U-1.2D+1.6L+S-T4
M1 MIN	569	-225	-5626	-2128	-465	-250	U-1.2D+1.6L+S-T3-60-40
M1 MAX	2434	211	-999	2145	582	265	U-1.2D+1.6L+S-T3
M2 MIN	142	-178	-3322	-1104	-807	-564	U-1.2D+1.6L+S-T4
M2 MAX	1480	173	-2568	1839	655	287	U-1.2D+1.6W+L23
M3 MIN	-171	-166	-5588	-2071	-497	-783	U-1.2D+1.6L+S-T1
M3 MAX	2343	242	-1644	2076	431	809	U-1.2D+1.6L+S-T1
MIN	-284	-242	-5660	-2128	-807	-783	
MAX	2462	277	-999	2145	655	809	

DOGBONE SPLICE D07-08

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-1011	-192	-2369	-1452	-1549	-966	U-1.2D+1.6L+S-T4
N MAX	2700	204	-2413	2389	262	2011	U-1.2D+1.6L+S-T3
V2 MIN	-450	-241	-4863	-3354	-1721	-1763	U-1.2D+1.6L+S-T
V2 MAX	2335	207	-1620	2615	238	1725	U-1.2D+1.6L+S-T
V3 MIN	390	-223	-4915	-3354	-914	-1812	U-1.2D+1.6L+S-T3
V3 MAX	1296	102	-1199	1112	12	1017	U-0.9D+1.6W8
M1 MIN	-146	-223	-4863	-3354	-910	-1730	U-1.2D+1.6L+S+T4
M1 MAX	2337	204	-1235	2615	100	1725	U-1.2D+1.6L+S+T3+60+40
M2 MIN	-458	-207	-3436	-2036	-1725	-1317	U-1.2D+1.6L+S-T
M2 MAX	2354	118	-1476	2132	348	1807	U-1.2D+1.6W+L30
M3 MIN	-1000	-237	-4285	-3354	-1535	-2000	U-1.2D+1.6L+S-T4-60-40
M3 MAX	2586	204	-1371	2389	128	2011	U-1.2D+1.6L+S-T2
MIN	-1011	-241	-4915	-3354	-1725	-2000	
MAX	2700	207	-1199	2615	348	2011	

DOGBONE SPLICE D08-09

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-52	-138	-2153	-804	-641	-241	U-0.9D+1.6W5
N MAX	1722	264	-1440	1065	-199	908	U-1.2D+1.6L+S-T3
V2 MIN	339	-295	-4356	-664	-1244	-429	U-1.2D+1.6L+S-T
V2 MAX	1358	292	-1066	627	-141	475	U-1.2D+1.6L+S-T-60-40
V3 MIN	513	-268	-4530	-1478	-887	-371	U-1.2D+1.6L+S-T3
V3 MAX	1093	234	-851	588	-181	728	U-1.2D+1.6L+S-T4
M1 MIN	511	-240	-4522	-1507	-884	-371	U-1.2D+1.6L+S-T3
M1 MAX	1708	234	-851	1481	-186	385	U-1.2D+1.6L+S-T3
M2 MIN	321	-251	-4328	-1374	-1246	-637	U-1.2D+1.6L+S-T
M2 MAX	737	132	-1355	765	-95	309	U-0.9D+1.6W10
M3 MIN	-37	-214	-4499	-1445	-1236	-886	U-1.2D+1.6L+S-T1
M3 MAX	1695	173	-1275	1444	-199	908	U-1.2D+1.6L+S-T1
MIN	-52	-295	-4530	-1507	-1246	-886	
MAX	1722	292	-851	1481	-95	908	

DOGBONE SPLICE D09-10

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-938	-109	-1823	-897	-1503	-949	U-1.2D+1.6L+S-T2
N MAX	1763	111	-1901	1796	18	1490	U-1.2D+1.6L+S-T3
V2 MIN	-815	-159	-3466	-1814	-1723	-1404	U-1.2D+1.6L+S-T
V2 MAX	1570	114	-1174	1713	123	1399	U-1.2D+1.6L+S-T1
V3 MIN	-8	-148	-3816	-1915	-1060	-1338	U-1.2D+1.6L+S-T3
V3 MAX	886	45	-1017	865	-42	766	U-0.9D+1.6W8
M1 MIN	-450	-149	-3788	-1934	-1057	-1241	U-1.2D+1.6L+S+T3
M1 MAX	1477	111	-1127	1941	16	1224	U-1.2D+1.6L+S+T3+60+40
M2 MIN	-626	-131	-2726	-1388	-1739	-1016	U-1.2D+1.6L+S-T
M2 MAX	1328	54	-1174	1372	146	1140	U-1.2D+1.6W+L35
M3 MIN	-936	-156	-3416	-1798	-1495	-1501	U-1.2D+1.6L+S-T4
M3 MAX	1578	111	-1183	1796	18	1490	U-1.2D+1.6L+S-T2
MIN	-938	-159	-3816	-1934	-1739	-1501	
MAX	1763	114	-1017	1941	146	1490	

DOGBONE SPLICE D10-11

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	215	-82	-1533	-611	-391	-253	U-0.9D+1.6W6
N MAX	1609	156	-1024	981	-8	843	U-1.2D+1.6L+S-T1
V2 MIN	544	-173	-3033	-761	-710	-423	U-1.2D+1.6L+S-T-60-40
V2 MAX	1451	165	-743	432	-12	424	U-1.2D+1.6L+S-T-60-40
V3 MIN	644	-157	-3115	-1254	-478	-441	U-1.2D+1.6L+S-T3
V3 MAX	1150	146	-645	364	-105	678	U-1.2D+1.6L+S-T2-60-40
M1 MIN	667	-151	-3111	-1254	-460	-441	U-1.2D+1.6L+S+T4+60+40
M1 MAX	1548	146	-651	982	-8	437	U-1.2D+1.6L+S-T3
M2 MIN	545	-164	-2669	-1108	-711	-847	U-1.2D+1.6L+S-T
M2 MAX	1053	137	-833	707	17	391	U-1.2D+1.6W+L7
M3 MIN	227	-137	-3101	-1245	-573	-847	U-1.2D+1.6L+S-T1
M3 MAX	1609	119	-914	960	-10	843	U-1.2D+1.6L+S-T1
MIN	215	-173	-3115	-1254	-711	-847	
MAX	1609	165	-645	982	17	843	

DOGBONE SPLICE D11-12

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-668	-133	-1290	-693	-1199	-720	U-1.2D+1.6L+S-T2
N MAX	1290	138	-1428	1341	-11	1192	U-1.2D+1.6L+S-T3
V2 MIN	-471	-159	-2559	-1436	-1410	-1263	U-1.2D+1.6L+S-T
V2 MAX	1072	146	-949	1456	15	1149	U-1.2D+1.6L+S+T+60+40
V3 MIN	-74	-151	-2653	-1434	-920	-1126	U-1.2D+1.6L+S-T3
V3 MAX	643	67	-820	680	-40	637	U-0.9D+1.6W8
M1 MIN	-293	-154	-2545	-1451	-913	-1180	U-1.2D+1.6L+S+T
M1 MAX	1090	138	-897	1456	-13	1149	U-1.2D+1.6L+S+T+60+40
M2 MIN	-580	-147	-2288	-1288	-1418	-1135	U-1.2D+1.6L+S-T1
M2 MAX	985	123	-896	1115	112	922	U-1.2D+1.6L+S-T2-60-40
M3 MIN	-668	-150	-2559	-1436	-1190	-1263	U-1.2D+1.6L+S-T
M3 MAX	1089	138	-1019	1443	15	1228	U-1.2D+1.6L+S-T-60-40
MIN	-668	-159	-2653	-1451	-1418	-1263	
MAX	1290	146	-820	1456	112	1228	

DOGBONE SPLICE D12-13

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	286	-108	-1012	-346	-153	-327	U-0.9D+1.6W5
N MAX	1490	220	-727	573	245	768	U-1.2D+1.6L+S-T1
V2 MIN	509	-215	-1933	-249	-333	-415	U-1.2D+1.6L+S-T-60-40
V2 MAX	1403	233	-526	252	223	335	U-1.2D+1.6L+S-T-60-40
V3 MIN	556	-196	-1991	-618	-211	-527	U-1.2D+1.6L+S-T
V3 MAX	1167	191	-499	228	87	608	U-1.2D+1.6L+S-T4
M1 MIN	534	-175	-1972	-649	-287	-527	U-1.2D+1.6L+S-T3
M1 MAX	1195	191	-499	594	244	452	U-1.2D+1.6L+S-T2-60-40
M2 MIN	437	-201	-1391	-484	-360	-887	U-1.2D+1.6L+S-T4
M2 MAX	1196	173	-866	573	245	402	U-1.2D+1.6L+S-T3-60-40
M3 MIN	366	-165	-1972	-553	-293	-888	U-1.2D+1.6L+S-T1-60-40
M3 MAX	1452	156	-627	594	218	768	U-1.2D+1.6L+S-T1
MIN	286	-215	-1991	-649	-360	-888	
MAX	1490	233	-499	594	245	768	

DOGBONE SPLICE D13-14

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-621	-212	-1134	-330	-1085	-831	U-1.2D+1.6L+S-T2
N MAX	845	221	-928	619	220	572	U-1.2D+1.6L+S-T3
V2 MIN	-522	-259	-1491	-656	-1203	-647	U-1.2D+1.6L+S-T-60-40
V2 MAX	645	227	-624	607	187	618	U-1.2D+1.6L+S-T-60-40
V3 MIN	-274	-246	-1544	-635	-912	-608	U-1.2D+1.6L+S-T3
V3 MAX	480	107	-624	301	122	333	U-0.9D+1.6W8
M1 MIN	-621	-223	-1527	-656	-1085	-831	U-1.2D+1.6L+S-T
M1 MAX	646	221	-680	619	176	809	U-1.2D+1.6L+S+T+60+40
M2 MIN	-621	-243	-1402	-527	-1276	-880	U-1.2D+1.6L+S-T1
M2 MAX	729	192	-631	575	241	554	U-1.2D+1.6L+S-T1
M3 MIN	-621	-210	-1483	-631	-1276	-880	U-1.2D+1.6L+S-T1
M3 MAX	630	208	-657	590	159	837	U-1.2D+1.6L+S-T1-60-40
MIN	-621	-259	-1544	-656	-1276	-880	
MAX	845	227	-624	619	241	837	

DOGBONE SPLICE D14-15

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	17	-122	-859	-607	9	-276	U-1.2D+1.6W+L8
N MAX	674	182	-542	721	586	634	U-1.2D+1.6L+S-T1
V2 MIN	89	-149	-1020	-691	-93	-600	U-1.2D+1.6L+S-T
V2 MAX	630	199	-450	663	562	518	U-1.2D+1.6L+S-T-60-40
V3 MIN	56	-149	-1020	-750	4	-519	U-1.2D+1.6L+S-T
V3 MAX	317	91	-360	283	282	310	U-0.9D+1.6W9
M1 MIN	49	-69	-1012	-776	-69	-606	U-1.2D+1.6L+S-T2
M1 MAX	639	91	-392	734	398	584	U-1.2D+1.6L+S-T4-60-40
M2 MIN	59	-128	-832	-691	-93	-600	U-1.2D+1.6L+S-T4
M2 MAX	604	182	-590	687	654	673	U-1.2D+1.6L+S+T4
M3 MIN	86	-70	-1012	-756	-83	-655	U-1.2D+1.6L+S-T-60-40
M3 MAX	655	164	-433	723	407	673	U-1.2D+1.6L+S-T2
MIN	17	-149	-1020	-776	-93	-655	
MAX	674	199	-360	734	654	673	

DOGBONE SPLICE D15-16

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-128	-67	-410	-54	181	-592	U-1.2D+1.6L+S-T2
N MAX	154	68	-272	61	499	613	U-1.2D+1.6L+S-T3
V2 MIN	-123	-72	-439	-49	211	-598	U-1.2D+1.6L+S-T3
V2 MAX	153	70	-251	61	513	710	U-1.2D+1.6L+S-T3-60-40
V3 MIN	-121	-72	-450	-48	249	-662	U-1.2D+1.6L+S-T-60-40
V3 MAX	58	23	-176	10	239	319	U-0.9D+1.6W10
M1 MIN	-105	-69	-436	-58	216	-524	U-1.2D+1.6L+S-T3-60-40
M1 MAX	152	69	-256	61	508	608	U-1.2D+1.6L+S+T3+60+40
M2 MIN	-17	-24	-210	-12	156	-311	U-0.9D+1.6W10
M2 MAX	142	70	-283	42	519	614	U-1.2D+1.6L+S+T4+60+40
M3 MIN	-121	-22	-450	-37	187	-662	U-1.2D+1.6L+S-T
M3 MAX	142	24	-180	39	519	770	U-1.2D+1.6L+S-T-60-40
MIN	-128	-72	-450	-58	156	-662	
MAX	154	70	-176	61	519	770	

DOGBONE SPLICE D01-02-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-1178	-517	-1758	-1119	-2050	-348	U-1.2D+1.6W+L19
N MAX	7143	261	-4058	4460	6514	3225	U-1.2D+1.6L+S+T1+60+40
V2 MIN	3668	-2113	-5582	-1326	3065	-1336	U-1.2D+1.6L+S+T1
V2 MAX	1721	645	-176	935	1538	60	U-1.2D+1.6W+L60
V3 MIN	4496	-2113	-5589	-2954	3459	-2749	U-1.2D+1.6L+S+T1
V3 MAX	1811	446	-176	935	1212	271	U-1.2D+1.6L+S-T3
M1 MIN	-984	-618	-5589	-2954	-2350	-2749	U-1.2D+1.6L+S+T1
M1 MAX	6824	446	-724	4460	5297	3225	U-1.2D+1.6L+S+T1
M2 MIN	-984	-618	-1855	-1096	-2350	-722	U-1.2D+1.6L+S-T3
M2 MAX	7143	261	-4058	4460	6514	3225	U-1.2D+1.6L+S+T1+60+40
M3 MIN	-984	-618	-5571	-2923	-2350	-2846	U-1.2D+1.6L+S+T1+60+40
M3 MAX	6824	438	-742	4460	5297	3225	U-1.2D+1.6L+S+T1
MIN	-1178	-2113	-5589	-2954	-2350	-2846	
MAX	7143	645	-176	4460	6514	3225	

DOGBONE SPLICE D02-03-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	1054	-35	-1985	-458	263	-264	U-0.9D+1.6W12
N MAX	6527	68	-3992	545	339	782	U-1.2D+1.6L+S+T4+60+40
V2 MIN	2652	-359	-3963	-625	94	-637	U-1.2D+1.6L+S-T2
V2 MAX	5965	330	-2467	631	817	583	U-1.2D+1.6L+S-T4
V3 MIN	4286	-66	-5866	-1206	555	-1157	U-1.2D+1.6L+S+T1
V3 MAX	3405	286	-886	617	568	666	U-1.2D+1.6L+S-T3
M1 MIN	3099	-32	-4246	-1407	-569	-1410	U-1.2D+1.6L+S-T1-60-40
M1 MAX	5229	24	-2664	1396	1480	1197	U-1.2D+1.6L+S-T1-60-40
M2 MIN	3012	-147	-2224	-307	-773	-654	U-1.2D+1.6W+L19
M2 MAX	5624	302	-2803	1264	1639	897	U-1.2D+1.6W+L42
M3 MIN	1054	-35	-4246	-1407	307	-1410	U-1.2D+1.6L+S-T1-60-40
M3 MAX	5229	24	-2664	1396	1480	1197	U-1.2D+1.6L+S-T1-60-40
MIN	1054	-359	-5866	-1407	-773	-1410	
MAX	6527	330	-886	1396	1639	1197	

DOGBONE SPLICE D03-04-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-294	-234	-2191	-1587	-192	-576	U-1.2D+1.6W+L59
N MAX	3505	387	-1958	2103	2120	2811	U-1.2D+1.6W+L22
V2 MIN	629	-494	-2503	-809	173	-708	U-1.2D+1.6L+S-T1-60-40
V2 MAX	2825	514	-1179	820	2257	212	U-1.2D+1.6L+S-T1-60-40
V3 MIN	2067	-434	-4240	-3231	965	-2535	U-1.2D+1.6L+S+T1+60+40
V3 MAX	1116	300	-501	876	1150	1237	U-1.2D+1.6L+S-T3
M1 MIN	171	-276	-4240	-3231	340	-2535	U-1.2D+1.6L+S+T1+60+40
M1 MAX	3313	300	-571	3201	1740	2672	U-1.2D+1.6L+S+T1
M2 MIN	-237	-191	-1797	-1323	-356	-627	U-1.2D+1.6W+L19
M2 MAX	3448	510	-1623	2346	2283	2779	U-1.2D+1.6W+L42
M3 MIN	-153	-158	-2588	-2109	-47	-2666	U-1.2D+1.6W+L57
M3 MAX	3505	184	-1616	2103	2120	2811	U-1.2D+1.6W+L22
MIN	-294	-494	-4240	-3231	-356	-2666	
MAX	3505	514	-501	3201	2283	2811	

DOGBONE SPLICE D04-05-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-1200	-68	-1240	-145	-352	-189	U-1.2D+1.6L+S-T4
N MAX	2242	198	-3063	450	-1055	127	U-1.2D+1.6L+S+T2
V2 MIN	-67	-234	-4274	-127	-1114	-256	U-1.2D+1.6L+S+T1+60+40
V2 MAX	1217	229	-1291	130	-405	139	U-1.2D+1.6L+S+T1+60+40
V3 MIN	837	-233	-4282	-743	-1127	-164	U-1.2D+1.6L+S+T1
V3 MAX	-85	96	-430	224	-333	88	U-1.2D+1.6L+S-T3
M1 MIN	-385	-30	-4268	-745	-1134	-167	U-1.2D+1.6L+S+T1
M1 MAX	1205	32	-454	767	-325	127	U-1.2D+1.6L+S+T1
M2 MIN	1116	-196	-3566	-433	-1392	-174	U-1.2D+1.6L+S+T4
M2 MAX	-380	63	-1135	149	-172	104	U-1.2D+1.6L+S-T2
M3 MIN	-762	-142	-2417	-196	-778	-293	U-1.2D+1.6W+L10
M3 MAX	1195	126	-1877	342	-540	181	U-1.2D+1.6W+L57
MIN	-1200	-234	-4282	-745	-1392	-293	
MAX	2242	229	-430	767	-172	181	

DOGBONE SPLICE D05-06-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-155	-150	-1563	-811	1062	-994	U-1.2D+1.6W+L59
N MAX	2137	296	-1082	981	2394	2356	U-1.2D+1.6W+L57
V2 MIN	-107	-364	-1501	-776	902	-2433	U-1.2D+1.6L+S-T1
V2 MAX	1670	327	-753	809	2617	2505	U-1.2D+1.6L+S-T1
V3 MIN	599	-214	-2937	-1510	1609	-1413	U-1.2D+1.6L+S+T4+60+40
V3 MAX	1443	295	-221	451	1875	2069	U-1.2D+1.6L+S-T4
M1 MIN	234	-280	-2926	-1529	1109	-2149	U-1.2D+1.6L+S+T1
M1 MAX	1792	237	-282	1622	2504	2274	U-1.2D+1.6L+S+T1
M2 MIN	-4	-78	-924	-504	682	-562	U-0.9D+1.6W7
M2 MAX	1829	323	-758	810	2849	2508	U-1.2D+1.6L+S-T1
M3 MIN	-4	-364	-1501	-776	682	-2433	U-1.2D+1.6L+S-T1
M3 MAX	1667	323	-758	810	2623	2508	U-1.2D+1.6L+S-T1-60-40
MIN	-155	-364	-2937	-1529	682	-2433	
MAX	2137	327	-221	1622	2849	2508	

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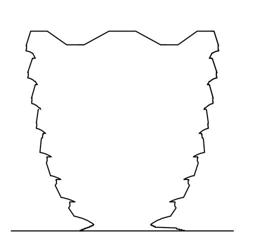

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DOGBONE SPLICE D06-07-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-2188	-72	-329	-243	113	-524	U-1.2D+1.6L+S-T4
N MAX	693	148	-1722	746	-472	186	U-1.2D+1.6L+S+T2
V2 MIN	-1741	-148	-1372	-560	-145	-436	U-1.2D+1.6W+L22
V2 MAX	693	148	-854	746	-186	421	U-1.2D+1.6L+S+T2
V3 MIN	-465	-144	-2358	-1044	-434	-288	U-1.2D+1.6L+S+T1
V3 MAX	-1109	64	53	171	79	448	U-1.2D+1.6L+S-T3
M1 MIN	-1534	-144	-2356	-1044	-434	-465	U-1.2D+1.6L+S+T1+60+40
M1 MAX	-134	133	44	1056	79	448	U-1.2D+1.6L+S+T1+60+40
M2 MIN	-88	-148	-2191	-733	-843	-215	U-1.2D+1.6L+S+T4
M2 MAX	-1547	56	-114	247	393	528	U-1.2D+1.6L+S-T2
M3 MIN	-1695	-83	-709	-116	-187	-575	U-1.2D+1.6L+S-T
M3 MAX	260	77	-375	551	108	542	U-1.2D+1.6L+S-T
MIN	-2188	-148	-2358	-1044	-843	-575	
MAX	693	148	53	1056	393	542	

DOGBONE SPLICE D07-08-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	134	-139	-633	-352	760	-653	U-0.9D+1.6W12
N MAX	1652	298	-1231	916	1990	1890	U-1.2D+1.6L+S+T1+60+40
V2 MIN	201	-383	-489	-426	614	-2067	U-1.2D+1.6L+S-T1
V2 MAX	1557	377	-62	438	1937	2133	U-1.2D+1.6L+S-T1
V3 MIN	769	-236	-1888	-964	1260	-1305	U-1.2D+1.6L+S+T4+60+40
V3 MAX	1131	339	407	242	1316	1713	U-1.2D+1.6L+S-T4
M1 MIN	762	-235	-1886	-964	1135	-1301	U-1.2D+1.6L+S+T4
M1 MAX	1107	269	376	977	1668	1358	U-1.2D+1.6L+S+T2+60+40
M2 MIN	478	-163	-341	-289	609	-791	U-0.9D+1.6W8
M2 MAX	1555	376	-64	438	2017	2133	U-1.2D+1.6L+S-T1
M3 MIN	201	-383	-489	-426	614	-2067	U-1.2D+1.6L+S-T1
M3 MAX	1555	376	-64	438	1939	2133	U-1.2D+1.6L+S-T1-60-40
MIN	134	-383	-1888	-964	609	-2067	
MAX	1652	377	407	977	2017	2133	

DOGBONE SPLICE D08-09-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-2217	-38	-40	-190	74	-753	U-1.2D+1.6L+S-T4
N MAX	-181	38	-1049	509	-304	347	U-1.2D+1.6L+S+T2
V2 MIN	-1945	-48	-739	-283	-123	-797	U-1.2D+1.6W+L10
V2 MAX	-644	40	159	253	77	659	U-1.2D+1.6W+L9
V3 MIN	-1043	-46	-1430	-691	-304	-484	U-1.2D+1.6L+S+T1+60+40
V3 MAX	-1344	24	164	149	76	658	U-1.2D+1.6L+S-T3
M1 MIN	-1755	-46	-1430	-691	-304	-669	U-1.2D+1.6L+S+T1+60+40
M1 MAX	-612	39	160	695	76	658	U-1.2D+1.6L+S+T1+60+40
M2 MIN	-673	-43	-1417	-505	-525	-360	U-1.2D+1.6L+S+T4
M2 MAX	-1681	25	152	190	251	751	U-1.2D+1.6L+S-T2
M3 MIN	-2140	-33	-471	-94	-44	-818	U-1.2D+1.6L+S-T1
M3 MAX	-279	24	-97	97	144	800	U-1.2D+1.6L+S-T1
MIN	-2217	-48	-1430	-691	-525	-818	
MAX	-181	40	164	695	251	800	

DOGBONE SPLICE D09-10-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-1178	-517	-1418	171	-2050	-348	U-1.2D+1.6W+L19
N MAX	6824	388	205	4460	5297	3225	U-1.2D+1.6L+S+T1
V2 MIN	513	-2113	-5582	257	412	744	U-1.2D+1.6L+S+T1
V2 MAX	1150	391	215	935	1244	1802	U-1.2D+1.6L+S-T
V3 MIN	-1303	-37	-1114	144	14	-187	U-1.2D+1.6L+S+T2
V3 MAX	1031	324	528	257	951	1503	U-1.2D+1.6L+S-T4
M1 MIN	-984	-618	-1299	-41	-2350	-722	U-1.2D+1.6L+S-T3
M1 MAX	6824	310	-725	4460	5297	3225	U-1.2D+1.6L+S+T1
M2 MIN	-984	-618	-1299	-41	-2350	-722	U-1.2D+1.6L+S-T3
M2 MAX	6824	388	203	4460	5297	3225	U-1.2D+1.6L+S+T1
M3 MIN	-858	-1	-234	169	89	-142	U-1.2D+1.6L4
M3 MAX	6824	388	203	4460	5297	3225	U-1.2D+1.6L+S+T1
MIN	-1303	-2113	-5582	-41	-2350	-722	
MAX	6824	391	528	4460	5297	3225	

DOGBONE SPLICE D10-11-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-2371	-63	-342	-504	-68	-239	U-1.2D+1.6L+S-T1
N MAX	-353	70	-405	125	27	425	U-1.2D+1.6L+S+T3
V2 MIN	-1703	-66	-283	-238	17	-246	U-1.2D+1.6L+S-T
V2 MAX	-616	75	-496	277	142	479	U-1.2D+1.6L+S+T4+60+40
V3 MIN	-963	-15	-933	-461	-214	-153	U-1.2D+1.6L+S+T4+60+40
V3 MAX	-1346	63	61	199	112	799	U-1.2D+1.6L+S-T4-60-40
M1 MIN	-1423	-16	-931	-602	-100	-147	U-1.2D+1.6L+S+T1+60+40
M1 MAX	-1380	66	46	327	153	726	U-1.2D+1.6L+S-T1
M2 MIN	-963	-32	-933	-460	-215	-164	U-1.2D+1.6L+S+T4
M2 MAX	-944	49	-253	243	157	559	U-1.2D+1.6W+L17
M3 MIN	-1703	-66	-213	-137	-85	-246	U-1.2D+1.6L+S-T
M3 MAX	-583	69	-101	149	101	910	U-1.2D+1.6L+S-T1-60-40
MIN	-2371	-66	-933	-602	-215	-246	
MAX	-353	75	61	327	157	910	

DOGBONE SPLICE D11-12-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	531	-157	-131	-232	348	-682	U-0.9D+1.6W11
N MAX	1730	353	249	357	1058	1823	U-1.2D+1.6L+S-T1
V2 MIN	721	-359	-39	-348	321	-1814	U-1.2D+1.6L+S-T1
V2 MAX	1605	354	250	380	964	1765	U-1.2D+1.6L+S-T
V3 MIN	947	-254	-621	-565	473	-1301	U-1.2D+1.6L+S+T4+60+40
V3 MAX	1332	298	458	274	759	1410	U-1.2D+1.6L+S-T4
M1 MIN	1007	-288	-392	-577	489	-1514	U-1.2D+1.6L+S+T+60+40
M1 MAX	1480	283	449	584	754	1519	U-1.2D+1.6L+S+T+60+40
M2 MIN	583	-151	-102	-225	305	-681	U-0.9D+1.6W8
M2 MAX	1729	353	248	357	1058	1823	U-1.2D+1.6L+S-T1-60-40
M3 MIN	583	-359	-98	-348	309	-1814	U-1.2D+1.6L+S-T1-60-40
M3 MAX	1730	353	249	357	1058	1823	U-1.2D+1.6L+S-T1
MIN	531	-359	-621	-577	305	-1814	
MAX	1730	354	458	584	1058	1823	

DOGBONE SPLICE D12-13-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-2144	-159	-434	-615	-215	-437	U-1.2D+1.6L+S-T1
N MAX	-594	67	-219	190	-109	158	U-0.9D+1.6W7
V2 MIN	-1991	-166	-361	-270	-241	-422	U-1.2D+1.6L+S-T
V2 MAX	-604	149	-217	183	-65	458	U-1.2D+1.6L+S-T-60-40
V3 MIN	-1469	-150	-764	-598	-179	-271	U-1.2D+1.6L+S+T1+60+40
V3 MAX	-1271	120	-121	350	-169	392	U-1.2D+1.6L+S-T3-60-40
M1 MIN	-2144	-72	-434	-615	-216	-152	U-1.2D+1.6L+S-T1-60-40
M1 MAX	-619	66	-217	579	-74	166	U-1.2D+1.6L+S-T1
M2 MIN	-1731	-158	-403	-483	-279	-382	U-1.2D+1.6L+S-T4-60-40
M2 MAX	-718	65	-235	209	-49	197	U-0.9D+1.6W9
M3 MIN	-2105	-159	-566	-364	-203	-437	U-1.2D+1.6L+S-T1
M3 MAX	-601	141	-233	336	-132	473	U-1.2D+1.6L+S-T1-60-40
MIN	-2144	-166	-764	-615	-279	-437	
MAX	-594	149	-121	579	-49	473	

DOGBONE SPLICE D13-14-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	584	-209	-80	-65	180	-533	U-0.9D+1.6W11
N MAX	1691	467	153	73	612	1265	U-1.2D+1.6L+S-T1-60-40
V2 MIN	693	-459	-39	-90	182	-1316	U-1.2D+1.6L+S-T
V2 MAX	1532	476	146	71	487	1250	U-1.2D+1.6L+S-T-60-40
V3 MIN	883	-342	-392	-230	232	-1017	U-1.2D+1.6L+S+T2
V3 MAX	1368	391	257	66	468	1047	U-1.2D+1.6L+S-T2-60-40
M1 MIN	916	-380	-291	-236	256	-1155	U-1.2D+1.6L+S+T1+60+40
M1 MAX	1455	394	150	217	477	1103	U-1.2D+1.6L+S+T1+60+40
M2 MIN	617	-203	-68	-65	166	-535	U-0.9D+1.6W7
M2 MAX	1691	467	153	73	612	1265	U-1.2D+1.6L+S-T1
M3 MIN	617	-452	-67	-92	166	-1329	U-1.2D+1.6L+S-T1-60-40
M3 MAX	1634	467	150	73	566	1265	U-1.2D+1.6L+S-T1
MIN	584	-459	-392	-236	166	-1329	
MAX	1691	476	257	217	612	1265	

DOGBONE SPLICE D14-15-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-2499	-162	-836	-1202	-1112	-165	U-1.2D+1.6L+S-T1
N MAX	-898	74	-364	491	-424	55	U-0.9D+1.6W8
V2 MIN	-2499	-162	-836	-493	-1112	-165	U-1.2D+1.6L+S-T1
V2 MAX	-961	187	-377	503	-421	185	U-1.2D+1.6L+S-T1-60-40
V3 MIN	-1909	-161	-888	-1053	-787	-90	U-1.2D+1.6L+S+T1+60+40
V3 MAX	-898	74	-364	491	-424	55	U-0.9D+1.6W8
M1 MIN	-2444	-63	-827	-1203	-1112	-46	U-1.2D+1.6L+S-T1-60-40
M1 MAX	-898	74	-364	1217	-424	55	U-1.2D+1.6L+S-T1
M2 MIN	-2411	-149	-810	-1155	-1133	-167	U-1.2D+1.6L+S-T
M2 MAX	-942	73	-373	503	-420	67	U-0.9D+1.6W12
M3 MIN	-2061	-135	-733	-881	-995	-176	U-1.2D+1.6L+S-T2
M3 MAX	-1173	158	-546	891	-488	199	U-1.2D+1.6L+S-T4-60-40
MIN	-2499	-162	-888	-1203	-1133	-176	
MAX	-898	187	-364	1217	-420	199	

DOGBONE SPLICE D15-16-S

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-93	-120	-417	-37	342	-211	U-1.2D+1.6L+S-T2
N MAX	155	113	-307	74	490	197	U-1.2D+1.6L+S-T2
V2 MIN	-85	-124	-461	-38	342	-211	U-1.2D+1.6L+S-T
V2 MAX	148	116	-291	46	522	206	U-1.2D+1.6L+S-T-60-40
V3 MIN	-85	-124	-461	-55	378	-119	U-1.2D+1.6L+S-T
V3 MAX	48	49	-193	17	233	25	U-0.9D+1.6W8
M1 MIN	-91	-106	-425	-74	343	-112	U-1.2D+1.6L+S-T2
M1 MAX	134	99	-281	84	494	115	U-1.2D+1.6L+S-T4-60-40
M2 MIN	10	-51	-209	-11	229	-4	U-0.9D+1.6W7
M2 MAX	152	112	-312	66	547	135	U-1.2D+1.6L+S-T1
M3 MIN	-89	-120	-433	-48	321	-218	U-1.2D+1.6L+S+T1
M3 MAX	141	113	-281	56	536	218	U-1.2D+1.6L+S+T1+60+40
MIN	-93	-124	-461	-74	229	-218	
MAX	155	116	-193	84	547	218	

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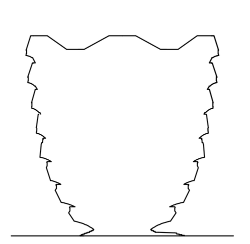

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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number
HYE-VS-S-862

STATE OF NEW YORK ELI B. GOTTLIEB 080894 LICENSED PROFESSIONAL ENGINEER

Drawing Title
CONNECTION FORCES DOGBONES III

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016:
NYC Development Hub

Drawing Number / B-SCAN Drawing Number
S-862.00

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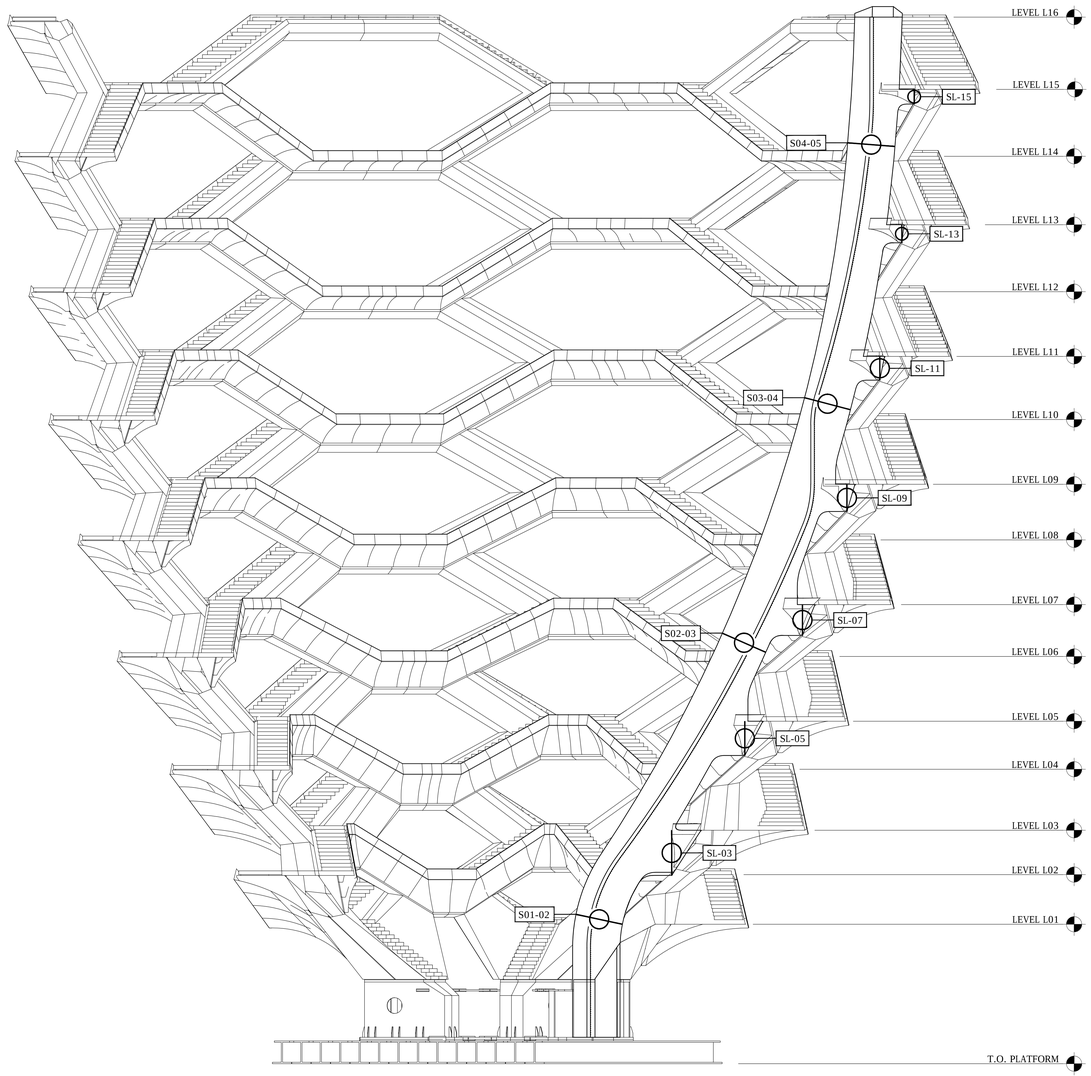

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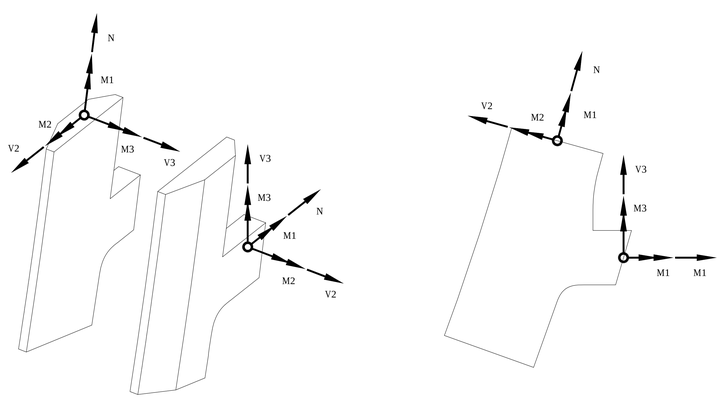

2 COORDINATE SYSTEM

SPINE TO SPINE CONNECTION S01-02

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-7773	519	-12	-73	-276	-3900	U-1.2D+1.6L+S-T1-60-40
N MAX	-1969	16	36	13	107	-945	U-1.2D+1.6L+S+T3+60+40
V2 MIN	-4284	-226	-38	-17	-231	-3379	U-1.2D+1.6L+S+T1+60+40
V2 MAX	-5428	737	13	49	177	-1405	U-1.2D+1.6L+S-T3-60-40
V3 MIN	-5901	-69	-40	-38	-176	-2477	U-1.2D+1.6L+S-T2
V3 MAX	-2744	653	55	8	130	-2194	U-1.2D+1.6L+S+T1
M1 MIN	-7179	-104	-17	-102	-139	-2932	U-1.2D+1.6L+S-T2
M1 MAX	-2531	563	27	103	95	-1792	U-1.2D+1.6L+S+T4
M2 MIN	-6955	226	-2	9	-283	-2865	U-1.2D+1.6L+S-T4-60-40
M2 MAX	-2616	610	4	-14	223	-1176	U-0.9D+1.6W11
M3 MIN	-7741	472	-14	-81	-272	-3997	U-1.2D+1.6L+S-T1
M3 MAX	-2112	288	4	21	102	-828	U-1.2D+1.6L+S+T3
MIN	-7773	-226	-40	-102	-283	-3997	
MAX	-1969	737	55	103	223	-828	

SPINE TO SPINE CONNECTION S02-03

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-9825	359	-3	-54	-314	-315	U-1.2D+1.6L+S-T1
N MAX	-3515	76	2	10	110	157	U-0.9D+1.6W8
V2 MIN	-4391	-34	-2	-5	-143	24	U-1.2D+1.6L+S+T3
V2 MAX	-7606	447	1	55	314	-18	U-1.2D+1.6L+S-T1
V3 MIN	-6667	170	-13	-24	-187	-73	U-1.2D+1.6W+L38
V3 MAX	-5455	224	11	32	188	82	U-1.2D+1.6W+L10
M1 MIN	-9825	31	-4	-54	-314	-304	U-1.2D+1.6L+S-T1
M1 MAX	-4637	370	7	58	227	99	U-1.2D+1.6L+S+T4
M2 MIN	-9825	75	-3	-54	-314	-304	U-1.2D+1.6L+S-T1
M2 MAX	-3543	440	1	55	314	157	U-0.9D+1.6W7
M3 MIN	-7001	60	-3	-14	-236	-402	U-1.2D+1.6L+S+T1+60+40
M3 MAX	-6487	348	0	43	221	489	U-1.2D+1.6L+S-T3-60-40
MIN	-9825	-34	-13	-54	-314	-402	
MAX	-3515	447	11	58	314	489	

SPINE TO SPINE CONNECTION S03-04

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-6214	561	-25	-54	-198	474	U-1.2D+1.6L+S-T1
N MAX	-2391	256	14	15	75	393	U-0.9D+1.6W8
V2 MIN	-2406	254	-13	-15	-76	386	U-0.9D+1.6W7
V2 MAX	-4676	737	26	54	198	608	U-1.2D+1.6L+S-T1
V3 MIN	-3700	295	-30	-27	-121	355	U-1.2D+1.6W+L33
V3 MAX	-2780	574	30	52	137	714	U-0.9D+1.6W12
M1 MIN	-6214	260	-25	-54	-198	435	U-1.2D+1.6L+S-T1
M1 MAX	-2733	730	26	54	198	684	U-1.2D+1.6L+S+T3
M2 MIN	-5900	254	-19	-45	-204	393	U-1.2D+1.6L+S-T4
M2 MAX	-2406	658	19	45	203	643	U-0.9D+1.6W7
M3 MIN	-4829	331	-16	-25	-163	291	U-1.2D+1.6L+S+T1+60+40
M3 MAX	-4098	561	20	44	138	873	U-1.2D+1.6L+S-T3-60-40
MIN	-6214	254	-30	-54	-204	291	
MAX	-2391	737	30	54	203	873	

SPINE TO SPINE CONNECTION S04-05

	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-1741	523	-12	-13	-6	-1159	U-1.2D+1.6L+S-T1-60-40
N MAX	-688	287	17	2	16	-430	U-0.9D+1.6W12
V2 MIN	-708	284	-10	-1	-8	-432	U-0.9D+1.6W7
V2 MAX	-1322	704	21	11	9	-797	U-1.2D+1.6L+S-T-60-40
V3 MIN	-1401	376	-37	-16	-17	-957	U-1.2D+1.6L+S-T2
V3 MAX	-959	562	39	15	17	-540	U-1.2D+1.6L+S+T4
M1 MIN	-1401	376	-37	-16	-17	-957	U-1.2D+1.6L+S-T2
M1 MAX	-959	562	39	15	17	-540	U-1.2D+1.6L+S+T4
M2 MIN	-1366	390	-29	-2	-22	-771	U-1.2D+1.6W+L33
M2 MAX	-934	522	31	0	22	-578	U-1.2D+1.6W+L60
M3 MIN	-1741	527	-17	-13	-8	-1163	U-1.2D+1.6L+S-T1-60-40
M3 MAX	-816	415	8	9	3	-415	U-1.2D+1.6L+S+T3
MIN	-1741	284	-37	-16	-22	-1163	
MAX	-688	704	39	15	22	-415	

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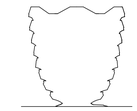

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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number HYE-VS-S-863

Drawing Title

CONNECTION FORCES
SPINE I

Damian Titus
DOB Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

Drawing Number / BASIS Drawing Number
S-863.00

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SPINE TO LANDING CONNECTION SL-03							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-3876	0	-2848	-190	1064	199	U-1.2D+1.6L+S-T1
N MAX	-1115	10	-1263	-155	359	152	U-0.9D+1.6W7
V2 MIN	-2169	-29	-2148	-22	546	-338	U-1.2D+1.6W+L60
V2 MAX	-2353	36	-2105	-270	638	526	U-1.2D+1.6W+L33
V3 MIN	-3088	4	-3577	-259	207	60	U-1.2D+1.6L+S+T1+60+40
V3 MAX	-1115	10	-1263	-155	359	152	U-0.9D+1.6W7
M1 MIN	-2069	14	-2804	-665	113	146	U-1.2D+1.6L+S+T2
M1 MAX	-2767	-7	-1773	304	1172	54	U-1.2D+1.6L+S-T4
M2 MIN	-1686	5	-2438	-189	90	-3	U-1.2D+1.6L+S+T3
M2 MAX	-2873	0	-1876	-121	1268	232	U-1.2D+1.6L+S-T
M3 MIN	-2139	-15	-2831	-86	124	-515	U-1.2D+1.6L+S+T4
M3 MAX	-2748	22	-1766	-226	1133	736	U-1.2D+1.6L+S-T2
MIN	-3876	-29	-3577	-665	90	-515	
MAX	-1115	36	-1263	304	1268	736	

SPINE TO LANDING CONNECTION SL-05							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-150	2	-722	-62	288	0	U-1.2D+1.6L+S+T3
N MAX	736	6	834	75	14	-103	U-1.2D+1.6L+S-T1
V2 MIN	630	-17	493	-215	-136	-186	U-1.2D+1.6L+S-T2
V2 MAX	-32	38	-402	175	426	95	U-1.2D+1.6L+S+T4
V3 MIN	-77	0	-760	-77	278	-7	U-1.2D+1.6L+S+T
V3 MAX	736	6	834	75	14	-103	U-1.2D+1.6L+S-T1
M1 MIN	-90	-10	-673	-286	270	-81	U-1.2D+1.6L+S+T2
M1 MAX	687	31	765	245	20	-9	U-1.2D+1.6L+S-T4
M2 MIN	658	-10	606	22	-151	-120	U-1.2D+1.6L+S-T1
M2 MAX	-25	20	-405	-4	498	6	U-1.2D+1.6L+S+T
M3 MIN	630	-17	493	-215	-136	-186	U-1.2D+1.6L+S-T2
M3 MAX	-32	38	-402	175	426	95	U-1.2D+1.6L+S+T4
MIN	-150	-17	-760	-286	-151	-186	
MAX	736	38	834	245	498	95	

SPINE TO LANDING CONNECTION SL-07							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	379	-1	276	-12	-209	6	U-1.2D+1.6L+S+T3
N MAX	1910	-4	2377	-10	-391	14	U-1.2D+1.6L+S-T1
V2 MIN	1081	-42	1251	6	-332	0	U-1.2D+1.6W+L58
V2 MAX	994	36	1134	-32	-202	20	U-1.2D+1.6W+L35
V3 MIN	379	-1	276	-12	-209	6	U-1.2D+1.6L+S+T3
V3 MAX	1910	-4	2377	-10	-391	14	U-1.2D+1.6L+S-T1
M1 MIN	1070	19	1232	-228	-320	-130	U-1.2D+1.6W+L33
M1 MAX	1006	-25	1154	203	-214	151	U-1.2D+1.6W+L60
M2 MIN	1611	-6	1951	-16	-525	9	U-1.2D+1.6L+S-T1
M2 MAX	588	-1	637	-9	-54	11	U-1.2D+1.6L+S+T3
M3 MIN	1513	-25	1816	-174	-444	-172	U-1.2D+1.6L+S-T2
M3 MAX	713	19	772	148	-156	191	U-1.2D+1.6L+S+T4
MIN	379	-42	276	-228	-525	-172	
MAX	1910	36	2377	203	-54	191	

SPINE TO LANDING CONNECTION SL-09							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	558	-1	984	-7	-396	3	U-1.2D+1.6L+S+T3
N MAX	1670	-1	3230	-12	-732	12	U-1.2D+1.6L+S-T1
V2 MIN	987	-34	1789	19	-575	-6	U-1.2D+1.6W+L58
V2 MAX	974	32	1797	-40	-457	21	U-1.2D+1.6W+L35
V3 MIN	558	-1	984	-7	-396	3	U-1.2D+1.6L+S+T3
V3 MAX	1670	-1	3230	-12	-732	12	U-1.2D+1.6L+S-T1
M1 MIN	1273	6	2359	-146	-776	60	U-1.2D+1.6L+S-T4-60-40
M1 MAX	828	-8	1549	125	-360	-46	U-1.2D+1.6L+S+T2+60+40
M2 MIN	1349	-2	2505	-18	-977	9	U-1.2D+1.6L+S-T1
M2 MAX	730	0	1323	-5	-252	5	U-1.2D+1.6L+S+T3
M3 MIN	709	-32	1252	37	-454	-174	U-1.2D+1.6L+S+T2+60+40
M3 MAX	1399	30	2665	-56	-681	189	U-1.2D+1.6L+S-T4-60-40
MIN	558	-34	984	-146	-977	-174	
MAX	1670	32	3230	125	-252	189	

SPINE TO LANDING CONNECTION SL-11							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	462	2	1502	-3	-685	7	U-1.2D+1.6L+S+T3
N MAX	1297	2	3921	-6	-1109	14	U-1.2D+1.6L+S-T1
V2 MIN	739	-39	2205	-3	-933	-26	U-1.2D+1.6W+L58
V2 MAX	765	42	2336	-7	-766	45	U-1.2D+1.6W+L35
V3 MIN	466	17	1417	-7	-525	-13	U-0.9D+1.6W7
V3 MAX	1297	2	3921	-6	-1109	14	U-1.2D+1.6L+S-T1
M1 MIN	929	2	2777	-383	-1216	54	U-1.2D+1.6L+S-T4-60-40
M1 MAX	694	1	2195	372	-651	-35	U-1.2D+1.6L+S+T2+60+40
M2 MIN	985	1	2939	-10	-1501	10	U-1.2D+1.6L+S-T1
M2 MAX	466	17	1417	-7	-525	-13	U-0.9D+1.6W7
M3 MIN	559	-1	1751	89	-821	-175	U-1.2D+1.6L+S+T2
M3 MAX	1066	5	3227	-97	-1043	195	U-1.2D+1.6L+S-T4-60-40
MIN	462	-39	1417	-383	-1501	-175	
MAX	1297	42	3921	372	-525	195	

SPINE TO LANDING CONNECTION SL-13							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	419	16	1556	-1	-546	-9	U-0.9D+1.6W7
N MAX	1073	3	3983	-29	-1052	3	U-1.2D+1.6L+S-T1
V2 MIN	575	-47	2197	-316	-883	26	U-1.2D+1.6W+L60
V2 MAX	708	51	2591	266	-815	-24	U-1.2D+1.6W+L33
V3 MIN	419	16	1556	-1	-546	-9	U-0.9D+1.6W7
V3 MAX	1073	3	3983	-29	-1052	3	U-1.2D+1.6L+S-T1
M1 MIN	722	-19	2796	-580	-1158	32	U-1.2D+1.6L+S-T4
M1 MAX	671	23	2439	526	-699	-31	U-1.2D+1.6L+S+T2
M2 MIN	766	2	2954	-41	-1445	1	U-1.2D+1.6L+S-T1
M2 MAX	419	16	1556	-1	-546	-9	U-0.9D+1.6W7
M3 MIN	509	6	1969	101	-865	-138	U-1.2D+1.6L+S+T2
M3 MAX	880	-2	3272	-152	-988	139	U-1.2D+1.6L+S-T4-60-40
MIN	419	-47	1556	-580	-1445	-138	
MAX	1073	51	3983	526	-546	139	

SPINE TO LANDING CONNECTION SL-15							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	727	6	1224	42	-652	-23	U-0.9D+1.6W7
N MAX	1739	-4	3060	13	-1151	3	U-1.2D+1.6L+S-T1
V2 MIN	1042	-26	1755	-97	-1069	-62	U-1.2D+1.6W+L58
V2 MAX	1142	21	1924	106	-899	47	U-1.2D+1.6W+L35
V3 MIN	727	6	1224	42	-652	-23	U-0.9D+1.6W7
V3 MAX	1739	-4	3060	13	-1151	3	U-1.2D+1.6L+S-T1
M1 MIN	922	-1	1475	-600	-1076	26	U-1.2D+1.6L+S+T4+60+40
M1 MAX	1457	-5	2543	611	-1086	-43	U-1.2D+1.6L+S-T2-60-40
M2 MIN	1307	-7	2292	7	-1597	-1	U-1.2D+1.6L+S-T1
M2 MAX	727	6	1224	42	-652	-23	U-0.9D+1.6W7
M3 MIN	921	-10	1475	134	-1076	-227	U-1.2D+1.6L+S+T2+60+40
M3 MAX	1463	3	2544	-124	-1086	210	U-1.2D+1.6L+S-T4
MIN	727	-26	1224	-600	-1597	-227	
MAX	1739	21	3060	611	-652	210	

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Date: 12/07/2016:
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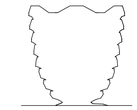

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No.	Issue	Date
03	DOCUMENT ISSUE 08	23 MAR 2015
02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-864
Drawing Title

CONNECTION FORCES
SPINE II

Drawing Number / BASCAN Drawing Number
S-864.00

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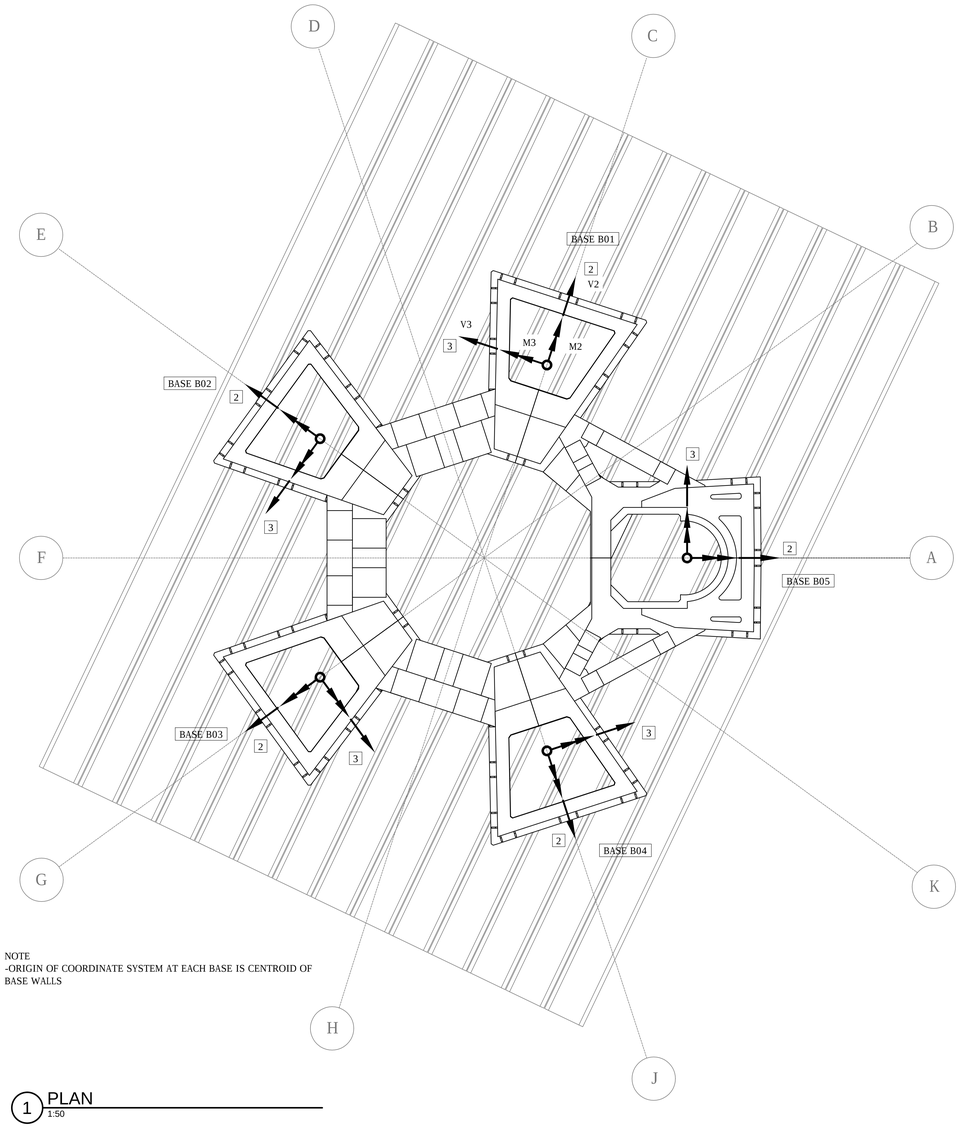
BASE B01							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-14730	-1940	1870	360	-4730	16160	U-1.2D+1.6L+S+T2+60+40
N MAX	-1990	660	1570	-810	-100	4250	U-1.2D+1.6W+L60
V2 MIN	-13850	-2270	2340	-360	-5280	13100	U-1.2D+1.6L+S-T2
V2 MAX	-3360	1860	1510	-560	410	12740	U-1.2D+1.6L+S+T4
V3 MIN	-4720	630	330	-2350	980	9980	U-0.9D+1.6W6
V3 MAX	-8190	-830	3340	2410	-4730	15770	U-1.2D+1.6W+L43
M1 MIN	-7500	550	730	-3240	470	13110	U-1.2D+1.6W+L42
M1 MAX	-8190	-830	3160	2480	-4730	11260	U-1.2D+1.6W+L19
M2 MIN	-11080	-1420	2890	1720	-6020	11120	U-1.2D+1.6W+L43
M2 MAX	-4640	1130	800	-2520	1490	13250	U-1.2D+1.6W+L30
M3 MIN	-4130	70	1310	-1460	-1110	800	U-1.2D+1.6W+L60
M3 MAX	-9760	240	2610	1360	-2570	24910	U-1.2D+1.6L+S+T2
MIN	-14730	-2270	330	-3240	-6020	800	
MAX	-1990	1860	3340	2480	1490	24910	

BASE B02							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-19880	-1740	610	-1020	-2940	14830	U-1.2D+1.6L+S+T3
N MAX	-5040	-1380	-310	-850	920	-940	U-0.9D+1.6W6
V2 MIN	-19470	-7890	-680	220	-1030	2360	U-1.2D+1.6L+S-T3
V2 MAX	-9440	1140	410	-1680	1860	11870	U-1.2D+1.6L+S+T1
V3 MIN	-16990	-3880	-1870	-3770	4880	8940	U-1.2D+1.6W+L33
V3 MAX	-9450	-2180	1550	2310	-3890	4580	U-1.2D+1.6W+L60
M1 MIN	-16990	-3880	-1870	-3770	4880	8940	U-1.2D+1.6W+L33
M1 MAX	-9450	-2180	1550	2310	-3890	4580	U-1.2D+1.6W+L60
M2 MIN	-10990	-2580	1190	1450	-5990	2550	U-1.2D+1.6W+L60
M2 MAX	-14060	-3140	-1480	-2860	6940	11900	U-1.2D+1.6W+L33
M3 MIN	-11830	-5820	-1240	-1360	2060	-4100	U-1.2D+1.6L+S-T1
M3 MAX	-14870	-400	890	-200	-1170	19820	U-1.2D+1.6L+S+T3
MIN	-19880	-7890	-1870	-3770	-5990	-4100	
MAX	-5040	1140	1550	2310	6940	19820	

BASE B03							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-17750	-2560	-60	-420	-3770	18960	U-1.2D+1.6W+L44
N MAX	-3510	-1220	210	1000	-1730	-1010	U-0.9D+1.6W5
V2 MIN	-17570	-4420	130	700	-3350	11190	U-1.2D+1.6L+S-T3
V2 MAX	-7330	30	430	800	-3680	11490	U-1.2D+1.6L+S+T1
V3 MIN	-9170	-2860	-1710	-2160	840	720	U-1.2D+1.6W+L23
V3 MAX	-12200	-1090	2180	3550	-7350	21500	U-1.2D+1.6W+L10
M1 MIN	-9170	-2860	-1710	-2160	840	720	U-1.2D+1.6W+L23
M1 MAX	-12760	-3000	1660	3580	-5010	21070	U-1.2D+1.6L+S-T4
M2 MIN	-14980	-1170	1680	2810	-9600	15910	U-1.2D+1.6W+L10
M2 MAX	-7560	-2550	-1240	-1490	2930	5060	U-1.2D+1.6W+L23
M3 MIN	-6710	-2580	-1250	-1210	60	-3680	U-1.2D+1.6W+L33
M3 MAX	-14650	-1370	1720	2600	-6560	25890	U-1.2D+1.6W+L60
MIN	-17750	-4420	-1710	-2160	-9600	-3680	
MAX	-3510	30	2180	3580	2930	25890	

BASE B04							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-14480	-1570	-2740	-2020	4010	15800	U-1.2D+1.6L+S+T4+60+40
N MAX	-2420	-380	-1480	-70	1680	490	U-0.9D+1.6W11
V2 MIN	-7050	-2310	-3450	-3090	5890	5190	U-1.2D+1.6L+S-T3
V2 MAX	-8930	1260	-1620	2170	2070	21180	U-1.2D+1.6L+S+T1
V3 MIN	-10500	-1210	-3670	-3440	6940	11170	U-1.2D+1.6W+L20
V3 MAX	-5340	260	-440	2450	-740	9370	U-0.9D+1.6W5
M1 MIN	-7860	-1240	-3640	-3940	6940	9740	U-1.2D+1.6W+L44
M1 MAX	-7220	400	-980	3270	380	14880	U-1.2D+1.6W+L17
M2 MIN	-8170	70	-1100	2270	-780	12080	U-1.2D+1.6W+L17
M2 MAX	-7680	-890	-3320	-2850	8490	11320	U-1.2D+1.6W+L44
M3 MIN	-4380	-570	-2140	-250	1850	-580	U-1.2D+1.6W+L23
M3 MAX	-10010	390	-2030	-410	5630	26360	U-1.2D+1.6L+S+T4
MIN	-14480	-2310	-3670	-3940	-780	-580	
MAX	-2420	1260	-440	3270	8490	26360	

BASE B05 - SPINE							
	N	V2	V3	M1	M2	M3	COMBINATION
	KN	KN	KN	KN-m	KN-m	KN-m	
N MIN	-28250	320	410	-490	740	15370	U-1.2D+1.6L+S-T1-60-40
N MAX	-7150	-1100	960	570	-1830	640	U-0.9D+1.6W7
V2 MIN	-19350	-3680	1300	-1310	-5490	5640	U-1.2D+1.6L+S-T2
V2 MAX	-16230	3360	-150	670	5930	27530	U-1.2D+1.6L+S+T4
V3 MIN	-14280	880	-860	-2190	5000	16640	U-0.9D+1.6W10
V3 MAX	-14020	-880	1890	2330	-4320	9670	U-1.2D+1.6W+L23
M1 MIN	-20240	-2680	820	-3620	1790	7580	U-1.2D+1.6L+S-T4
M1 MAX	-15980	2520	410	2960	-1450	24020	U-1.2D+1.6L+S+T2
M2 MIN	-14770	-1270	1690	1530	-6870	9150	U-1.2D+1.6W+L23
M2 MAX	-18520	1130	-670	-2220	7510	22080	U-1.2D+1.6W+L10
M3 MIN	-16390	-3230	1260	-1740	-540	-5160	U-1.2D+1.6L+S-T3
M3 MAX	-18380	2920	-110	1110	990	38320	U-1.2D+1.6L+S+T1
MIN	-28250	-3680	-860	-3620	-6870	-5160	
MAX	-7150	3360	1890	2960	7510	38320	



NOTE
-ORIGIN OF COORDINATE SYSTEM AT EACH BASE IS CENTROID OF BASE WALLS

1 PLAN
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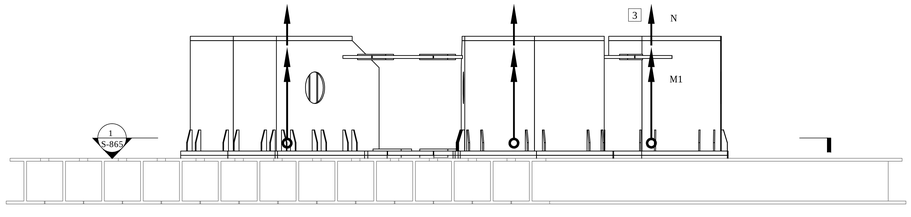

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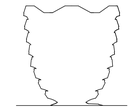

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02	DOCUMENT ISSUE 02	29 AUG 2014
01	DOCUMENT ISSUE 01	15 MAY 2014

Key Plan

Date 03/23/15
Project No. 731
Drawn By
Sheet Number

HYE-VS-S-865

Drawing Title

BASE REACTIONS

Drawing Number / B-SCAN Drawing Number

S-865.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

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E5437875256 Scan Code

DRAWING INDEX

No.	Drawing No.	Drawing Name	Issue Dates: 05/20/16 ISSUED FOR FILING						
1	EN-001.00	NYC ECC COMPLIANCE COVER SHEET No. 1	●						
2	EN-002.00	NYC ECC COMPLIANCE COVER SHEET No. 2	●						
3	EN-100.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 1	●						
4	EN-101.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 2	●						
5	EN-102.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 3	●						
6	EN-103.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 4	●						
7	EN-104.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 5	●						
8	EN-105.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 6	●						
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10	EN-107.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 8	●						
11	EN-108.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 9	●						
12	EN-109.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 10	●						
13	EN-110.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 11	●						
14	EN-111.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 12	●						
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21	EN-118.00	NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 19	●						
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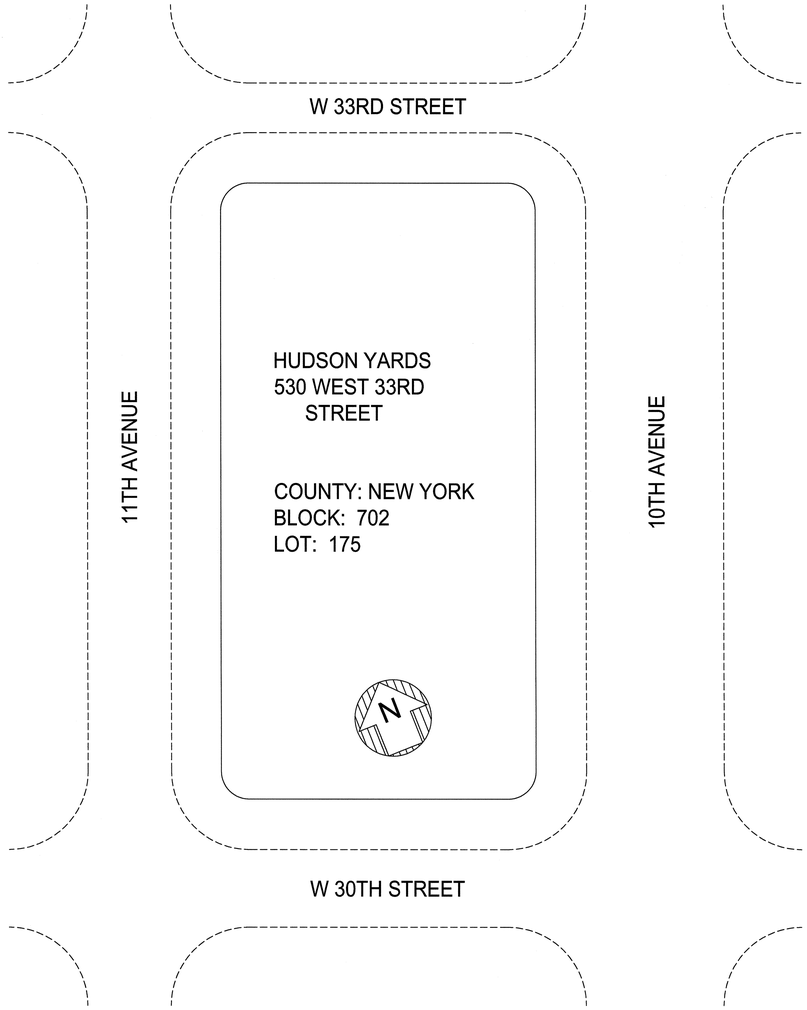
KEY PLAN:



PROFESSIONAL'S STATEMENT

TO THE BEST OF OUR KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE.

BUILDING DEPARTMENT NOTE

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

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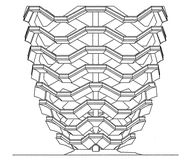

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80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

PACE PLUMBING CORP.
41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100
HAROLD BLOCK
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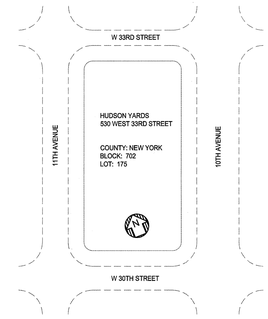

Damian Titus
APPROVED
Under Authority of 28 1925
NXL Development Hub

seal

STATE OF NEW YORK
ANTHONY M. ARGENIO
No. 065370
LICENSED PROFESSIONAL ENGINEER

HUDSON YARDS VESSEL

NYC ECC COMPLIANCE COVER SHEET No. 1

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MG	N.T.S.		EN-001.00
date	project no.	rev	
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1 OF 23

NEW YORK CITY ENERGY CODE COMPLIANCE PROGRESS INSPECTIONS

	INSPECTION/TEST	PERIODIC (MINIMUM)	REFERENCE STANDARD	ECC/ASHRAE SECTION	REQUIRED
IIA	ENVELOPE INSPECTIONS				
IIA1	PROTECTION OF EXPOSED FOUNDATION INSULATION: INSULATION SHALL BE VISUALLY INSPECTED TO VERIFY PROPER PROTECTION WHERE APPLIED TO THE EXTERIOR OF BASEMENT OR CELLAR WALLS, CRAWL-SPACE WALLS AND/OR THE PERIMETER OF SLAB-ON-GRADE FLOORS.	AS REQUIRED DURING FOUNDATION WORK AND PRIOR TO BACKFILL	APPROVED CONSTRUCTION DOCUMENTS.	C303.2.1; ASHRAE 90.1-5.8.1.7	
IIA2	INSULATION PLACEMENT AND R-VALUES: INSTALLED INSULATION FOR COMPONENT OF THE CONDITIONED SPACE ENVELOPE AND AT JUNCTIONS BETWEEN COMPONENTS SHALL BE VISUALLY INSPECTED TO ENSURE THAT THE R-VALUES ARE MARKED, THAT SUCH R-VALUES CONFORM TO THE R-VALUES IDENTIFIED IN THE CONSTRUCTION DOCUMENTS AND THAT THE INSULATION IS PROPERLY INSTALLED. CERTIFICATIONS FOR UNMARKED INSULATION SHALL BE SIMILARLY VISUALLY INSPECTED.	AS REQUIRED TO VERIFY CONTINUOUS ENCLOSURE WHILE WALLS, CEILINGS AND FLOORS ARE OPEN	APPROVED CONSTRUCTION DOCUMENTS	C303.1, C303.1.1, C303.1.2, C402.1, C402.2, ASHRAE 90.1-5.5, 5.6 OR 11; 5.8.1	
IIA3	FENESTRATION U-FACTOR AND PRODUCT RATINGS: U-FACTORS AND SHGC VALUES OF INSTALLED FENESTRATION SHALL BE VISUALLY INSPECTED FOR CONFORMANCE WITH THE U-FACTORS AND SHGC VALUES IDENTIFIED IN THE CONSTRUCTION DRAWINGS BY VERIFYING THE MANUFACTURER'S NFRC LABELS OR, WHERE NOT LABELED, USING THE RATINGS IN ECC TABLES 303.1.3(1), (2) AND (3).	AS REQUIRED DURING INSTALLATION	APPROVED CONSTRUCTION DOCUMENTS; NFRC 100, NFRC 200	C303.1, C303.1.3; ASHRAE 90.1-5.5; 5.6 OR 11; 5.8.2	
IIA4	FENESTRATION AIR LEAKAGE: WINDOWS AND SLIDING OR SWINGING DOOR ASSEMBLIES, EXCEPT SITE-BUILT WINDOWS AND/OR DOORS, SHALL BE VISUALLY INSPECTED TO VERIFY THAT INSTALLED ASSEMBLIES ARE LISTED AND LABELED BY THE MANUFACTURER TO THE REFERENCED STANDARD. FOR CURTAIN WALL, STOREFRONT GLAZING, COMMERCIAL ENTRANCE DOORS AND REVOLVING DOORS, THE TESTING REPORTS SHALL BE REVIEWED TO VERIFY THAT THE INSTALLED ASSEMBLY COMPLIES WITH THE STANDARD CITED IN THE APPROVED PLANS.	AS REQUIRED DURING INSTALLATION; PRIOR TO FINAL CONSTRUCTION INSPECTION	NFRC 400, AAMA/WDMA/CSA 101/I.S.2/A440 ASTM E283; ANSI/DASMA 105	C402.4.3; ASHRAE 90.1-5.4.3.2	
IIA5	FENESTRATION AREAS: DIMENSIONS OF WINDOWS, DOORS AND SKYLIGHTS SHALL BE VERIFIED BY VISUAL INSPECTION.	PRIOR TO FINAL CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	C402.3; ASHRAE 90.1-5.5.4.2, 5.6 OR 11	
IIA6	AIR SEALING AND INSULATION – VISUAL INSPECTION: OPENINGS AND PENETRATIONS IN THE BUILDING ENVELOPE, INCLUDING SITE-BUILT FENESTRATION AND DOORS, SHALL BE VISUALLY INSPECTED TO VERIFY THAT A CONTINUIOUS AIR BARRIER AROUND THE ENVELOPE FORMS AN AIR-TIGHT ENCLOSURE. THE PROGRESS INSPECTOR SHALL VISUALLY INSPECT TO VERIFY THAT MATERIALS AND/OR ASSEMBLIES HAVE BEEN TESTED AND MEET THE REQUIREMENTS OF THE RESPECTIVE STANDARDS, OR THAT THE BUILDING IS TESTED AND MEETS THE REQUIREMENTS OF THE STANDARD, IN ACCORDANCE WITH THE STANDARD(S) CITED IN THE APPROVED PLANS.	AS REQUIRED DURING CONSTRUCTION	APPROVED CONSTRUCTION DOCUMENTS; ASTM E2178, ASTM E2357, ASTM E1677, ASTM E779, ASTM E283	C402.4; ASHRAE 90.1-5.4.3.1	
IIA7	PROJECTION FACTORS: WHERE THE ENERGY ANALYSIS UTILIZED A PROJECTION FACTOR >0, THE PROJECTION DIMENSIONS OF OVERHANGS, EAVES OR PERMANENTLY ATTACHED SHADING DEVICES SHALL BE VERIFIED FOR CONFORMANCE WITH APPROVED PLANS BY VISUAL INSPECTION.	PRIOR TO FINAL CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS, INCLUDING ENERGY ANALYSIS	C402.3; ASHRAE 90.1-5.5.4, 5.6 OR 11	
IIA8	LOADING DOCK WEATHERSEALS: WEATHERSEALS AT LOADING DOCKS SHALL BE VISUALLY VERIFIED.	PRIOR TO FINAL CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	C402.4.6; ASHRAE 90.1-5.4.3.3	
IIA9	VESTIBULES: REQUIRED ENTRANCE VESTIBULES SHALL BE VISUALLY INSPECTED FOR PROPER OPERATION.	PRIOR TO FINAL CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	C402.4.7; ASHRAE 90.1-5.4.3.4	
IIB	MECHANICAL AND SERVICE WATER HEATING INSPECTION				
IIB1	FIREPLACES: PROVISION OF COMBUSTION AIR AND TIGHT-FITTING FIREPLACE DOORS SHALL BE VERIFIED BY VISUAL INSPECTION.	PRIOR TO FINAL CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS: ANSI ANSI Z21.60 (SEE ALSO MC 904), ANSI Z21.50	C402.2.9; BC 2111; MC CHAPTERS 7, 8, 9; FGC CHAPTER 6	
IIB2	SHUTOFF DAMPERS: DAMPERS FOR STAIR AND ELEVATOR SHAFT VENTS AND OTHER OUTDOOR AIR INTAKES AND EXHAUST OPENINGS INTEGRAL TO THE BUILDING ENVELOPE SHALL BE VISUALLY INSPECTED TO VERIFY THAT SUCH DAMPERS, EXCEPT WHERE PERMITTED TO BE GRAVITY DAMPERS, COMPLY WITH APPROVED CONSTRUCTION DRAWINGS. MANUFACTURER'S LITERATURE SHALL BE REVIEWED TO VERIFY THAT THE PRODUCT HAS BEEN TESTED AND FOUND TO MEET THE STANDARD.	AS REQUIRED DURING INSTALLATION	APPROVED CONSTRUCTION DOCUMENTS: AMCA 500D	C403.2.4.4; ASHRAE 90.1-6.4.3.4	✓
IIB3	HVAC, AND SERVICE WATER HEATING EQUIPMENT: EQUIPMENT SIZING, EFFICIENCIES AND OTHER PERFORMANCE FACTORS OF ALL MAJOR EQUIPMENT UNITS, AS DETERMINED BY THE APPLICANT OF RECORD, AND NO LESS THAN 15% OF MINOR EQUIPMENT UNITS, SHALL BE VERIFIED BY VISUAL INSPECTION AND, WHERE NECESSARY, REVIEW OF MANUFACTURER'S DATA. POOL HEATERS AND COVERS SHALL BE VERIFIED BY VISUAL INSPECTION.	PRIOR TO FINAL PLUMBING AND CONSTRUCTION INSPECTION.	APPROVED CONSTRUCTION DOCUMENTS	C403.2, C404.2, C404.7; C406.2; ASHRAE 90.1-6.3, 6.4.1, 6.4.2, 6.8; 7.4, 7.8	✓
IIB4	HVAC AND SERVICE WATER HEATING SYSTEM CONTROLS: NO LESS THAN 20% OF EACH TYPE OF REQUIRED CONTROLS AND ECONOMIZERS SHALL BE VERIFIED BY VISUAL INSPECTION AND TESTED FOR FUNCTIONALITY AND PROPER OPERATION. SUCH CONTROLS SHALL INCLUDE, BUT ARE NOT LIMITED TO: • THERMOSTATIC • SET POINT OVERLAP RESTRICTION • OFF-HOUR • SHUTOFF DAMPER • SNOW-MELT SYSTEM • DEMAND CONTROL SYSTEMS • OUTDOOR HEATING SYSTEMS • ZONES • ECONOMIZERS • AIR SYSTEMS • VARIABLE AIR VOLUME FAN • SINGLE ZONE COOLING SYSTEMS • HYDRONIC SYSTEMS • HEAT REJECTION EQUIPMENT FAN SPEED • COMPLEX MECHANICAL SYSTEMS SERVING MULTIPLE ZONES • VENTILATION • ENERGY RECOVERY SYSTEMS • HOT GAS BYPASS LIMITATION • TEMPERATURE • SERVICE WATER HEATING • HOT WATER SYSTEM • POOL HEATER AND TIME SWITCHES • EXHAUST HOODS • RADIANT HEATING SYSTEMS • HVAC CONTROL IN GROUP R-1 SLEEPING ROOMS CONTROLS WITH SEASONALLY DEPENDENT FUNCTIONALITY: CONTROLS WHOSE COMPLETE OPERATION CANNOT BE DEMONSTRATED DUE TO PREVAILING WEATHER CONDITIONS TYPICAL OF THE SEASON DURING WHICH PROGRESS INSPECTIONS WILL BE PERFORMED SHALL BE PERMITTED TO BE SIGNED OFF FOR THE PURPOSE OF A TEMPORARY CERTIFICATE OF OCCUPANCY WITH ONLY A VISUAL INSPECTION, PROVIDED, HOWEVER, THAT THE PROGRESS INSPECTOR SHALL PERFORM A SUPPLEMENTAL INSPECTION WHERE THE CONTROLS ARE VISUALLY INSPECTED AND TESTED FOR FUNCTIONALITY AND PROPER OPERATION DURING THE NEXT IMMEDIATE SEASON THEREAFTER. THE OWNER SHALL PROVIDE FULL ACCESS TO THE PROGRESS INSPECTOR WITHIN TWO WEEKS OF THE PROGRESS INSPECTOR'S REQUEST FOR SUCH ACCESS TO PERFORM THE PROGRESS INSPECTION. FOR SUCH SUPPLEMENTAL INSPECTIONS, THE DEPARTMENT SHALL BE NOTIFIED BY THE APPROVED PROGRESS INSPECTION AGENCY OF ANY UNRESOLVED DEFICIENCIES IN THE INSTALLED WORK WITHIN 180 DAYS OF SUCH SUPPLEMENTAL INSPECTION.	AFTER INSTALLATION AND PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION, EXCEPT THAT FOR CONTROLS WITH SEASONALLY DEPENDENT FUNCTIONALITY, SUCH TESTING SHALL BE PERFORMED BEFORE SIGN-OFF FOR ISSUANCE OF A FINAL CERTIFICATE OF OCCUPANCY	APPROVED CONSTRUCTION DOCUMENTS, INCLUDING CONTROL SYSTEM NARRATIVES; ASHRAE GUIDELINE 1: THE HVAC COMMISSIONING PROCESS WHERE APPLICABLE	C403.2.4, C403.2.5.1, C403.2.11, C403.3, C403.4, C404.3, C404.6, C404.7; ASHRAE 90.1-6.3, 6.4, 6.5, 7.4.4, 7.4.5	✓

NEW YORK CITY ENERGY CODE COMPLIANCE PROGRESS INSPECTIONS (CONTINUED...)

	INSPECTION/TEST	PERIODIC (MINIMUM)	REFERENCE STANDARD	ECC/ASHRAE SECTION	REQUIRED
IIB5	HVAC INSULATION AND SEALING: INSTALLED DUCT AND PIPING INSULATION SHALL BE VISUALLY INSPECTED TO VERIFY PROPER INSULATION PLACEMENT AND VALUES. JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK SHALL BE VISUALLY INSPECTED FOR PROPER SEALING.	AFTER INSTALLATION AND PRIOR TO CLOSING SHAFTS, CEILINGS AND WALLS	APPROVED CONSTRUCTION DOCUMENTS; SMACNA DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE	C403.2.7, C403.2.8, C404.5; MC 603.9; ASHRAE 90.1-6.3, 6.4.4, 6.8.2, 6.8.3; 7.4.3	✓
IIB6	AIR LEAKAGE TESTING FOR HIGH-PRESSURE DUCT SYSTEMS: FOR DUCT SYSTEMS DESIGNED TO OPERATE AT STATIC PRESSURES IN EXCESS OF 3 INCHES W.G. (746 PA), REPRESENTATIVE SECTIONS, AS DETERMINED BY THE PROGRESS INSPECTOR, TOTALING AT LEAST 25% OF THE DUCT AREA, PER ECC C403.2.7.1.3, SHALL BE TESTED TO VERIFY THAT ACTUAL AIR LEAKAGE IS BELOW ALLOWABLE AMOUNTS.	AFTER INSTALLATION AND SEALING AND PRIOR TO CLOSING SHAFTS, CEILINGS AND WALLS	APPROVED CONSTRUCTION DOCUMENTS; SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL	C403.2.7.1.3; ASHRAE 90.1-6.4.4.2.2	
IIC	ELECTRICAL POWER AND LIGHTING SYSTEMS				
IIC1	ELECTRICAL ENERGY CONSUMPTION: THE PRESENCE AND OPERATION OF INDIVIDUAL METERS OR OTHER MEANS OF MONITORING INDIVIDUAL APARTMENTS SHALL BE VERIFIED BY VISUAL INSPECTION FOR ALL APARTMENTS AND WHERE REQUIRED IN A COVERED TENANT SPACE.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	C405.7	
IIC2	LIGHTING IN DWELLING UNITS: LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE VISUALLY INSPECTED TO VERIFY COMPLIANCE WITH HIGH-EFFICACY REQUIREMENTS	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	C405.5.1; ASHRAE 90.1-9.1.1	
IIC3	INTERIOR LIGHTING POWER: INSTALLED LIGHTING SHALL BE VERIFIED FOR COMPLIANCE WITH THE LIGHTING POWER ALLOWANCE BY VISUAL INSPECTION OF FIXTURES, LAMPS, BALLASTS AND TRANSFORMERS.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	C405.5; C406.3; ASHRAE 90.1-9.1, 9.2, 9.5, 9.6; 1RCNY §101-07(C)(3)(V)(C)4	✓
IIC4	EXTERIOR LIGHTING POWER: INSTALLED LIGHTING SHALL BE VERIFIED FOR COMPLIANCE WITH SOURCE EFFICACY AND/OR THE LIGHTING POWER ALLOWANCE BY VISUAL INSPECTION OF FIXTURES, LAMPS, BALLASTS AND RELEVANT TRANSFORMERS.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	C405.6; ASHRAE 90.1-9.4.3; 1RCNY §101-07(C)(3)(V)(C)4	✓
IIC5	LIGHTING CONTROLS: EACH TYPE OF REQUIRED LIGHTING CONTROLS, INCLUDING: • OCCUPANT SENSORS • MANUAL INTERIOR LIGHTING CONTROLS • LIGHT-REDUCTION CONTROLS • AUTOMATIC LIGHTING SHUT-OFF • DAYLIGHT ZONE CONTROLS • SLEEPING UNIT CONTROLS • EXTERIOR LIGHTING CONTROLS SHALL BE VERIFIED BY VISUAL INSPECTION AND TESTED FOR FUNCTIONALITY AND PROPER OPERATION.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS, INCLUDING CONTROL SYSTEM NARRATIVES	C405.2, ASHRAE 90.1-9.4.1 (AS MODIFIED BY SECTION ECC A102)	✓
IIC6	EXIT SIGNS: INSTALLED EXIT SIGNS SHALL BE VISUALLY INSPECTED TO VERIFY THAT THE LABEL INDICATES THAT THEY DO NOT EXCEED MAXIMUM PERMITTED WATTAGE.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	C405.4; ASHRAE 90.1-9.4.2	✓
IIC7	ELECTRIC MOTORS (INCLUDING BUT NOT LIMITED TO FAN MOTORS): WHERE REQUIRED BY THE CONSTRUCTION DOCUMENTS FOR ENERGY CODE COMPLIANCE, MOTOR LISTING OR LABELS SHALL BE VISUALLY INSPECTED TO VERIFY THAT THEY COMPLY WITH THE RESPECTIVE ENERGY REQUIREMENTS IN THE CONSTRUCTION DOCUMENTS.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	C403.2.10; ASHRAE 90.1-10.4	✓
IID	OTHER				
IID1	MAINTENANCE INFORMATION: MAINTENANCE MANUALS FOR MECHANICAL, SERVICE HOT WATER AND ELECTRICAL EQUIPMENT AND SYSTEMS REQUIRING PREVENTIVE MAINTENANCE SHALL BE REVIEWED FOR APPLICABILITY TO INSTALLED EQUIPMENT AND SYSTEMS BEFORE SUCH MANUALS ARE PROVIDED TO THE OWNER. LABELS REQUIRED FOR SUCH EQUIPMENT OR SYSTEMS SHALL BE INSPECTED FOR ACCURACY AND COMPLETENESS.	PRIOR TO SIGN-OFF OR ISSUANCE OF FINAL CERTIFICATE OF OCCUPANCY	APPROVED CONSTRUCTION DOCUMENTS, INCLUDING ELECTRICAL DRAWINGS WHERE APPLICABLE; ASHRAE GUIDELINE 4: PREPARATION OF OPERATING AND MAINTENANCE DOCUMENTATION FOR BUILDING SYSTEMS.	C303.3, C408.2.5.2; ASHRAE 90.1-4.2.2.3, 6.7.2.2, 8.7.2, 9.7.2.2	✓

NOTES:

1. IN ACCORDANCE WITH SECTIONS BC 109.9 AND ECC 104.2.3, WHERE AN INSPECTION OR TEST FAILS, THE CONSTRUCTION SHALL BE CORRECTED, AND SHALL BE MADE AVAILABLE FOR REINSPECTION AND/OR RETESTING BY THE PROGRESS INSPECTOR UNTIL IT COMPLIES.
2. IN ACCORDANCE WITH ARTICLE 116 OF TITLE 28 AND SECTION BC 109, CONSTRUCTION SHALL BE SCHEDULED TO ALLOW REQUIRED PROGRESS INSPECTIONS TO TAKE PLACE, AND THAT ROOFS, CEILINGS, EXTERIOR WALLS, INTERIOR WALLS, FLOORS, FOUNDATIONS, BASEMENTS AND ANY OTHER CONSTRUCTION SHALL NOT BE COVERED OR ENCLOSED UNTIL REQUIRED PROGRESS INSPECTIONS ARE COMPLETED OR THE PROGRESS INSPECTOR INDICATES THAT SUCH COVERING OR ENCLOSURE MAY PROCEED, AT EACH STAGE OF CONSTRUCTION, AS APPLICABLE.

PROFESSIONAL'S STATEMENT

TO THE BEST OF OUR KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE.

BUILDING DEPARTMENT NOTE

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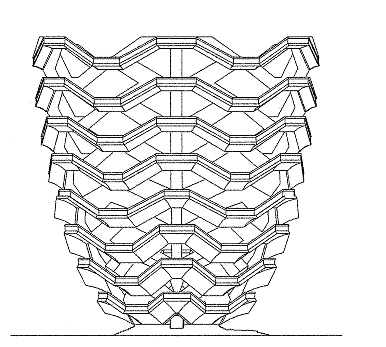

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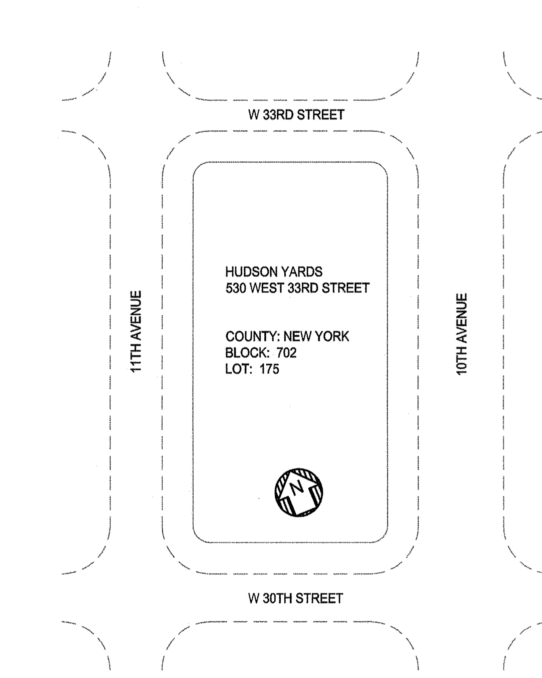
plot plan



Damian Titus
APPROVED
Under Directive 2 of 1975
NYC Development Hub

HUDSON YARDS VESSEL

NYC ECC COMPLIANCE COVER SHEET No. 2

drawn by	scale	check by	
MG	N.T.S.	CC	EN-002.00
date	project no.	rev	
5/06/16	14986	0	

seal

STATE OF NEW YORK · ANTHONY M. ARBORE · LICENSED PROFESSIONAL ENGINEER · NO. 062531-1

2 OF 23

DEPT OF BLDGS 121101183 Job Number
E5305972350 Scan Code

INTERIOR LIGHTING DESIGN ENERGY ANALYSIS

OCCUPANCY : BACK OF HOUSE

PROJECT IS BACK OF HOUSE SPACES TO SUPPORT EXTERIOR STAIRWELL.

NYCECC - 2014

ITEM DESCRIPTION	PROPOSED DESIGN VALUE	CODE-PRESCRIBED VALUE
LIGHTING POWER DENSITY	12899 W	15748 W

INTERIOR LIGHTING CONTROL NARRATIVE

LIGHTING FIXTURES ARE TO BE CONTROLLED VIA MANUAL ON/AUTO-OFF TIMER SWITCH SET FOR 30 MINUTE INTERVALS.

EXTERIOR LIGHTING DESIGN ENERGY ANALYSIS

OCCUPANCY : EXTERIOR STAIR

PROJECT IS FOR 16 LEVEL EXTERIOR STAIRWELL.

NYCECC - 2014

ITEM DESCRIPTION	PROPOSED DESIGN VALUE	CODE-PRESCRIBED VALUE (LIGHTING ZONE: 4)
EXTERIOR LIGHTING POWER	134 W	2094W (794 W + 1300 W SUPPLEMENTAL)

EXTERIOR LIGHTING CONTROL NARRATIVE

ALL EXTERIOR LIGHTING SHALL BE PROVIDED WITH A CONTROL THAT AUTOMATICALLY TURNS OFF THE LIGHTING WHEN DAYLIGHT IS AVAILABLE VIA PHOTO SENSOR ON THE EXTERIOR.

ALL STAIRWELL LIGHTING SHALL BE UN-SWITCHED NIGHT LIGHTS FOR 24/7 HOUR OPERATION.

LIGHTING FIXTURE SCHEDULE

TYPE	SYMBOL	DESCRIPTION	UNITS	LAMPS			CONTROL GEAR		TOTAL WATTS PER UNIT	LOCATION
				QTY PER FIXTURE	TYPE	WATTS	VOLTS	TYPE		
PRE06	-	HI-OUTPUT QUAD LED FIXTURE	EA	1	LED	237W	120V/ 277V	ELECTRONIC	237W	PLATFORM
STE04	———	NON-DIMMABLE OUTDOOR RATED SURFACE MOUNT LED LIGHT	LF	1	LED	4W	120V/ 277V	ELECTRONIC	4W	STAIRWELL LIGHTING
STE15	———	DIMMABLE OUTDOOR RATED SURFACE MOUNT LED	LF	1	LED	4W	120V/ 277V	ELECTRONIC	4W	STAIRWELL LIGHTING
DIF232	▭	NON-DIMMABLE LIGHT FIXTURE FOR BOH SPACE	EA	2	FLR	32W	120V/ 277V	ELECTRONIC	64W	MER/EMR/LV RM
EXIT	⊢◐	EXIT LIGHT	FACE	1	LED	2.7W	120V/ 277V	ELECTRONIC	2.7W	MER/LV RM

SYMBOL LIST (POWER AND LIGHTING)

SYMBOL	DESCRIPTION
S^{ts}_{x}	STAND ALONE WALL MOUNTED TIMER SWITCH WITH INTEGRAL ASTRONOMICAL TIME CLOCK BOTTOM LETTER DENOTES ZONE

PROFESSIONAL'S STATEMENT

TO THE BEST OF OUR KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE.

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HUDSON YARDS VESSEL

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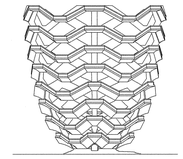

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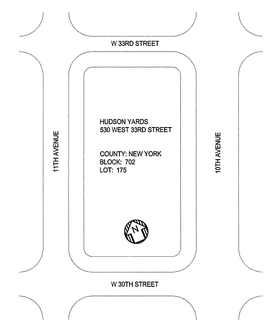
plot plan



Damian Titus
APPROVED
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

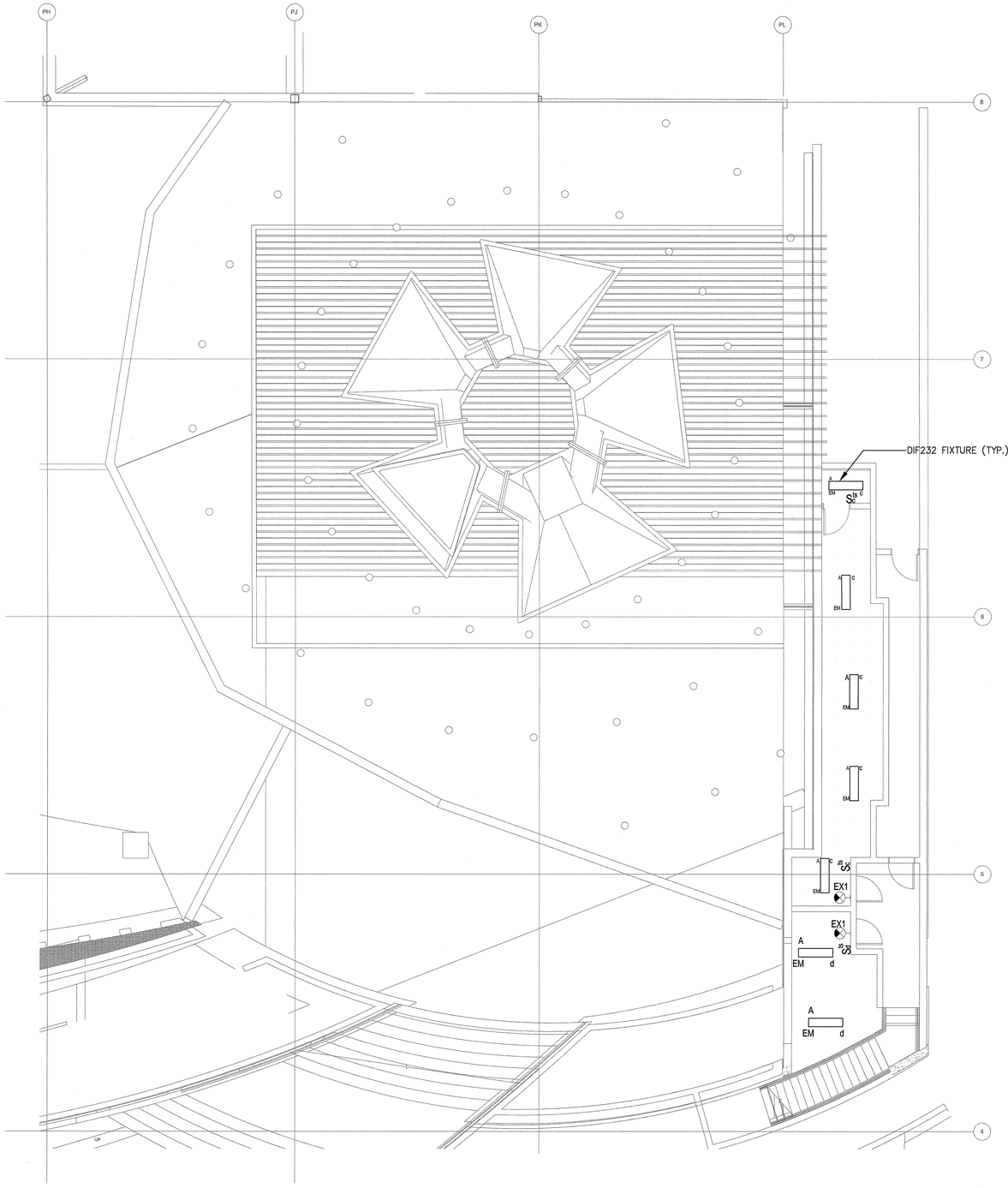
NYC ECC COMPLIANCE LIGHTING CONFORMANCE

seal

STATE OF NEW YORK
ANTHONY M. ARAVENE
LICENSED PROFESSIONAL ENGINEER

SHEET No. 1			
drawn by AP	scale N.T.S.	checked by DH	EN-100.00
date 5/06/16	project no. 14986	rev 0	

3 OF 23



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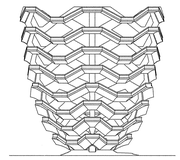

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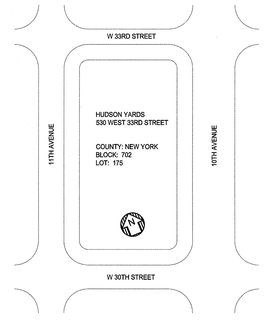

PROFESSIONAL'S STATEMENT

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Damian Titus
APPROVED
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL

NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 2

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AP	3/16"=1'-0"	DH
date	project no.	rev
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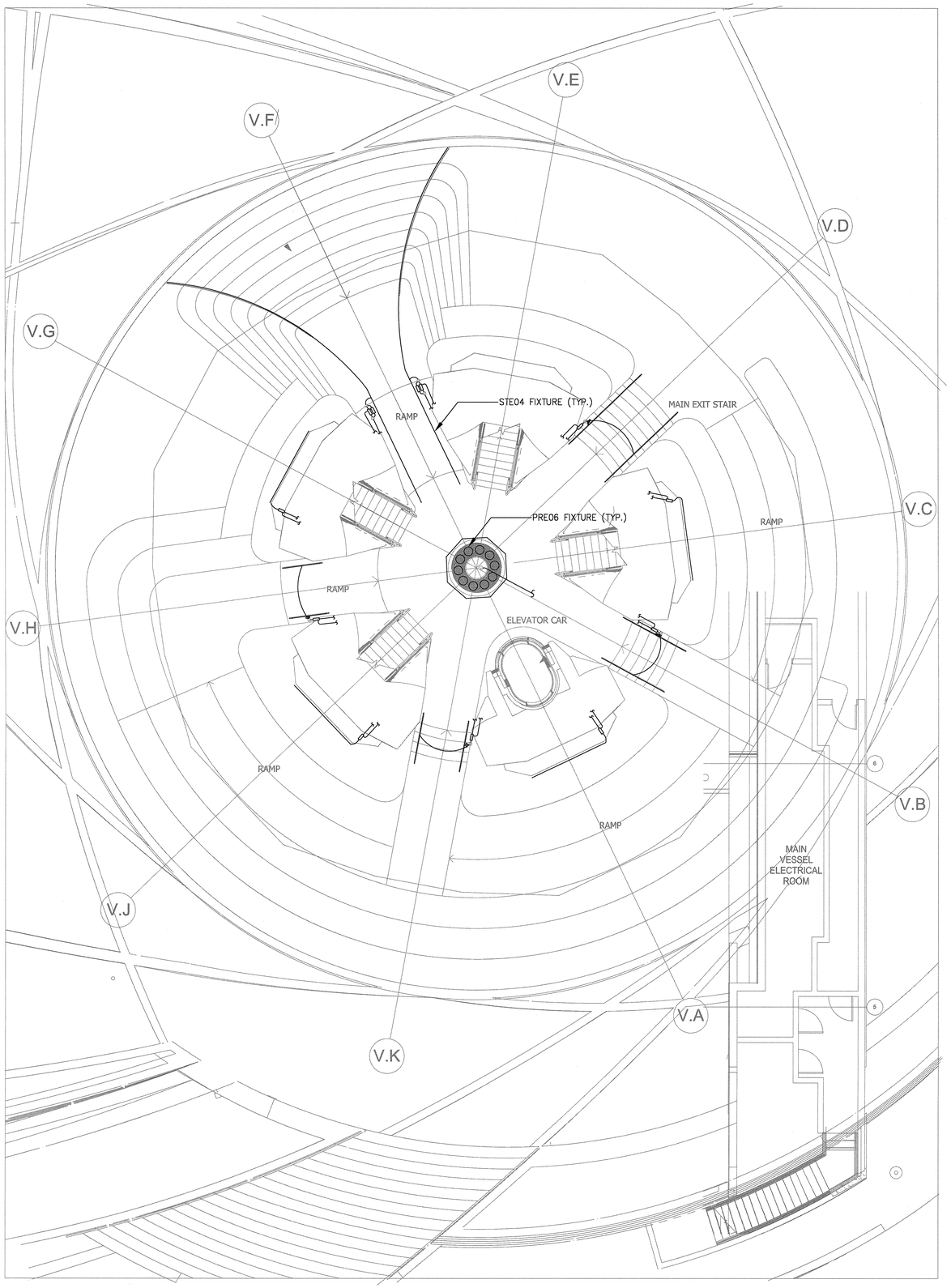
seal

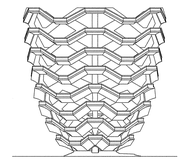
STATE OF NEW YORK
ANTHONY M. ARBORE
LICENSED PROFESSIONAL ENGINEER
NO. 065253-1

DEPT OF BLDGS 421051163 Job Number
E5008603970 Scan Code



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

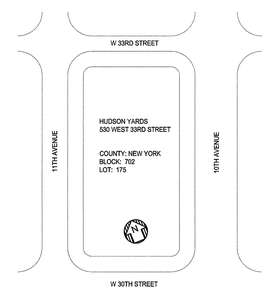
60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES
80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

PACE PLUMBING CORP.
41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100
HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

TO THE BEST OF OUR KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE.

BUILDING DEPARTMENT NOTE

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Damian Titus
APPROVED
NYC Department of Buildings

seal
ANTHONY M. ARMATE
LICENSED PROFESSIONAL ENGINEER

HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 3

drawn by	scale	checked by	
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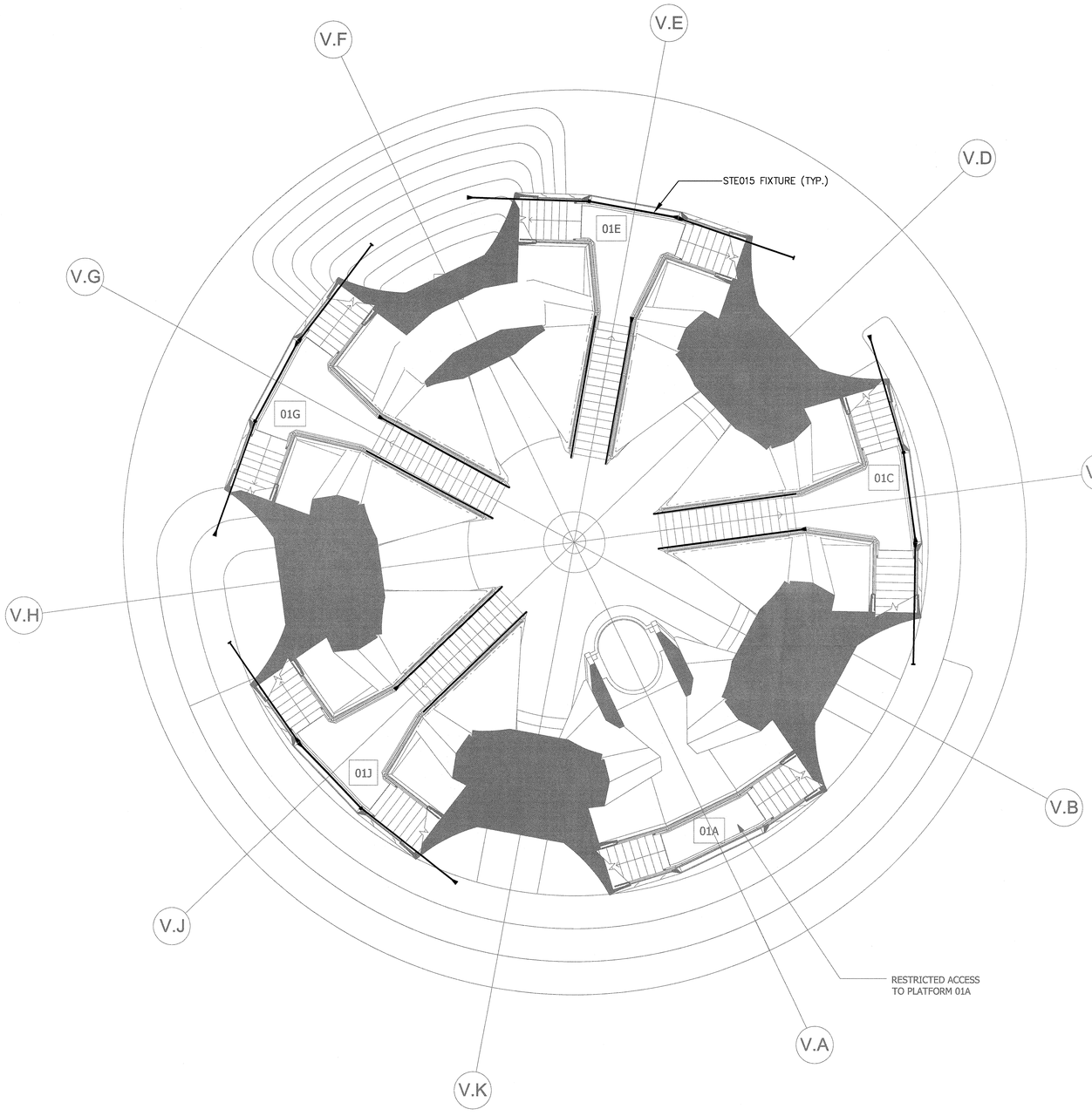
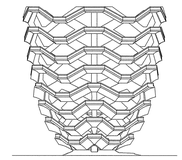
date	project no.	rev	
5/06/16	14986	0	



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

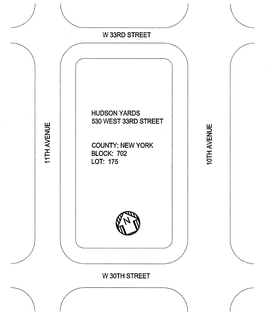
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

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BUILDING DEPARTMENT NOTE

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Damian Titus
APPROVED
Date: 11/07/2016
NYC Development Hub

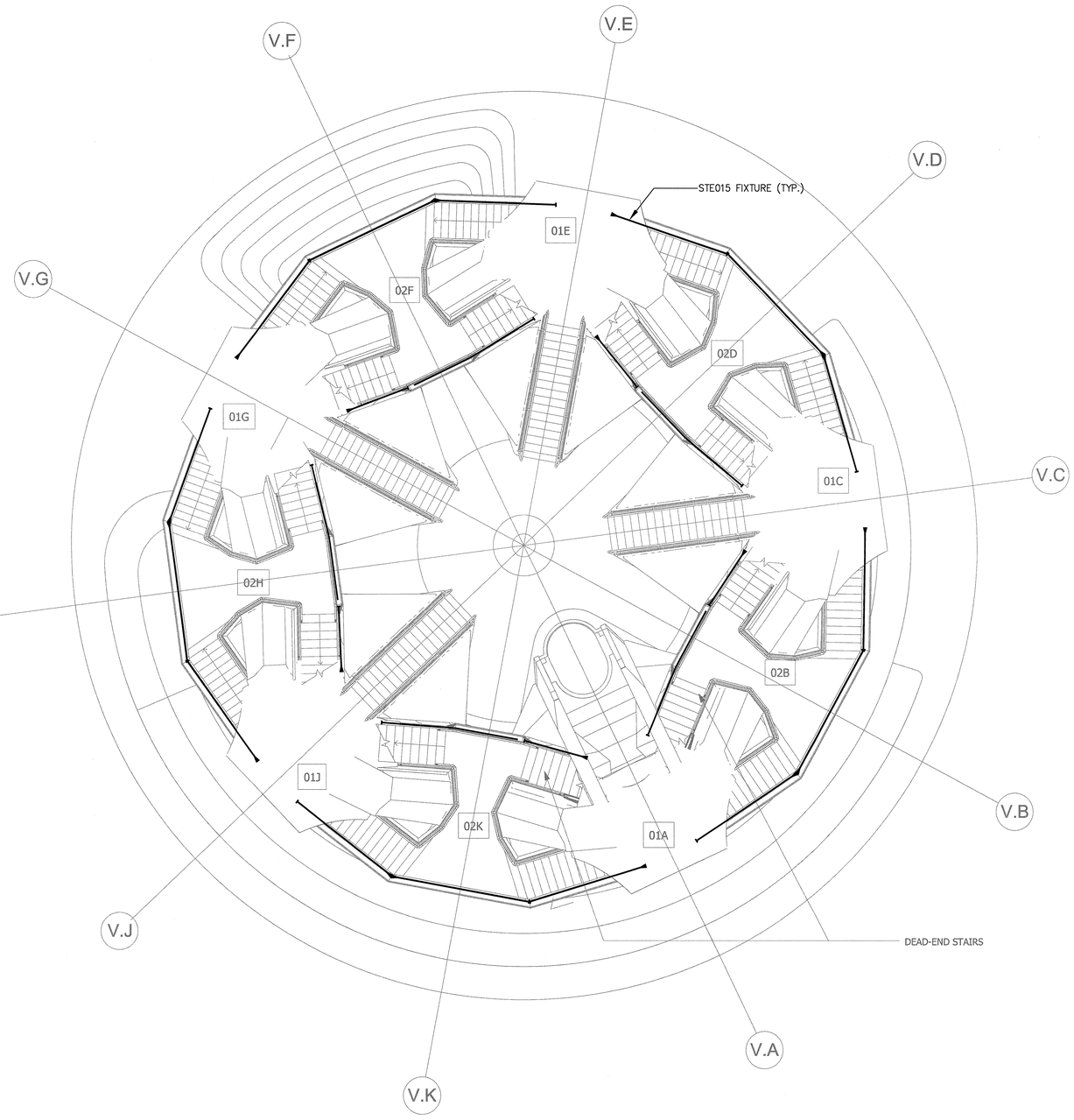
HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 4

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

EN-103.00

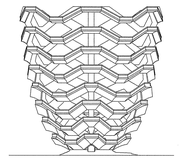
seal

STATE OF NEW YORK
ANTHONY M. ARGONE
NO. 062531-1
LICENSED PROFESSIONAL ENGINEER



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

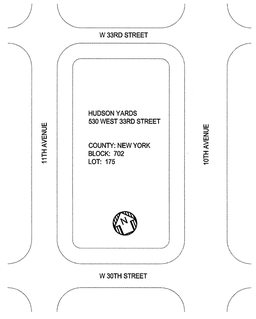
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

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BUILDING DEPARTMENT NOTE

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Damian Titus
APPROVED
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 5

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

EN-104.00

seal

DEPT OF BLDGS 421101183 Job Number
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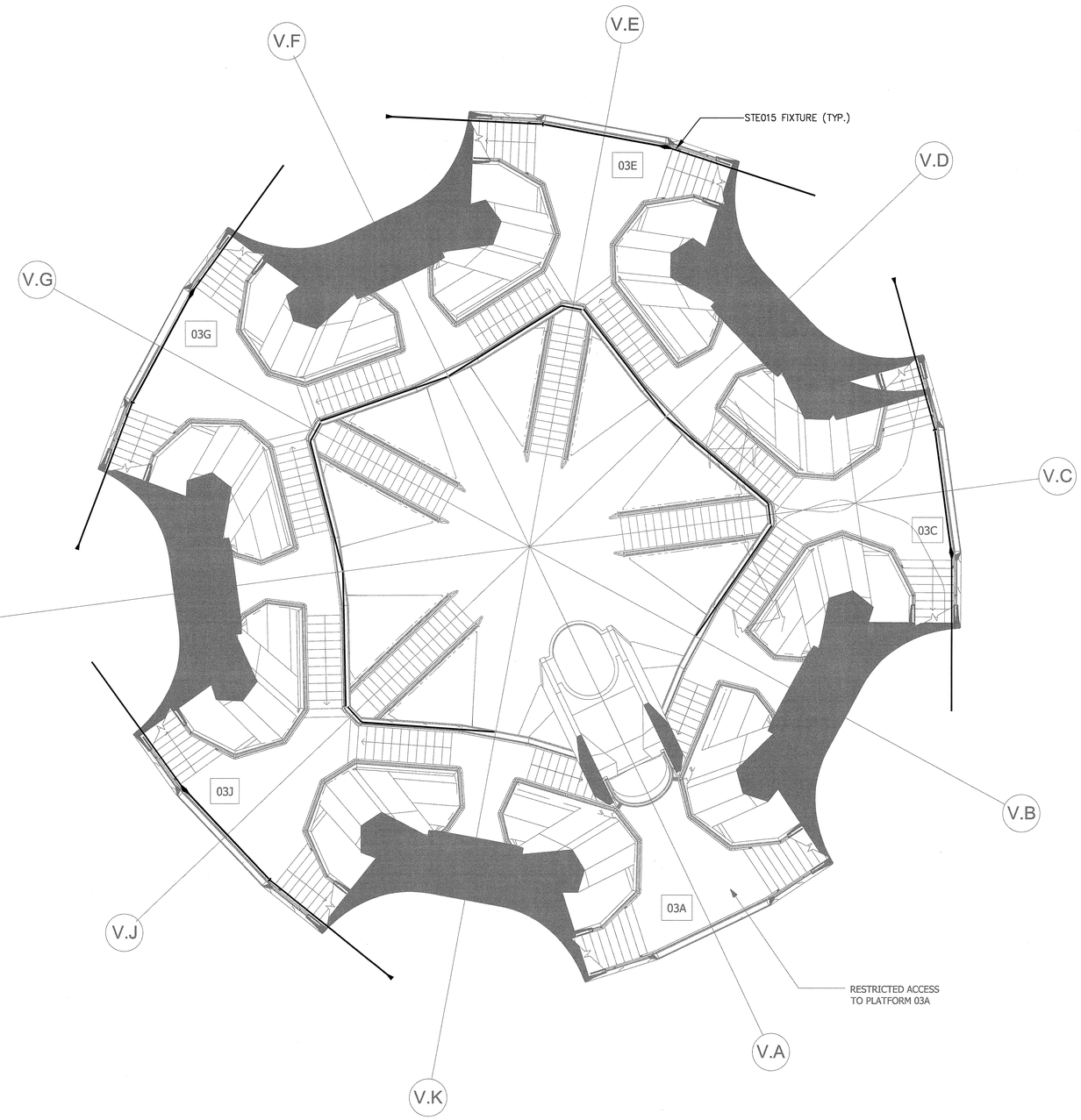
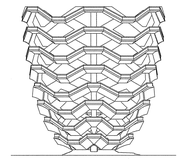


HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

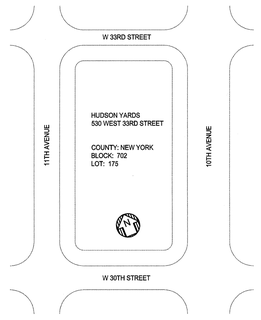
60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES
80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

PACE PLUMBING CORP.
41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100
HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

TO THE BEST OF OUR KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE.

BUILDING DEPARTMENT NOTE

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Damian Titus
APPROVED
Date: 12/11/2016
NYC Development Hub

HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 6

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

EN-105.00

seal

DEPT OF BLDGS 421101183 Job Number
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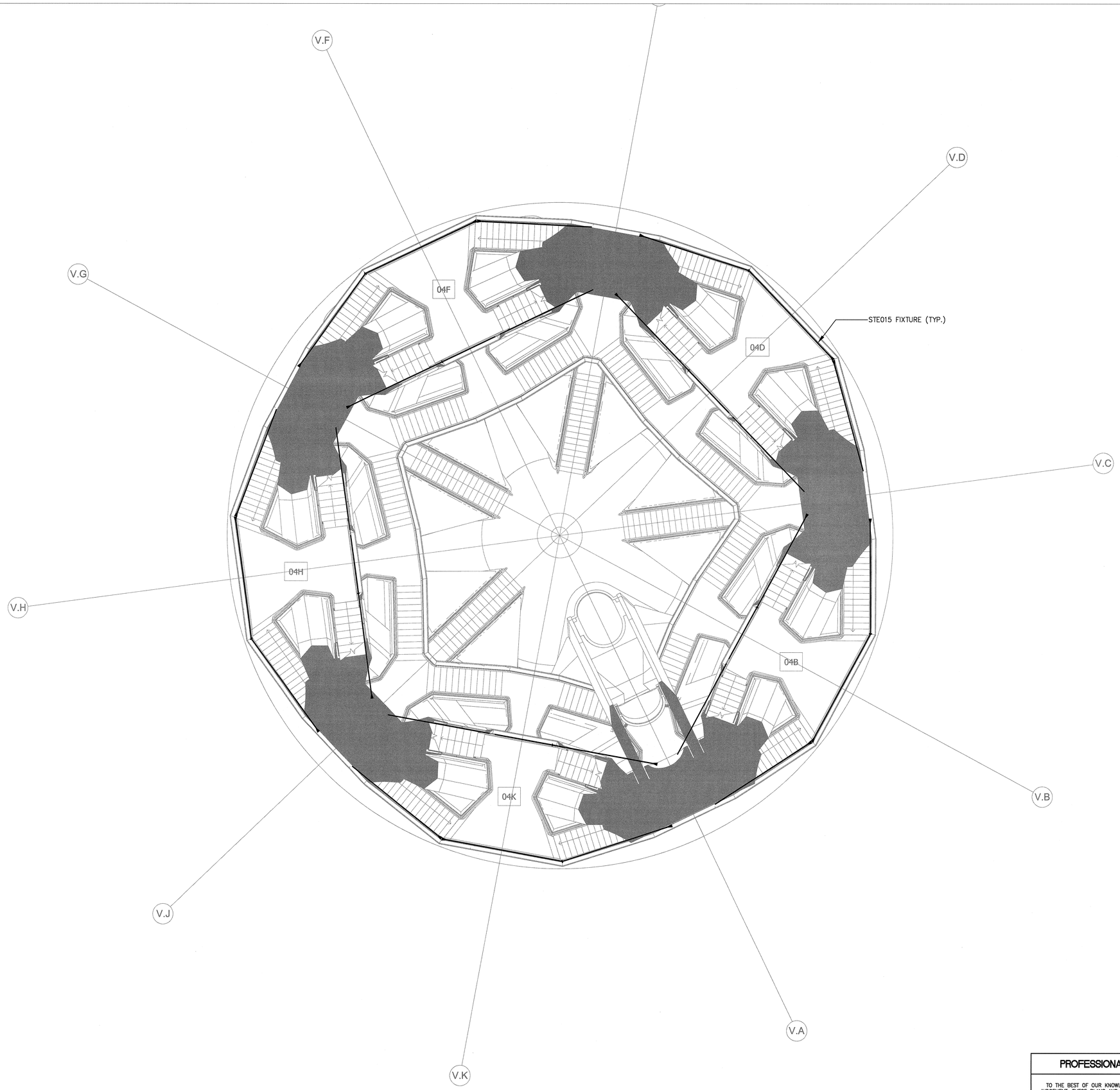
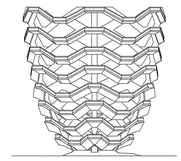


HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

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JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

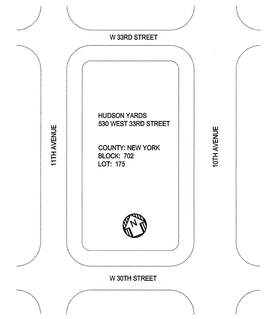
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

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BUILDING DEPARTMENT NOTE

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Damian Titus
APPROVED
Date: 07/07/2016
Department of Buildings

HUDSON YARDS VESSEL

NYC ECC COMPLIANCE LIGHTING CONFORMANCE

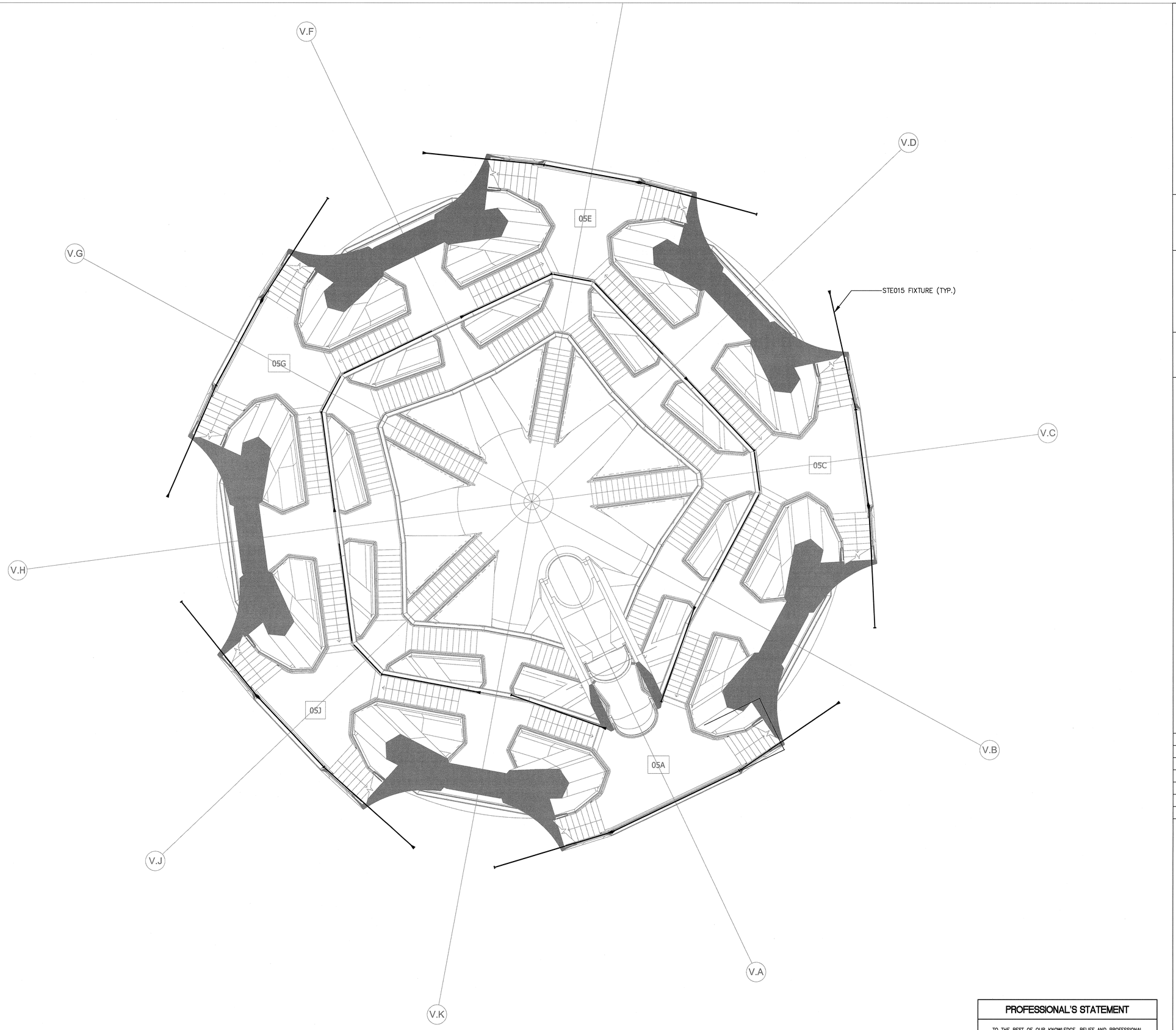
SHEET No. 7

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

EN-106.00

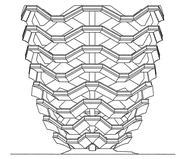
seal

STATE OF NEW YORK
ANTHONY M. KNOPP
NO. 065934
LICENSED PROFESSIONAL ENGINEER



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

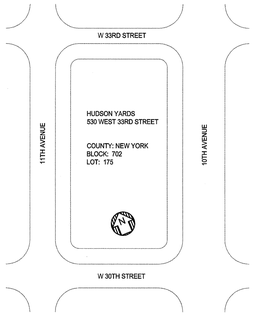
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

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BUILDING DEPARTMENT NOTE

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Damian Titus
APPROVED
Date: 12/07/2016
Development Hub

HUDSON YARDS VESSEL

NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 8

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

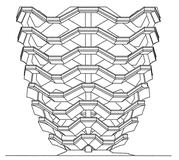
EN-107.00

seal

STATE OF NEW YORK
ANTHONY M. ARBURE
NO. 062531-1
LICENSED PROFESSIONAL ENGINEER

HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

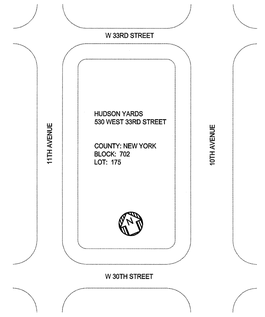
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

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BUILDING DEPARTMENT NOTE

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Damian Titus
APPROVED
Date: 12/05/2016
NYC Development Hub

HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 9

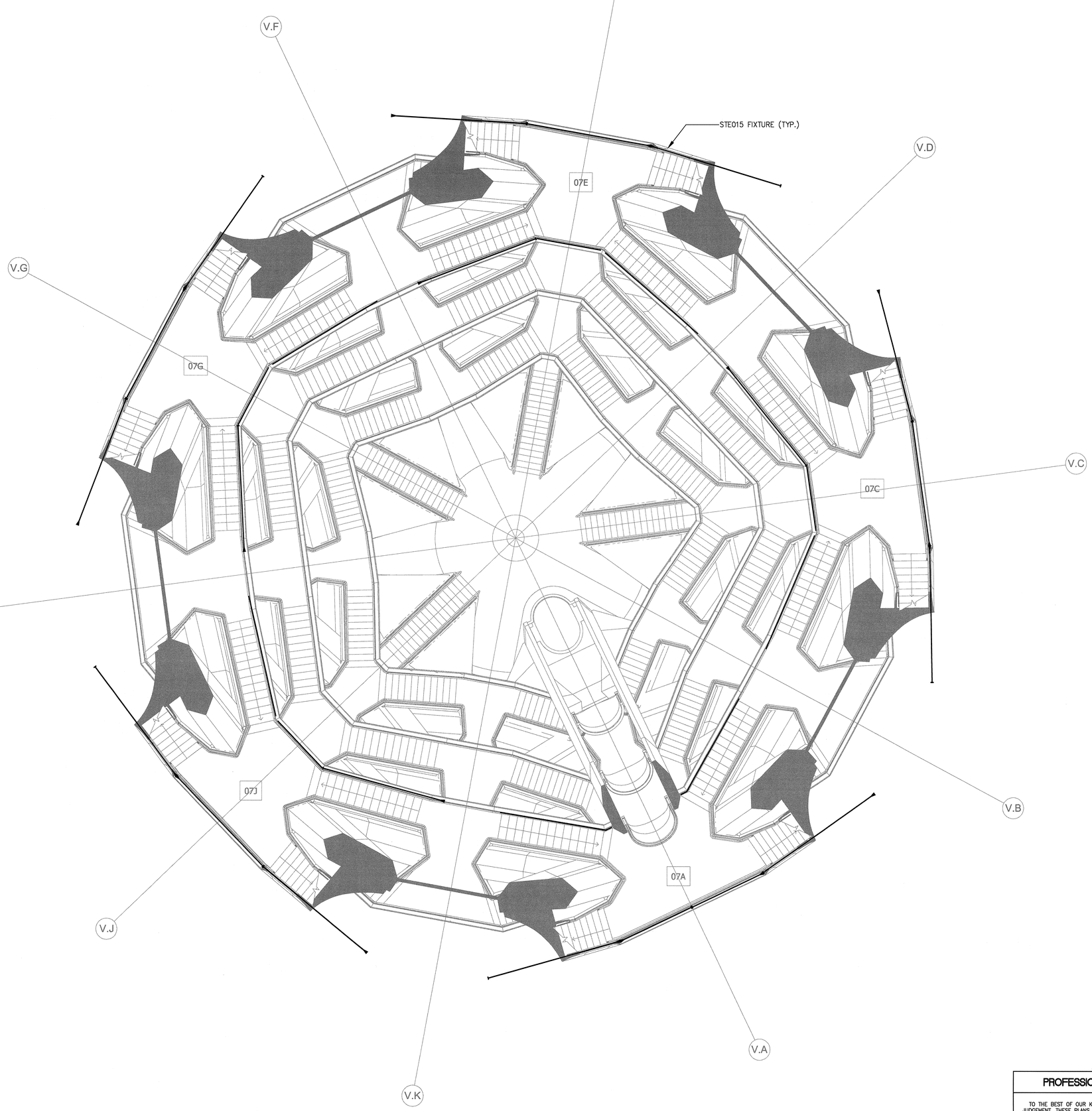
drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

EN-108.00

seal

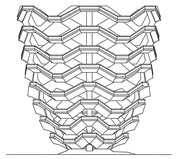
STATE OF NEW YORK
ANTHONY M. ANDRE
LICENSED PROFESSIONAL ENGINEER
NO. 052531

11 of 23



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

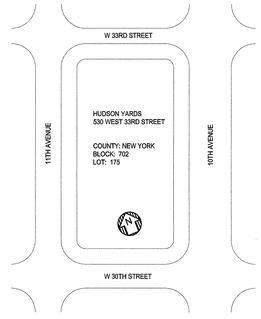
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

TO THE BEST OF OUR KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE.

BUILDING DEPARTMENT NOTE

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Damian Titus

HUDSON YARDS VESSEL

APPROVED

NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 10

Date: 12/07/2016

NYC Development Hub

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

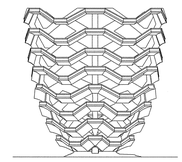
EN-109.00

seal

STATE OF NEW YORK
ANTHONY M. ARBORE
NO. 062531
LICENSED PROFESSIONAL ENGINEER

HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

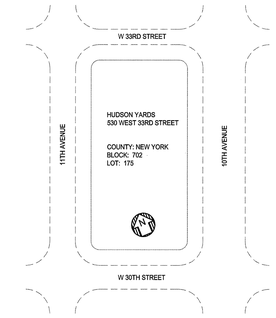
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

TO THE BEST OF OUR KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE.

BUILDING DEPARTMENT NOTE

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Damian Titus
APPROVED
Date: 12/07/2016
NYC Development Hub

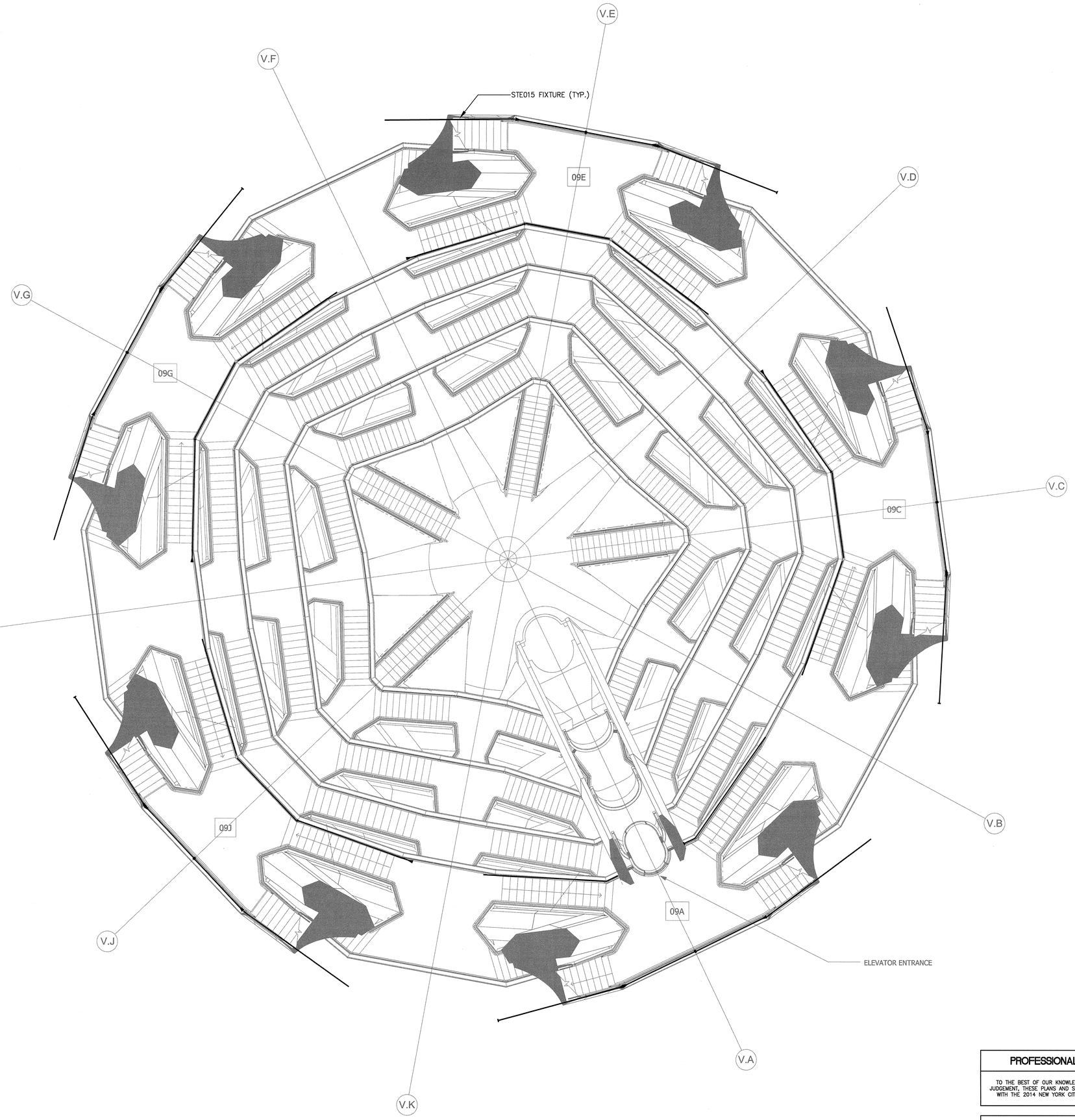
HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 11

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

EN-110.00

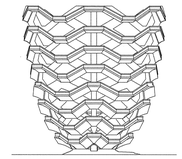
seal

STATE OF NEW YORK
ANTHONY M. ARBORE
LICENSED PROFESSIONAL ENGINEER
NO. 095251-1



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

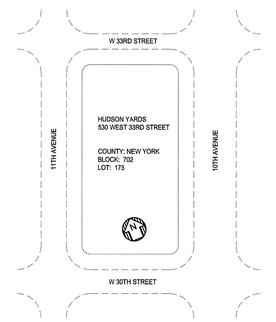
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

TO THE BEST OF OUR KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE.

BUILDING DEPARTMENT NOTE

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Damian Titus
APPROVED
NYC Development Hub

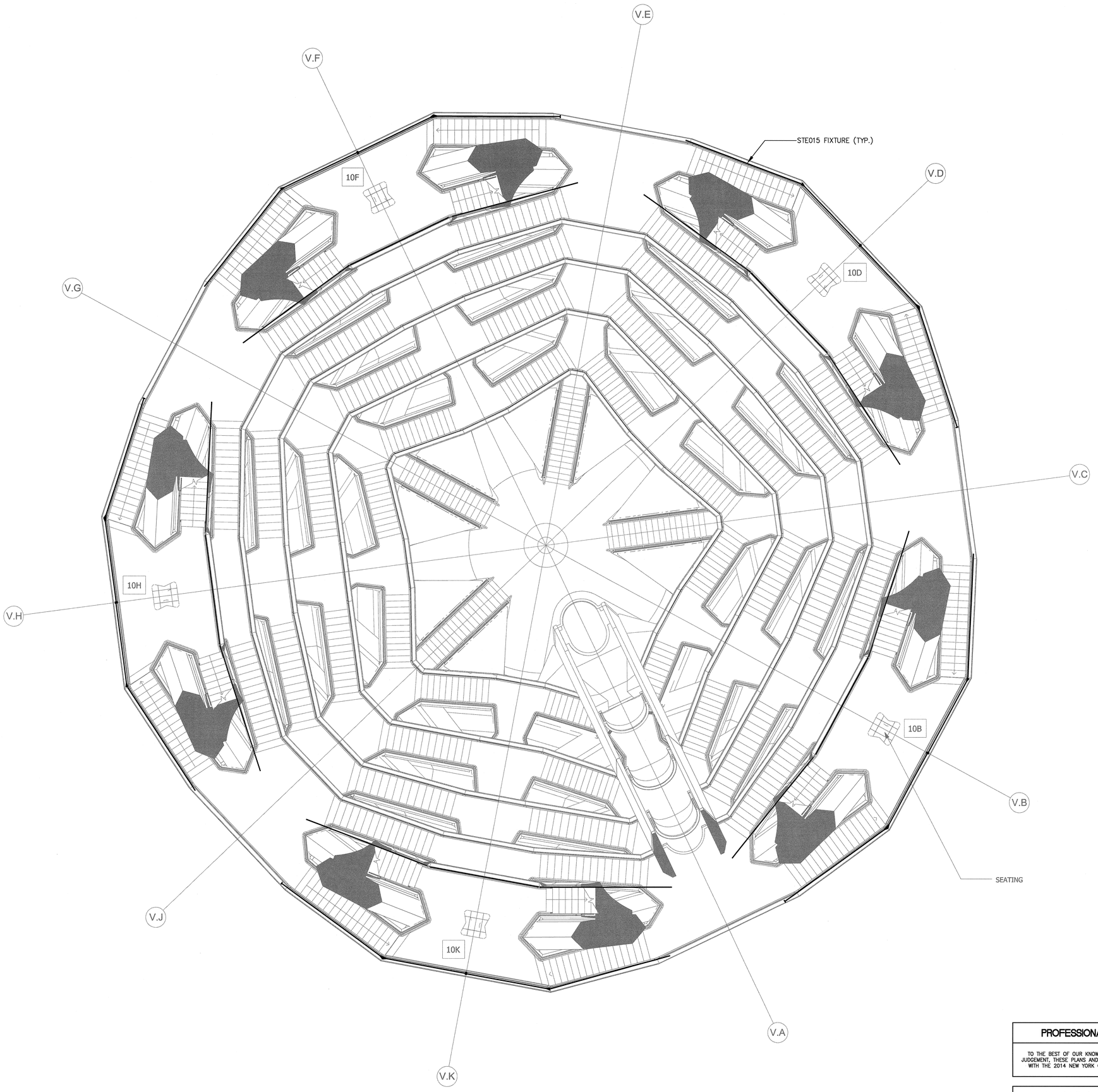
HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 11

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

EN-111.00

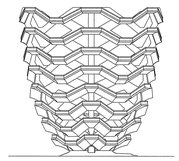
seal

STATE OF NEW YORK
ANTHONY M. ARBORE
NO 062531
LICENSED PROFESSIONAL ENGINEER



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

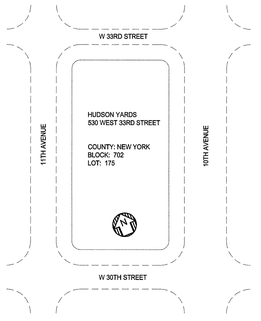
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

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Damian Titus

HUDSON YARDS VESSEL

APPROVED
Date: 05/20/2016
NYC Development Hub

NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 13

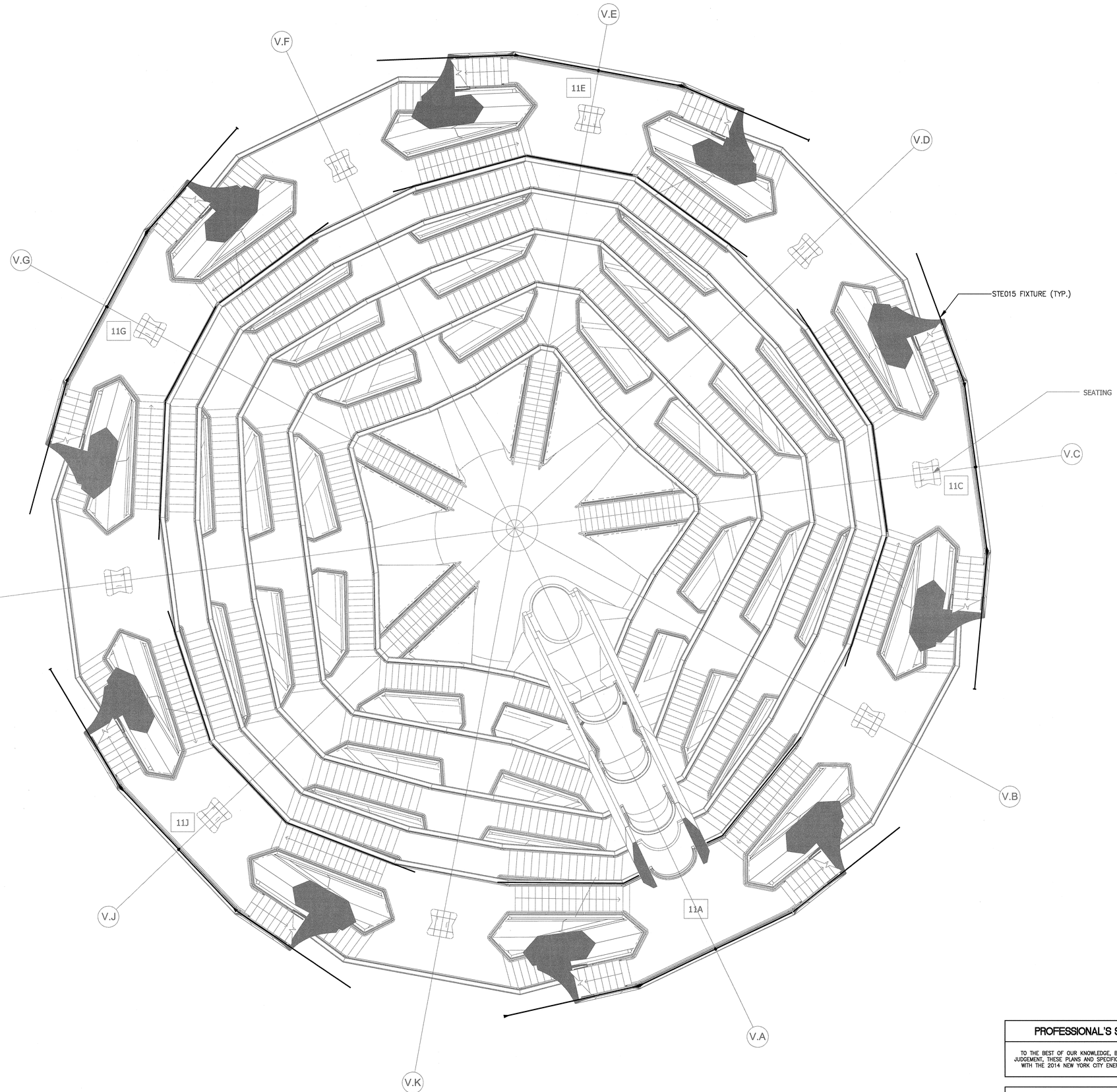
drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

EN-112.00

seal

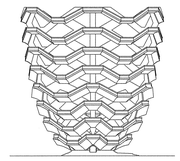
STATE OF NEW YORK
ANTHONY M. ARBORE
NO. 062531-1
LICENSED PROFESSIONAL ENGINEER

DEPT OF BLDGS 121101183 Job Number
E522251854 Scan Code



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES
80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

PACE PLUMBING CORP.
41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100
HAROLD BLOCK
MASTER PLUMBER LIC # 0195

PROFESSIONAL'S STATEMENT

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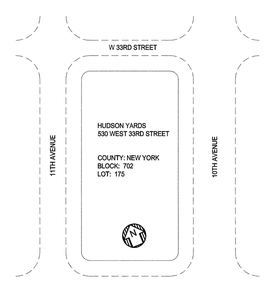
REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



Damian Titus
APPROVED
NYC Development HUB

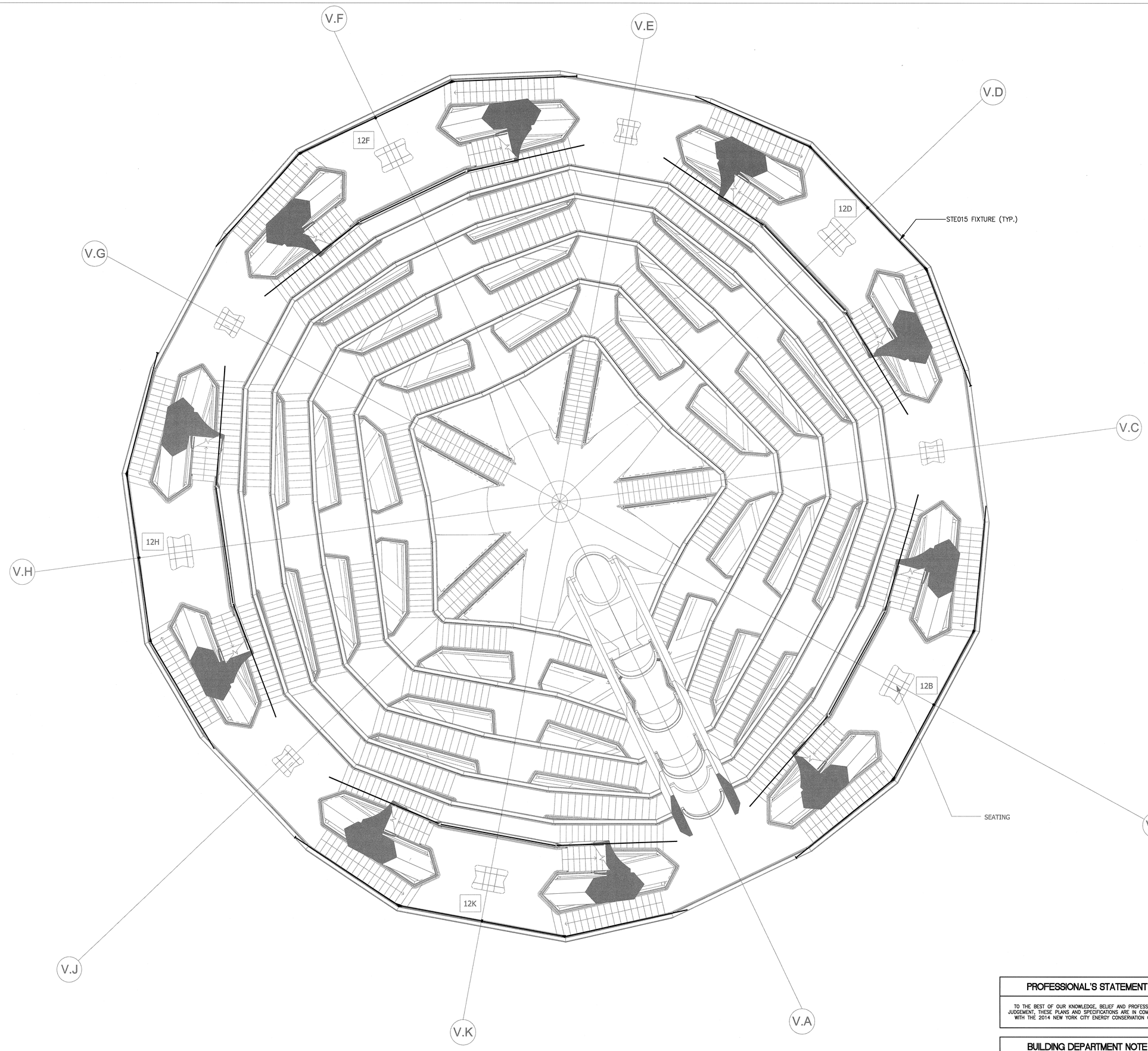
HUDSON YARDS VESSEL

NYC ECC COMPLIANCE LIGHTING CONFORMANCE

SHEET No. 14

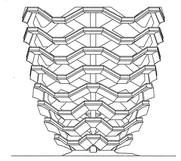
drawn by	scale	Check by	EN-113.00
AP	3/16"=1'-0"	DH	
date	project no.	rev	
5/06/16	14986	0	

seal
ANTHONY M. ARABIA
NO. 082424
LICENSED PROFESSIONAL ENGINEER



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

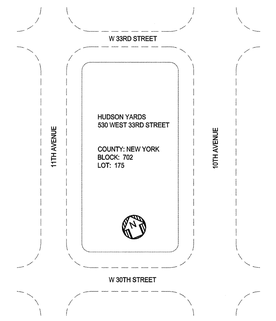
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

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Damian Titus
APPROVED
NYC Development Hub
EN-114.00

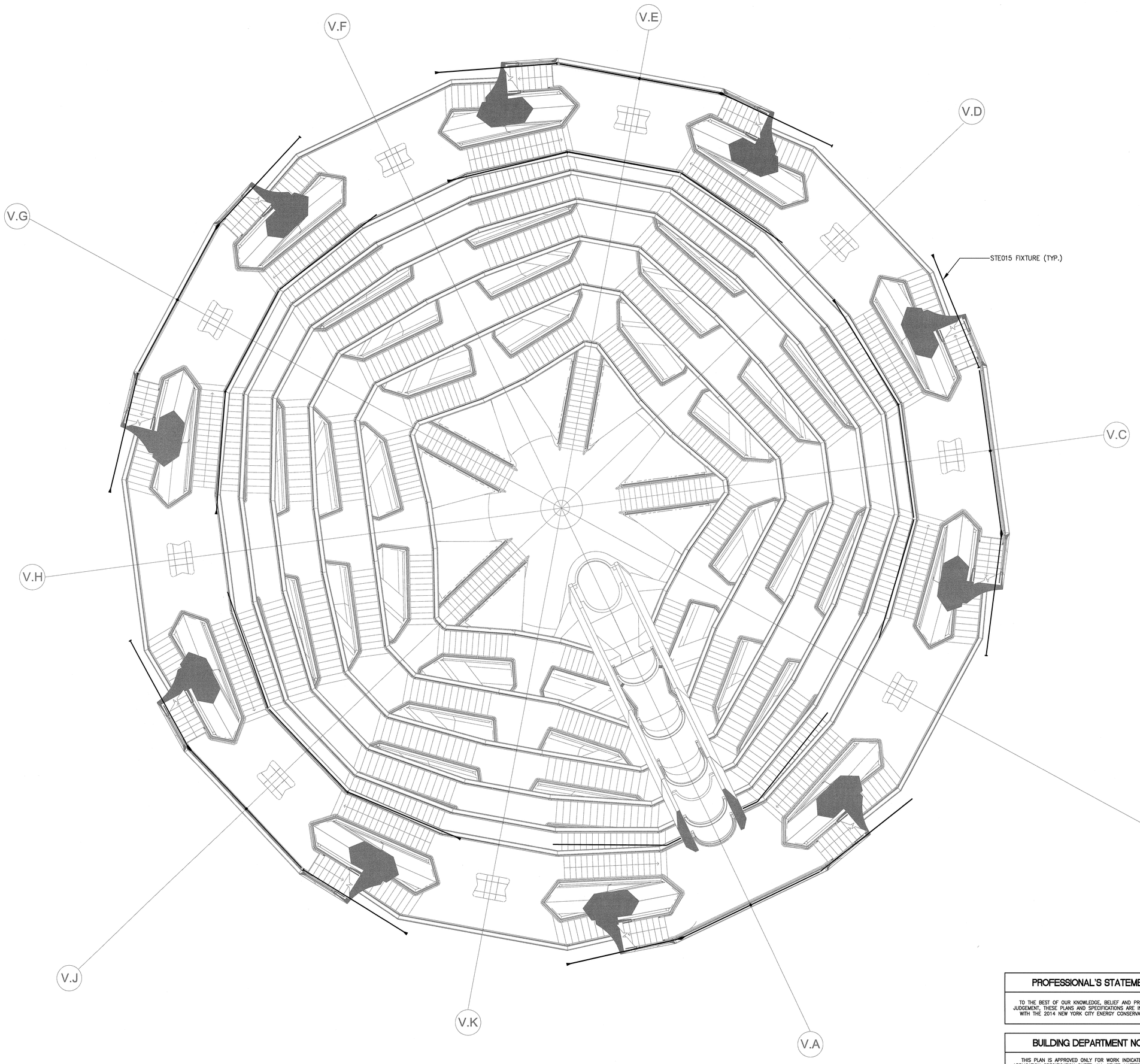
HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 15

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

seal

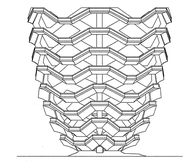
STATE OF NEW YORK
ANTHONY M. ARDURE
NO. 065531-1
LICENSED PROFESSIONAL ENGINEER

DEPT OF BLDGS 421101183 Job Number
ES1507200685 Scan Code



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

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NEW YORK, NEW YORK 10023
TEL: 212-801-1000

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JAROS BAUM & BOLLES
80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

PACE PLUMBING CORP.
41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100
HAROLD BLOCK
MASTER PLUMBER LIC # 0195

PROFESSIONAL'S STATEMENT

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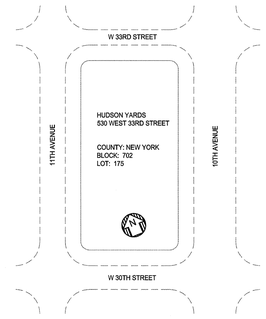
REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



Damian Titus
APPROVED
NYC Development Hub

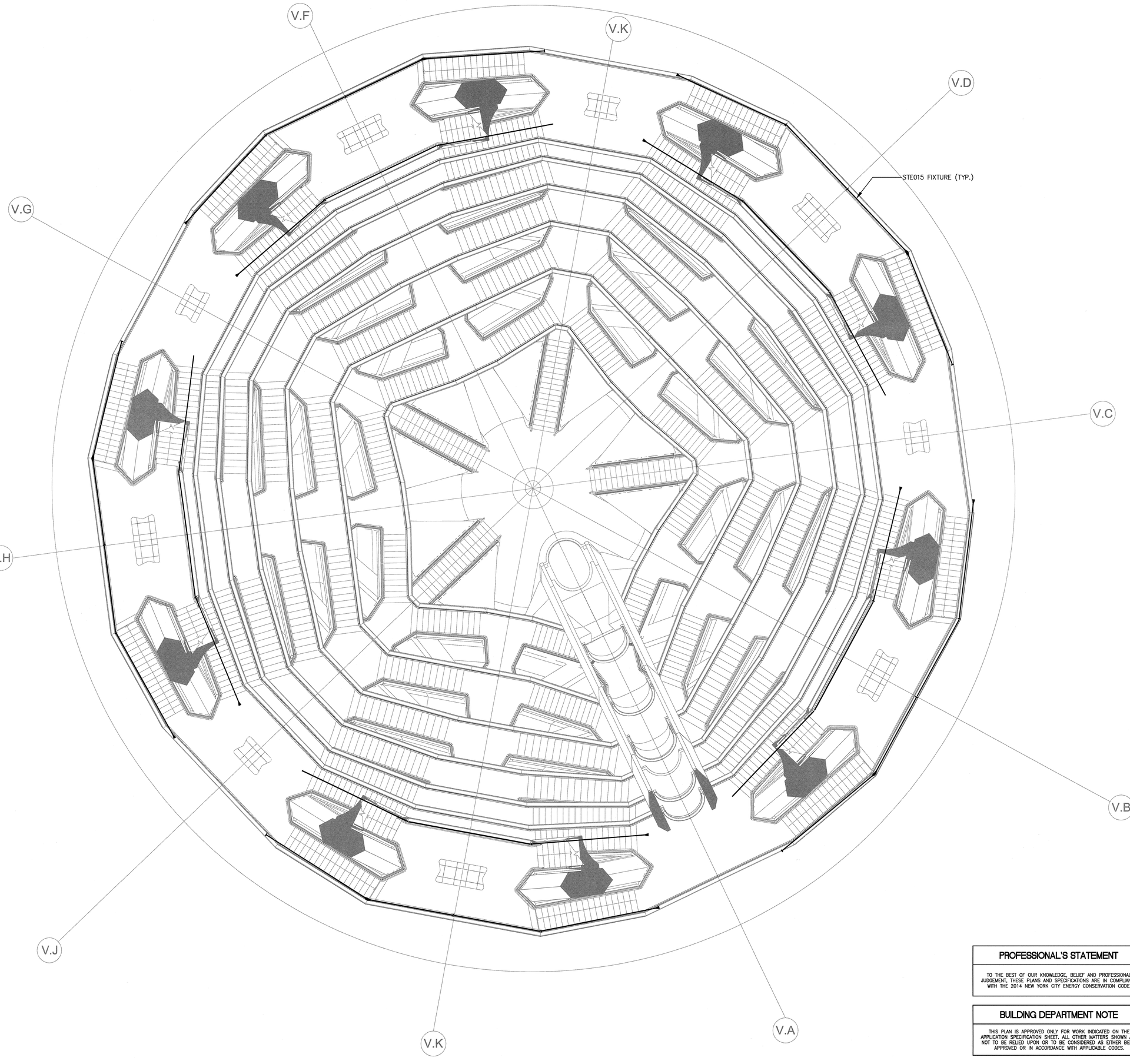
HUDSON YARDS VESSEL

NYC ECC COMPLIANCE LIGHTING CONFORMANCE SHEET No. 16

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

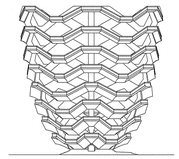
EN-115.00

seal
ANTHONY M. ALDEA
LICENSED PROFESSIONAL ENGINEER
NO 069531
STATE OF NEW YORK



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

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JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

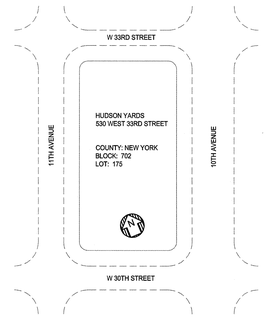
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

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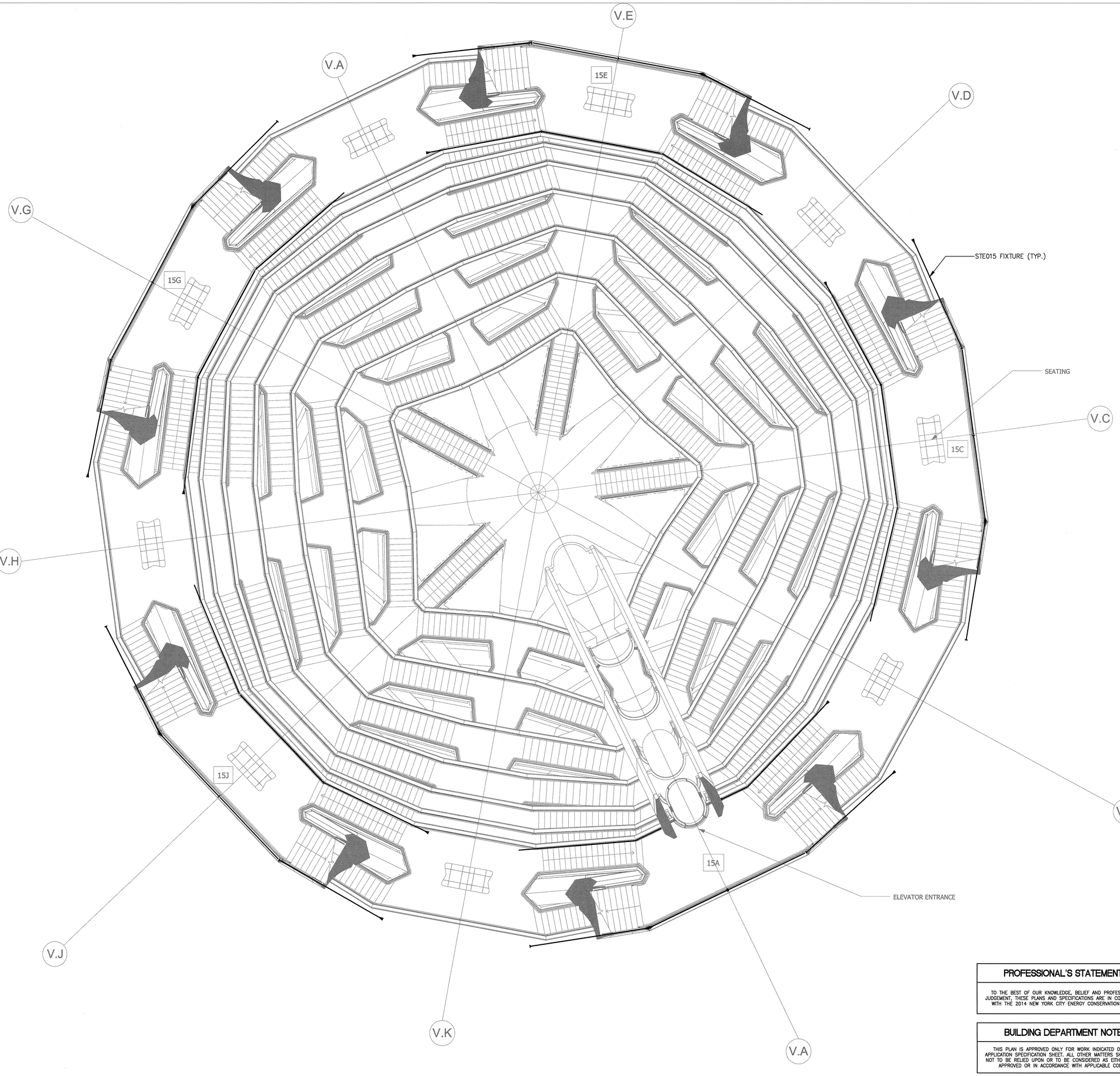
Damian Titus
APPROVED
Date: 12/12/2016
NYC Development Hub

HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 17

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

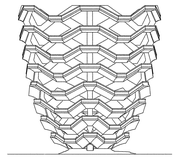
EN-116.00

seal



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

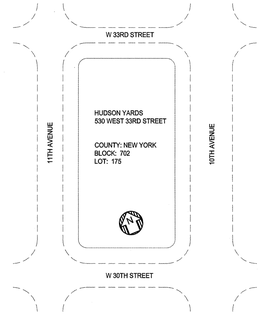
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



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Damian Titus
APPROVED
NYC Development Hub
EN-117.00

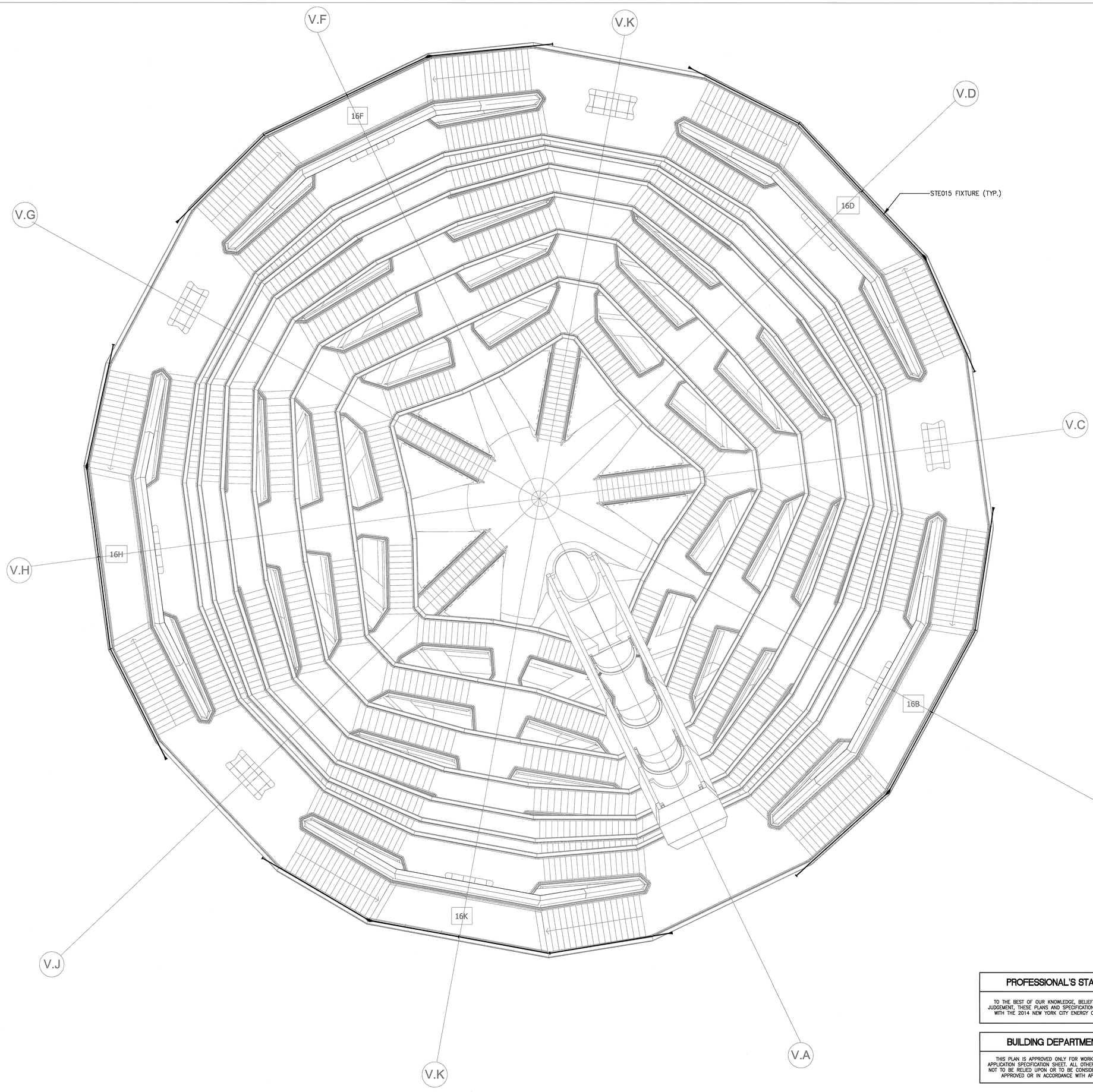
HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 18

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

seal

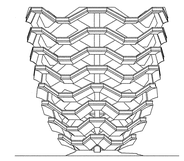
STATE OF NEW YORK
ANTHONY M. ARBORE
LICENSED PROFESSIONAL ENGINEER
NO. 062531-1

20 OF 23



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

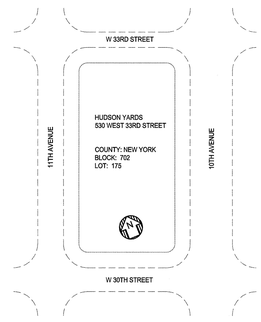
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



PROFESSIONAL'S STATEMENT

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Damian Titus
APPROVED
NYC Development Hub

HUDSON YARDS VESSEL
NYC ECC COMPLIANCE LIGHTING CONFORMANCE
SHEET No. 19

drawn by	scale	check by
AP	3/16"=1'-0"	DH
date	project no.	rev
5/06/16	14986	0

EN-118.00

seal

STATE OF NEW YORK
ANTHONY M. ARBORE
NO. 062531-1
LICENSED PROFESSIONAL ENGINEER

21 OF 23

COMcheck Software Version 4.0.3.0
Interior Lighting Compliance Certificate

Project Information

Energy Code:	2014 New York Energy Conservation Construction Code
Project Title:	Hudson Yards - Vessel
Project Type:	New Construction

Construction Site:
Hudson Yards
New York City, NY 10001

Owner/Agent:
The Related Companies
511 West 33rd Street
New York City, NY 10001

Designer/Contractor:

Additional Efficiency Package
High efficiency HVAC. Systems that do not meet the performance requirement will be identified in the mechanical requirements checklist report.

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-MER Space (Common Space Types:Electrical/mechanical)	385	1.10	424
		Total Allowed Watts =	424

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-MER Space (Common Space Types:Electrical/mechanical)				
LED 1: LED Other Fixture Unit 60W:	1	7	60	420
			Total Proposed Watts =	420

Interior Lighting PASSES: Design 1% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2014 New York Energy Conservation Construction Code requirements in COM*check* Version 4.0.3.0 and to comply with the mandatory requirements listed in the Inspection Checklist.

Daniel Hallett - Associate Engineer — [signature] — 06/01/2016
Name - Title — Signature — Date

COMcheck Software Version 4.0.3.0
Exterior Lighting Compliance Certificate

Project Information

Energy Code:	2014 New York Energy Conservation Construction Code
Project Title:	Hudson Yards - Vessel
Project Type:	New Construction
Exterior Lighting Zone	2 (Neighborhood business district)

Construction Site:
Hudson Yards
New York City, NY 10001

Owner/Agent:
The Related Companies
511 West 33rd Street
New York City, NY 10001

Designer/Contractor:

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Vessel Landings/Stairs Level 1-2 (Stairway)	3159 ft2	1	Yes	3159
Vessel Landings/Stairs Level 3-4 (Stairway)	3828 ft2	1	Yes	3828
Vessel Landings/Stairs Level 5-6 (Stairway)	4232 ft2	1	Yes	4232
Vessel Pedastal (Stairway)	1441 ft2	1	Yes	1441
Vessel Landings/Stairs Level 7-8 (Stairway)	4593 ft2	1	Yes	4593
Vessel Landings/Stairs Level 9-10 (Stairway)	4746 ft2	1	Yes	4746
Vessel Landings/Stairs Level 11-12 (Stairway)	4770 ft2	1	Yes	4770
Vessel Landings/Stairs Level 13-14 (Stairway)	4913 ft2	1	Yes	4913
Vessel Landings/Stairs Level 15-16 (Stairway)	5174 ft2	1	Yes	5174
			Total Tradable Watts (a) =	36856
			Total Allowed Watts =	36856
			Total Allowed Supplemental Watts (b) =	600

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Vessel Landings/Stairs Level 1-2 (Stairway 3159 ft2): Tradable Wattage				
LED 1: STE15: Outboard Handrail: Other:	1	374	4	1496
LED 10: STE15: Handrail at Platform: Other:	1	185	4	740
Vessel Landings/Stairs Level 3-4 (Stairway 3828 ft2): Tradable Wattage				
LED 2: STE15: Outboard Handrail: Other:	1	476	4	1904
LED 11: STE15: Handrail at Platform: Other:	1	333	4	1332
Vessel Landings/Stairs Level 5-6 (Stairway 4232 ft2): Tradable Wattage				
LED 3: STE15: Outboard Handrail: Other:	1	590	4	2360
LED 12: STE15: Handrail at Platform: Other:	1	436	4	1744
Vessel Pedastal (Stairway 1441 ft2): Tradable Wattage				
LED 8: PRE06: Vessel Special Lighting: Other:	1	10	237	2370
LED 18: STE04: Staircase Lighting: Other:	1	137	4	548
Vessel Landings/Stairs Level 7-8 (Stairway 4593 ft2): Tradable Wattage				

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
LED 9: STE15: Outboard Handrail: Other:	1	634	4	2536
LED 10: STE15: Handrail at Platform: Other:	1	494	4	1976
Vessel Landings/Stairs Level 9-10 (Stairway 4746 ft2): Tradable Wattage				
LED 13: STE15: Outboard Handrail: Other:	1	661	4	2644
LED 14: STE15: Handrail at Platform: Other:	1	545	4	2180
Vessel Landings/Stairs Level 11-12 (Stairway 4770 ft2): Tradable Wattage				
LED 15: STE15: Outboard Handrail: Other:	1	691	4	2764
LED 16: STE15: Handrail at Platform: Other:	1	542	4	2168
Vessel Landings/Stairs Level 13-14 (Stairway 4913 ft2): Tradable Wattage				
LED 17: STE15: Outboard Handrail: Other:	1	700	4	2800
LED 18: STE15: Handrail at Platform: Other:	1	591	4	2364
Vessel Landings/Stairs Level 15-16 (Stairway 5174 ft2): Tradable Wattage				
LED 19: STE15: Outboard Handrail: Other:	1	711	4	2844
LED 20: STE15: Handrail at Platform: Other:	1	293	4	1172
			Total Tradable Proposed Watts =	35942

Exterior Lighting PASSES: Design 4% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2014 New York Energy Conservation Construction Code requirements in COM*check* Version 4.0.3.0 and to comply with the mandatory requirements listed in the Inspection Checklist.

Daniel Hallett - Associate Engineer — [signature] — 06/01/2016
Name - Title — Signature — Date

COMcheck Software Version 4.0.3.0
Mechanical Compliance Certificate

Project Information

Energy Code:	2014 New York Energy Conservation Construction Code
Project Title:	Hudson Yards - Vessel
Location:	New York County, New York
Climate Zone:	4a
Project Type:	New Construction

Construction Site:
Hudson Yards
New York City, NY 10001

Owner/Agent:
The Related Companies
511 West 33rd Street
New York City, NY 10001

Designer/Contractor:

Additional Efficiency Package
High efficiency HVAC. Systems that do not meet the performance requirement will be identified in the mechanical requirements checklist report.

Mechanical Systems List

Quantity System Type & Description

1 HVAC System 1 (Multiple-Zone w/ PerimeterSystem):
Cooling: 1 each - Hydronic Coil, Capacity = 64 kBtu/h, No Economizer, Economizer exception: High Efficiency Equipment
No minimum efficiency requirement applies
Fan System: FAN SYSTEM 1 | FCU-1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 2400 CFM, 1.0 motor nameplate hp

1 HVAC System 1 copy 1 (Multiple-Zone w/ PerimeterSystem):
Cooling: 1 each - Hydronic Coil, Capacity = 90 kBtu/h, No Economizer, Economizer exception: High Efficiency Equipment
No minimum efficiency requirement applies
Fan System: FAN SYSTEM 2 | FCU02 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 3400 CFM, 1.5 motor nameplate hp

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2014 New York Energy Conservation Construction Code requirements in COM*check* Version 4.0.3.0 and to comply with the mandatory requirements listed in the Inspection Checklist.

Daniel Hallett - Associate Engineer — [signature] — 06/01/2016
Name - Title — Signature — Date

COMcheck Software Version 4.0.3.0
Inspection Checklist

Energy Code: 2014 New York Energy Conservation Construction Code

Requirements: 3.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	All design heating and cooling loads for equipment sizing are determined in accordance with C403.2.1 calculated using an approved HVAC software with design parameters specified in Chapter 5.
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Refer to lighting schedules and plans.
C103.2 [PR8][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Refer to lighting schedules and plans.
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.2.4.5 [FO9][3]	Freeze protection and snow/ice melting system sensors for future connection to controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.3 [ME55][2]	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.2.5.1 [ME59][1]	Demand control ventilation provided for spaces >500 sq.ft. and >25 people/1000 sq.ft. occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.4.2 [ME75][2]	VAV fan >= 7.5 hp are driven by mechanical or electrical variable speed drive, or driven by vane-axial with variable speed blades, or operate with motor demand <=30% design kW at 50% design flow - calculations required	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.4.2 [ME75][2]	VAV fan >= 7.5 hp are driven by mechanical or electrical variable speed drive, or driven by vane-axial with variable speed blades, or operate with motor demand <=30% design kW at 50% design flow - calculations required	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.2.7 [ME60][2]	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Ductwork shall be insulated as per code requirements. Information to be included in specifications.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Piping shall be insulated as per code requirements. Information to be included in specifications.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Piping shall be insulated as per code requirements. Information to be included in specifications.
C403.2.8.1 [ME7][3]	Piping Insulation exposed to weather is protected from damage (due to sun, moisture, wind, etc.).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.2.8 [ME41][3]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.2.7 [ME10][2]	Ducts and plenums sealed based on static pressure and location.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Ductwork shall be sealed as per code requirements. Information to be included in specifications.
C403.4.3.1 [ME50][2]	Three-pipe hydronic systems using a common return for hot and chilled water are not used.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.4.3.1 [ME50][2]	Three-pipe hydronic systems using a common return for hot and chilled water are not used.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C408.2.2.1 [ME53][3]	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Air balancing devices shall be provided as per code requirements. Information to be included in specifications.
C408.2.2.2 [ME54][3]	HVAC hydronic heating and cooling coils have means to balance and have pressure test connections.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	HVAC hydronic heating and cooling coils shall be provided as per code requirements. Information to be included in specifications.
C408.2.2.2 [ME54][3]	HVAC hydronic heating and cooling coils have means to balance and have pressure test connections.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	HVAC hydronic heating and cooling coils shall be provided as per code requirements. Information to be included in specifications.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.4.2.1 [ME67][2]	VAV fans have static pressure sensors positioned so setpoint <=1/3 total design pressure.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.4.2.1 [ME67][2]	VAV fans have static pressure sensors positioned so setpoint <=1/3 total design pressure.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.4.2.2 [ME24][2]	Reset static pressure setpoint for DDC controlled VAV boxes reporting to central controller based on the zones requiring the most pressure.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.4.2.2 [ME24][2]	Reset static pressure setpoint for DDC controlled VAV boxes reporting to central controller based on the zones requiring the most pressure.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.4.3.5 [ME26][3]	Reduce flow in pumping systems >10 hp to multiple chillers or boilers when others are shut down.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.4.3.5 [ME26][3]	Reduce flow in pumping systems >10 hp to multiple chillers or boilers when others are shut down.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.2.6 [ME57][1]	Exhaust air energy recovery on systems meeting Table C403.2.6	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.4.6 [ME31][3]	Condenser heat recovery system that can heat water to 85 ºF or provide 60% of peak heat rejection is installed for preheating of service hot water.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.4.6 [ME31][3]	Condenser heat recovery system that can heat water to 85 ºF or provide 60% of peak heat rejection is installed for preheating of service hot water.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.2.11 [ME71][2]	Unenclosed spaces that are heated use only radiant heat.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.1 [EL22][2]	Automatic controls to shut off all building lighting installed in all buildings.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.2.1.1 [EL23][2]	Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.2.1.2 [EL15][1]	Lighting controls installed to uniformly reduce the lighting load by at least 50%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.2.2.3 [EL16][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.2.3 [EL17][3]	Sleeping units have at least one master switch at the main entry door that controls wired luminaires and switched receptacles.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C405.2.2.2 [EL18][1]	Occupancy sensors installed in required spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.2.2.3 [EL20][1]	Primary sidelighted areas are equipped with required lighting controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.2.2.3 [EL21][1]	Enclosed spaces with daylight area under skylights and rooftop monitors are equipped with required lighting controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.2.4 [EL25][2]	Automatic lighting controls for exterior lighting installed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.2.3 [EL4][1]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.3 [EL19][3]	Fluorescent luminaires with odd numbered lamp configurations that are within 10 feet center to center (if recess mounted) or are within 1 foot edge to edge (if pendant or surface mounted) shall be tandem wired.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Wiring requirements shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.4 [EL6][1]	Exit signs do not exceed 5 watts per face.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Exit sign requirements shall be provided in compliance with code requirements. Information shall be included in and in architectural drawings.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 [EL24][1]	Exterior grounds lighting over 100 W provides >60 lm/W unless on motion sensor or fixture is exempt from scope of code or from external LPD.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Lighting controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C405.2.3 [EL8][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

PROFESSIONAL'S STATEMENT

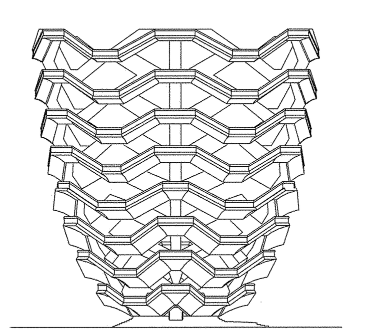
TO THE BEST OF OUR KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2014 NEW YORK CITY ENERGY CONSERVATION CODE.

BUILDING DEPARTMENT NOTE

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

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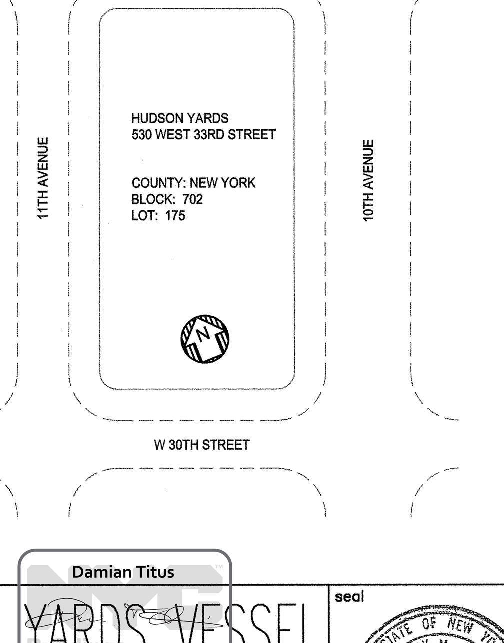
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



Damian Titus
APPROVED
Under Directive 4 of 1975
Date: 12/07/2016
NYC Development Hub

HUDSON YARDS VESSEL
NYC ECC COMPLIANCE COMCHECK CONFORMANCE SHEET No. 1

drawn by	scale	check by	
MG	N.T.S.	CC	EN-200.00
date	project no.	rev	
5/06/16	14986	0	

seal
STATE OF NEW YORK · ANTHONY M. ARBORE · LICENSED PROFESSIONAL ENGINEER · No. 062531-1

22 OF 23

DEPT OF BLDGS 121101183 Job Number
E350585995029 Scan Code

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C403.2.4.2 [FI38]¹	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	HVAC controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C403.2.4.2 [FI20]¹	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	HVAC controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C403.2.4.3 [FI39]¹	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	HVAC controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C403.2.4.3 [FI40]¹	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	HVAC controls shall be provided in compliance with code requirements. Information shall be included in specifications.
C403.2.4.3.3 [FI41]¹	Individual heating and cooling air distribution systems with a total design supply air capacity > 10,000 cfm, served by one or more supply fans, have optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C403.2.4.3.3 [FI41]¹	Individual heating and cooling air distribution systems with a total design supply air capacity > 10,000 cfm, served by one or more supply fans, have optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Not Applicable.
C408.2.5.1 [FI7]¹	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	As built documentation requirements shall be provided in specifications, in compliance with code requirements.
C303.3, C408.2.5.3 [FI8]¹	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	O&M documentation requirements shall be provided in specifications, in compliance with code requirements.
C408.2.5.3 [FI43]¹	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	TAB documentation requirements shall be provided in specifications, in compliance with code requirements.
C408.2.3.2 [FI10]¹	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	TAB documentation requirements shall be provided in specifications, in compliance with code requirements.
C403.2.2 [FI27]¹	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Commissioning requirements shall be provided in specifications, in compliance with code requirements.
C408.2.5.1 [FI16]¹	Furnished as-built drawings for electric power systems within 30 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	As built documentation requirements shall be provided in specifications, in compliance with code requirements.

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI37]¹	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	O&M documentation requirements shall be provided in specifications, in compliance with code requirements.
C405.5.2 [FI18]¹	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Interior Lighting fixture schedule for values.*
C405.6.2 [FI19]¹	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Interior Lighting fixture schedule for values.*
C408.2.1 [FI28]¹	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Commissioning requirements shall be provided in specifications, in compliance with code requirements.
C408.2.4 [FI29]¹	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Commissioning requirements shall be provided in specifications, in compliance with code requirements.
C408.2.5.4 [FI30]¹	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Commissioning requirements shall be provided in specifications, in compliance with code requirements.
C408.2.3.1 [FI31]¹	HVAC equipment has been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Commissioning requirements shall be provided in specifications, in compliance with code requirements.
C408.3 [FI33]¹	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Commissioning requirements shall be provided in specifications, in compliance with code requirements.
C408.3 [FI48]¹	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Commissioning requirements shall be provided in specifications, in compliance with code requirements.
C406 [FI34]¹	Efficient HVAC performance, efficient lighting system, or on-site supply of renewable energy consistent with what is shown the approved plans.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

PROFESSIONAL'S STATEMENT

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BUILDING DEPARTMENT NOTE

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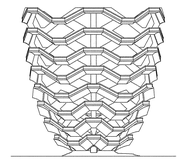
HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



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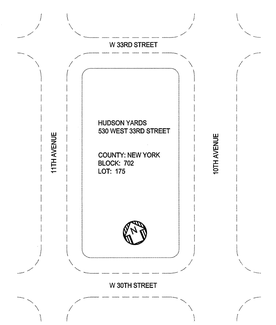
TEL: 718-389-6100
HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



Damian Titus
APPROVED
Date: 10/07/2016
NYC Department HUD

HUDSON YARDS VESSEL

NYC ECC COMCHECK CONFORMANCE

SHEET No. 2

drawn by	scale	check by	
MG	N.T.S.	CC	EN-201.00
date	project no.	rev	
5/06/16	14986	0	

seal

DEPT OF BLDGS 421101183 Job Number
E350141400B0 Scan Code

DRAWING LIST

	DRAWING No.	DRAWING TITLE	ISSUED FOR FILING 05/20/2016		
1	M-001.00	MECHANICAL ABBREVIATIONS, SYMBOLS, GENERAL NOTES, NYC NOTES, DWG LIST	✓		
2	M-002.00	SPECIFICATIONS SHEET	✓		
3	M-003.00	MECHANICAL SYSTEM SCHEMATIC, SCHEDULES, EQUIPMENT ROOM PLAN	✓		
4	M-004.00	MECHANICAL DETAILS SHEET	✓		

GENERAL NOTES

1. ALL LOW PRESSURE BRANCH DUCWORK (SUPPLY AND RETURN) SHALL BE PROVIDED WITH VOLUME DAMPERS RESPECTIVELY.
2. EACH FCU SHALL BE PROVIDED WITH A THERMOSTAT. THERMOSTATS SHALL BE LOCATED AS SHOWN OR AS DIRECTED. FINAL LOCATIONS TO BE VERIFIED WITH THE ARCHITECT. FINSH AND COLOR TO BE SELECTED BY THE ARCHITECT. THERMOSTAT SHOULD BE LOCATED CENTERLINE AT 4'-6" A.F.F. AND 6" FROM EDGE OF DOOR U.O.N. MANUFACTURER'S LOGO SHALL NOT BE EXPOSED.
3. FCU SHOWN ON DRAWINGS ARE SCHEMATIC. SEE DETAIL OF INSTALLATION FOR ACTUAL TYPICAL ARRANGEMENT REQUIRED.
4. ALL PRESSURE AND TEMPERATURE GAUGES ARE SCHEMATICALLY SHOWN ON THE PLANS. REFER TO THE SPECIFICATIONS FOR EXACT TYPES.
5. PROVIDE DUCT AND WALL/CEILING (WHERE APPLICABLE) ACCESS DOORS AT ALL FD'S, SD'S, FSD'S, AND ALD'S.
6. DURING CONSTRUCTION ALL DAMAGED FIRE PROOFING AT HANGERS SHALL BE REPAIRED.

KEY TO EQUIPMENT TAGS

EQUIPMENT TAG EXAMPLE:

TA-ACS-3-2 (B)

- TA — BUILDING NAME DESIGNATOR
- ACS — EQUIPMENT DESIGNATOR (REFER TO SCHEDULES)
- 3 — SERVICE DESIGNATOR
- 2 — UNIT NO.
- (B) — DISPLAY FLOOR NO.

BUILDING NAME	DESIGNATOR
TOWER A	TA
TOWER C	TA
TOWER D	TD
TOWER E	TE
RETAIL PODIUM	PD
PLATFORM	PL
CULTURAL SHED	CS
LIRR	RR
PLAZA	PZ
ALL BUILDINGS	ERY
VESSEL	VS

SERVICE	DESIGNATOR
BASE BUILDING	B
COGEN	CG
COMMON YARDS	ERY
FINANCIAL SERVICES TENANT	FST
LOADING DOCK	LD
LIRR	RR
OBSERVATION DECK	OD
PLAZA	PZ
RETAIL	R
TENANT OFFICE	TO
TIME WARNER	TW

NYCBUILDING CODE NOTES

GENERAL N.Y.C. BUILDING CODE NOTES

(THESE DOCUMENTS TO BE IN COMPLIANCE WITH THE CITY OF NEW YORK BUILDING CODE AND THE CITY OF NEW YORK MECHANICAL CODE, EFFECTIVE DECEMBER 31, 2014)

1. HEATING VENTILATING AND AIR CONDITIONING MATERIALS, EQUIPMENT AND SYSTEMS SUBJECT TO SPECIAL INSPECTION:

SPECIAL INSPECTION	REQUIRED
A. MECHANICAL SYSTEMS PER BC1704.16; AS REGULATED BY NYC MECHANICAL CODE, CHAPTERS 10, 11 & 12, SECTIONS MC 107, MC 507 AND AS PERFORMED IN ACCORDANCE WITH SECTIONS MC 507.16, MC 1011, MC 1108 AND MC 1208 OF THE NYC MECHANICAL CODE.	☑
B. SMOKE CONTROL SYSTEMS PER BC 1704.15 & BC 909:	☐
• COVERED MALL.	☐
• ATRIUM.	☐
• STAGE & PLATFORM.	☐
• STAIR PRESSURIZATION.	☐
• UNDERGROUND BUILDING.	☐
• GROUP I-3 OCCUPANCIES.	☐
C. FUEL-OIL STORAGE AND FUEL OIL PIPING SYSTEMS PER BC 1704.17 AS REGULATED BY MC 1308 OF THE NYC MECHANICAL CODE.	☐
D. HIGH PRESSURE STEAM PIPING (WELDING) PER BC 1704.18 AS REGULATED BY MC 1210 OF THE NYC MECHANICAL CODE.	☐
E. HEATING SYSTEMS PER BC 1704.25 AND TESTED IN ACCORDANCE WITH SECTION MC 1011 OF THE NYC MECHANICAL CODE.	☐
F. CHIMNEYS PER BC 1704.26 AND PERFORMED IN ACCORDANCE WITH MC 810 OF THE NYC MECHANICAL CODE.	☐
G. HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS SUPPORTING THE OPERATION OF EMERGENCY POWER SYSTEMS PER BC 1704.31 & BC 2702.	☐
H. FIRE-RESISTANT PENETRATIONS AND JOINTS PER BC 1704.27	☐
I. POST-INSTALLED ANCHORS (BB# 2014-018, 2014-019) PER BC 1704.32.	☑
J. SEISMIC ISOLATION SYSTEMS PER 1707.7 & 1707.8.	☐
K. ENERGY CODE COMPLIANCE INSPECTIONS PER BC 110.3.5	☑
L. FINAL INSPECTION PER 28-116.2.4.2 AND BC 110.5 AND DIRECTIVE 14 OF 1975 AND 1 RCNY §101-10. NOTE: SPECIAL INSPECTION AGENCY SHALL PROVIDE DOCUMENTATION INDICATING THE INSPECTIONS THEY ARE QUALIFIED AND APPROVED TO PERFORM. INSPECTOR REGISTRATION NUMBERS SHALL BE PROVIDED ON THE TR-1 & TR-8 FILING FORMS.	☐

2. UPON COMPLETION OF VENTILATION SYSTEM, A TEST WILL BE CONDUCTED UNDER THE PRESENCE AND DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT QUALIFIED TO CONDUCT SUCH TESTS. THE TESTS SHALL SHOW COMPLIANCE WITH CODE REQUIREMENTS FOR VENTILATION AND PROPER FUNCTION OF ALL OPERATING DEVICES BEFORE THE SYSTEM IS APPROVED.
3. THE LICENSED PROFESSIONAL ENGINEER OR ARCHITECT WHO CONDUCTS THE TEST SHALL FILE THE CERTIFICATE AS TO WHETHER THE SYSTEM COMPLIES WITH APPLICABLE LAWS. THE TEST AND THE REPORT SHALL BE MADE IN A MANNER SATISFACTORY TO THE SUPERINTENDENT.
4. A STATEMENT SHALL BE FILED BY THE OWNER THAT THE SYSTEM OF VENTILATION WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING NORMAL OCCUPANCY OF THE BUILDING AS REQUIRED BY THE APPLICABLE SECTION OF THE CODE.
5. NEW YORK CITY MECHANICAL CODE CHAPTER 4 SECTION 401 SHALL GOVERN THE VENTILATION OF THE SPACES WITHIN THE BUILDING INTENDED TO BE OCCUPIED.
6. MECHANICAL VENTILATION BY A METHOD OF SUPPLY AIR AND RETURN OR EXHAUST AIR SHALL BE PROVIDED AS PER NEW YORK CITY MECHANICAL CODE CHAPTER 4, SECTION 403. THE AMOUNT OF SUPPLY AIR SHALL BE APPROXIMATELY EQUAL TO THE AMOUNT OF RETURN AND EXHAUST AIR. THE SYSTEM SHALL NOT BE PROHIBITED FROM PRODUCING NEGATIVE OR POSITIVE PRESSURE. THE SYSTEM TO CONVEY VENTILATION AIR SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NEW YORK CITY MECHANICAL CODE CHAPTER 6.
7. MECHANICAL VENTILATION SYSTEMS SHALL BE PROVIDED WITH MANUAL OR AUTOMATIC CONTROLS AS PER NEW YORK CITY MECHANICAL CODE CHAPTER 4 SECTION 405.
8. DUCT SYSTEMS USED FOR THE MOVEMENT OF AIR IN AIR CONDITIONING, HEATING, VENTILATING AND EXHAUST SYSTEMS SHALL CONFORM TO PROVISIONS OF NEW YORK CITY MECHANICAL CODE CHAPTER 6, SECTION 601.
9. THE INSTALLATION AND CONSTRUCTION OF DUCTWORK SHALL BE AS PER NEW YORK CITY MECHANICAL CODE CHAPTER 6, SECTION 603.
10. PROTECTION OF DUCT PENETRATIONS AND AIR TRANSFER OPENINGS IN ASSEMBLIES REQUIRED TO BE PROTECTED SHALL BE AS PER NEW YORK CITY MECHANICAL CODE CHAPTER 6, SECTION 607. FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS AND CEILING RADIATION DAMPERS SHALL BE PROVIDED AT THE LOCATIONS PRESCRIBED IN SECTIONS 607.5.1 THROUGH 607.5.5. WHERE AN ASSEMBLY IS REQUIRED TO HAVE BOTH FIRE DAMPERS AND SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, OR A FIRE DAMPER AND A SMOKE DAMPER SHALL BE REQUIRED.
11. DUCT AND AIR TRANSFER OPENINGS THAT PENETRATE FIRE RATED PARTITIONS SHALL COMPLY WITH ALL REQUIREMENTS LISTED UNDER THE BUILDING CODE SECTION 716 AS APPLICABLE TO SYSTEM DESIGN.

ABBREVIATIONS

ALD	AUTOMATIC LOUVER DAMPER
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
DB	DRY BULB TEMPERATURE
EA	EXHAUST AIR
EADB	ENTERING AIR DRY BULB TEMPERATURE
EAWB	ENTERING AIR WET BULB TEMPERATURE
EF	EXHAUST FAN
F	FAHRENHEIT
FCU	FAN COIL UNIT
FLA	FULL LOAD AMPS
FSD	COMBINATION FIRE SMOKE DAMPER
GPM	GALLONS PER MINUTE
GWR	GLYCOL CHILLED WATER RETURN
GWS	GLYCOL CHILLED WATER SUPPLY
HP	HORSEPOWER
IN	INCHES
KW	KILOWATT
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MER	MECHANICAL EQUIPMENT ROOM
MIN	MINIMUM
OA	OUTSIDE AIR
PD	PRESSURE DIFFERENTIAL
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
SS	SUB SURFACE LEVEL
SQ FT	SQUARE FEET
TA	TRANSFER AIR
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
WB	WET BULB TEMPERATURE
WG	WATER GAGE
WMS	WIRE MESH SCREEN

SYMBOL LIST

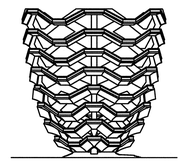
- DIRECTION OF FLOW
- EXPANSION JOINT (EJ)
- UNION
- PUMPED CONDENSATE (PC)
- SHUT OFF VALVE (NORMALLY OPEN)
- SHUT OFF VALVE (NORMALLY CLOSED)
- MOTORIZED VALVE (M)
- BALANCING VALVE
- AUTOMATIC CONTROL VALVE
- PIPE TURNING DOWN
- PIPE TURNING UP
- SUPPLY AIR DUCT UP
- EXHAUST OR RETURN AIR DUCT UP
- SUPPLY AIR DUCT DOWN
- EXHAUST OR RETURN AIR DUCT DOWN
- DUCTWORK
- THERMOSTAT (T OR T)
- FAN
- MOTOR (M)
- COMBINATION FIRE/SMOKE DAMPER (FSD)
- VOLUME DAMPER (VD)
- FLEXIBLE CONNECTION
- CONNECT NEW WORK TO EXISTING

NYC DOB FILING NOTE

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

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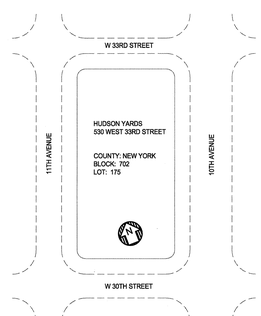
plot plan



HUDSON YARDS VESSEL

MECHANICAL ABBREVIATIONS, SYMBOLS, GENERAL NOTES, NYC NOTES, DWG LIST

drawn by	scale	check by
MG	NTS	
date	project no.	rev
5/06/16	14986	0

M-001.00

seal: STATE OF NEW YORK — ANTHONY M. ARGIRE — 060626 — LICENSED PROFESSIONAL ENGINEER

1 OF 4

Damian Titus
Development Hub

1. SCOPE OF WORK

A. THE WORK UNDER THIS SECTION SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, HOISTING, SCAFFOLDING, SUPPORT, SUPERVISION, SERVICES AND OPERATIONS NECESSARY TO COMPLETE THE INSTALLATION OF THE HEATING, VENTILATING AND AIR CONDITIONING WORK SHOWN IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE SCOPE OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: FITOUT OF MER ROOMS SUPPORTING THE VESSEL.

2. GENERAL CONDITIONS - HVAC

A. THE GENERAL CONDITIONS AND THE SUPPLEMENTARY CONDITIONS OF THE CONTRACT FOR CONSTRUCTION AND THE ARCHITECTS AND ENGINEER'S SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. THE ENTIRE INSTALLATION SHALL CONFORM WITH THE MOST RECENTLY REVISED VERSION OF ALL APPLICABLE LAWS, RULES, REGULATIONS, CODES, ORDINANCES OF FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION, INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
THE NYS ENERGY CONSERVATION CODE, THE NYC CODE, IBC CODE, NATIONAL ELECTRIC CODE, ASHRAE, ASME, NFPA, AND UL.
ALL EQUIPMENT SHALL BE LISTED AND APPROVED FOR USE IN THE CITY OF NEW YORK, AND BEAR THE BSA MEA NUMBER.

C. EXISTING MECHANICAL WORK WHICH INTERFERES WITH NEW WORK IS TO BE REMOVED AND/OR RELOCATED BY THIS CONTRACTOR TO ACCOMMODATE THE NEW WORK. PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE HIMSELF WITH THE EXTENT OF THE WORK TO BE DONE.

1) PRIOR TO BID AND BEFORE COMMENCING WORK, EXAMINE ALL ADJOINING WORK ON WHICH THIS WORK IS IN ANY WAY DEPENDENT FOR PERFECT WORKMANSHIP ACCORDING TO THE INTENT OF THIS SPECIFICATION, AND REPORT TO THE OWNER ANY CONDITION WHICH PREVENTS PERFORMANCE OF FIRST-CLASS WORK. NO "WAIVER OF RESPONSIBILITY" FOR INCOMPLETE, INADEQUATE OR DEFECTIVE ADJOINING WORK WILL BE CONSIDERED UNLESS NOTICE HAS BEEN FILED BEFORE SUBMITTAL OF A PROPOSAL.

2) BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AT THE BUILDING OF THE PRESENT INSTALLATION TO WHICH CONNECTIONS MUST BE MADE OR WHICH MUST BE CHANGED OR ALTERED. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREINAFTER, AND NO CONSIDERATION WILL BE GRANTED BY REASON OF LACK OF FAMILIARITY ON THE PART OF THE CONTRACTOR WITH ACTUAL PHYSICAL CONDITIONS AT THE SITE. INSPECT EACH AND EVERY AREA AFFECTED BY THE TOTAL ALTERATION OF THE BUILDING BEFORE SUBMITTING BID.

D. REMOVAL AND DISPOSAL OF EXISTING EQUIPMENT AND CONSTRUCTION DEBRIS FROM THE SITE IS THE RESPONSIBILITY OF THIS CONTRACTOR, WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS WHICH MAY BE REQUIRED TO BE TURNED OVER TO THE OWNER/TENANT OR THE BUILDING REPRESENTATIVE.

E. ALL WORK AND MATERIALS SHALL BE GUARANTEED AS TO QUALITY AND WORKMANSHIP, AND GUARANTEED AGAINST ALL DEFECTS, FOR A PERIOD OF ONE YEAR.

F. PROVIDE ALL-RISK BUILDERS' INSURANCE IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING AND/OR THE OWNER, NAMING THE OWNER, ARCHITECT AND ENGINEER AS ADDITIONAL INSUREDS AND CONTAINING A PROVISION THAT THE INSURANCE IS NOT CANCELABLE UNTIL 30 DAYS AFTER THE CONTRACTOR, OWNER, ARCHITECT AND ENGINEER HAVE RECEIVED WRITTEN NOTICE OF INTENTION TO CANCEL. IN THE EVENT OF CANCELLATION, THE OWNER HAS THE OPTION TO REPLACE SUCH INSURANCE AT THE CONTRACTOR'S EXPENSE.

G. THE CONTRACTOR AND SUBCONTRACTORS, IF ANY, COVENANT AND AGREE:

1) TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE OWNER, ARCHITECT AND CONSULTING ENGINEERS AGAINST ANY LIABILITY, LOSS, DAMAGE OR EXPENSE, INCLUDING ATTORNEYS' FEES, ARISING FROM A FAILURE OR ALLEGED FAILURE ON THE PART OF THE CONTRACTOR, HIS SUBCONTRACTORS OR HIS OR THEIR AGENTS, SERVANTS AND EMPLOYEES PROPERLY TO DISCHARGE THE OBLIGATIONS ASSUMED BY HIM OR THEM IN PERFORMANCE OF THE WORK, INCLUDING ANY ACT OR OMISSION ALLEGEDLY RESULTING IN DEATH OR PERSONAL INJURY OR PROPERTY DAMAGE OR IMPROPER CONSTRUCTION, CONSTRUCTION TECHNIQUES, OR THE USE OF IMPROPER OR INAPPROPRIATE MATERIALS, METHODS OR TOOLS.

2) TO EXECUTE THE WORK IN THE BEST AND MOST THOROUGH MANNER AND TO THE SATISFACTION OF THE OWNER, ARCHITECT AND CONSULTING ENGINEERS, WHO WILL JOINTLY INTERPRET THE MEANING OF THE DRAWINGS AND SPECIFICATIONS AND SHALL HAVE THE POWER TO REJECT ANY WORK AND MATERIALS WHICH, IN THEIR JUDGMENT, ARE NOT IN FULL ACCORDANCE THEREWITH.

3) TO BE RESPONSIBLE FOR ALL MATERIAL UNTIL COMPLETION AND FINAL ACCEPTANCE. REPLACE ANY MATERIAL AND/OR EQUIPMENT WHICH MAY BE DAMAGED, LOST OR STOLEN AND TO DO OVER ANY REJECTED WORK WITHOUT ADDITIONAL COST TO THE OWNER. GUARD THE BUILDING AND ITS CONTENTS AGAINST DAMAGE BY THE CONTRACTOR OR HIS EMPLOYEES, AND MAKE GOOD ANY DAMAGE FREE OF CHARGE.

4) THAT HE WILL PROVIDE AND MAINTAIN A SAFE PLACE TO WORK AND THAT HE WILL COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF, AND THAT HE AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE OWNER, ARCHITECT AND CONSULTING ENGINEERS FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE OR EXPENSE, INCLUDING ATTORNEY'S FEES, ARISING FROM A FAILURE OR ALLEGED FAILURE ON HIS PART PROPERLY TO DISCHARGE THE OBLIGATIONS ASSUMED BY HIM OR THEM IN THE PERFORMANCE OF THE WORK, INCLUDING ANY ACT, ERROR OR OMISSION ALLEGEDLY RESULTING IN THE DEATH OR PERSONAL INJURY OR PROPERTY DAMAGE OR IMPROPER CONSTRUCTION, CONSTRUCTION TECHNIQUES, OR THE USE OF IMPROPER OR INAPPROPRIATE MATERIAL OR TOOLS.

5) THAT ANY CONTROVERSY OR DISPUTE TO WHICH THE CONTRACTOR, OWNER, ARCHITECT OR CONSULTING ENGINEERS ARE PARTIES SHALL BE SUBMITTED TO ARBITRATION BEFORE THE AMERICAN ARBITRATION ASSOCIATION FOR DECISION IN ACCORDANCE WITH THE RULES OF SUCH ASSOCIATION FOR CONSTRUCTION INDUSTRY DISPUTES. THE CONTRACTOR AGREES TO MAKE AVAILABLE TO THE CONSULTING ENGINEERS, ON DEMAND, SIGNED COPIES OF THE CONTRACT BETWEEN THE OWNER AND THE CONTRACTOR AND BETWEEN THE CONTRACTOR AND HIS SUBCONTRACTORS. THE CONTRACTOR AGREES THAT BY SUBMITTING A BID WHICH IS ACCEPTED, THIS PARAGRAPH SHALL BE DEEMED A WRITTEN AGREEMENT TO SUBMIT TO ARBITRATION ANY CONTROVERSY THEREAFTER ARISING.

6) PUT WORK IN PLACE AS FAST AS REASONABLY POSSIBLE; AT ALL TIMES, KEEP A COMPETENT FOREMAN IN CHARGE OF THE WORK AND FACILITATE ITS INSPECTION BY THE CONTRACTOR, ARCHITECT AND CONSULTING ENGINEERS.

7) EXCEPT FOR SUCH CHANGES AS MAY BE SPECIFICALLY APPROVED BY THE OWNER, ARCHITECT AND CONSULTING ENGINEERS, IN ACCORDANCE WITH ALTERNATES OR OPTIONS STATED HEREAFTER, ALL WORK MUST BE IN FULL ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, COMPLETE IN EVERY WAY FOR EFFICIENT AND SATISFACTORY OPERATION WHEN DELIVERED TO THE OWNER.

8) THAT THE MATERIALS WILL BE NEW AND THE WORKMANSHIP SUPPLIED UNDER THESE SPECIFICATIONS WILL BE OF THE BEST GRADE, THE APPARATUS WILL BE ERECTED IN A PRACTICAL AND FIRST CLASS MANNER, IT WILL BE COMPLETE AND READY FOR OPERATION, NOTHING OMITTED IN THE WAY OF LABOR AND MATERIAL REQUIRED TO MAKE IT SO, ALTHOUGH NOT SPECIFICALLY SHOWN IN DETAIL OR MENTIONED HEREIN, AND THAT IT WILL BE DELIVERED IN GOOD WORKING ORDER, COMPLETE AND PERFECT IN EVERY RESPECT WITHOUT ADDITIONAL COST.

9) THAT SUBMISSION OF A BID IS A REPRESENTATION THAT THEY HAVE BECOME THOROUGHLY ACQUAINTED WITH THE WORK INVOLVED AND HAVE OBTAINED AND VERIFIED AT THE BUILDING ALL MEASUREMENTS NECESSARY FOR THE PROPER INSTALLATION OF WORK. FURNISH TO ALL SECTIONS ANY INFORMATION RELATING TO WORK OF THIS SECTION NECESSARY FOR THE PROPER INSTALLATION OF THEIR SECTIONS. THE CONTRACTOR SHALL COORDINATE FOR FINISHES ADJACENT TO WORK OF THIS SECTION AND TO ARRANGE TO HAVE VISIBLE PORTIONS OF WORK FIT IN AND HARMONIZE WITH THE FINISH IN A MANNER SATISFACTORY TO THE ARCHITECT.

10) TO MAKE EVERY EFFORT TO FURNISH ALL EQUIPMENT OF ANY GENERIC TYPE FROM ONE MANUFACTURER.

11) WHERE INCONSISTENCIES OCCUR BETWEEN THE PLANS AND SPECIFICATIONS, OR WITHIN EITHER DOCUMENT ITSELF, THE ITEM OR ARRANGEMENT OF BETTER QUALITY, GREATER QUANTITY OR HIGHER COST HAS BEEN INCLUDED IN THE BASE BID.

H. DELIVERY AND STORAGE OF MATERIALS SHALL BE PERFORMED AS DIRECTED BY THE TENANT REPRESENTATIVE AND COORDINATED WITH THE BUILDING OWNER'S REPRESENTATIVE.

I. ALL WORK SHALL COMPLY WITH BUILDING RULES AND REGULATIONS GOVERNING TENANT ALTERATIONS.

J. THE CONTRACTOR SHALL PREPARE AND SUBMIT ALL APPLICATIONS TO AUTHORITIES AND OBTAIN ALL NECESSARY BUILDING PERMITS, EQUIPMENT USE PERMITS, COMPLETE ALL TESTS AND PAY ALL NECESSARY FEES.

K. WHERE REQUIRED BY CODE THE OWNER WILL EMPLOY THE SERVICES OF A SPECIAL INSPECTOR TO PERFORM INSPECTIONS OF MATERIALS, INSTALLATIONS, FABRICATION, ERECTION OR PLACEMENT OF COMPONENTS AND CONNECTIONS REEQUIRING SPECIAL EXPERTISE TO ENSURE COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS AND REFERENCE STANDARDS.

L. THE CONTRACTOR SHALL PROTECT ALL EXISTING SURFACES, UTILITIES, MECHANICAL SYSTEMS, ETC., AND REPAIR ALL DAMAGES TO SAME DURING THE COURSE OF THIS CONTRACTOR'S WORK, AT HIS EXPENSE.

M. THE WORK SHALL BE PERFORMED IN PHASES IN ACCORDANCE WITH THE TENANTS, ARCHITECTS AND/OR ENGINEER'S SCHEDULE. ANY REQUIRED SHUTDOWN OF EXISTING EQUIPMENT OR SERVICES WHICH NEW EQUIPMENT SERVES AND/OR IS CONNECTED THERETO MUST BE SCHEDULED THROUGH THE BUILDING OWNER'S REPRESENTATIVE.

N. SUBMIT SHEET METAL SHOP STANDARDS, EQUIPMENT CUTS, DETAILED COORDINATED SHOP DRAWINGS OF ALL PIPING AND DUCT LAYOUTS FOR APPROVAL. PREPARE AND SUBMIT DRAWINGS SHOWING THE METHOD OF SUPPORT AND WEIGHT OF ALL EQUIPMENT, PIPING AND DUCTWORK FOR REVIEW BY THE ARCHITECT, ENGINEER AND BUILDING STRUCTURAL ENGI- NEER. PROMPTLY REVISE SHOP DRAWINGS AS REQUIRED BY THE OWNER, ARCHITECT OR ENGINEER AND RESUBMIT FOR FINAL APPROVAL. NO WORK SHALL START UNTIL EQUIPMENT CUTS, SHOP STANDARDS AND SHOP DRAWINGS ARE SUBMITTED AND APPROVED BY ARCHITECT AND/OR ENGINEER. COORDINATED DRAWINGS SHALL INCLUDE ALL MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION AND GENERAL CONSTRUCTION DRAWINGS.

O. THE ARCHITECT AND/OR ENGINEER WILL REVIEW SHOP DRAWINGS AND/OR SAMPLES WITH REASONABLE PROMPTNESS AND WILL RETURN THEM TO THE CONTRACTOR STAMPED TO INDICATE THE APPROPRIATE ACTION AS FOLLOWS:
1) "NO EXCEPTION TAKEN" MEANS THAT FABRICATION, MANUFACTURE OR CONSTRUCTION MAY PROCEED PROVIDING THE SUBMITTAL COMPLIES WITH THE CONTRACT DOCUMENTS.
2) "MAKE CORRECTIONS NOTED" MEANS THAT FABRICATION, MANUFACTURE OR CONSTRUCTION MAY PROCEED PROVIDING THE SUBMITTAL COMPLIES WITH THE ARCHITECT'S AND/OR ENGINEERS NOTATIONS AND THE CONTRACT DOCUMENTS. A COPY OF THE CORRECTED SUBMITTAL MUST BE RETURNED TO THE ARCHITECT AND/OR ENGINEER FOR RECORD. IF, FOR ANY REASON, THE CONTRACTOR CANNOT COMPLY WITH THE NOTATIONS, THE CONTRACTOR MUST RESUBMIT AS DESCRIBED FOR SUBMITTALS STAMPED "REVISE AND RESUBMIT"
3) "REVISE AND RESUBMIT" MEANS THAT THE CONTRACTOR MUST COMPLY WITH THE ARCHITECT'S AND/OR ENGINEER'S NOTATIONS AND RESUBMIT BEFORE FABRICATION, MANUFACTURE OR CONSTRUCTION MAY PROCEED SUBMITTALS STAMPED IN THIS MANNER ARE NOT PERMITTED ON THE PROJECT SITE.
4) "REJECTED" MEANS THAT THE SUBMITTAL DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS AND THAT FABRICATION, MANUFACTURE OR CONSTRUCTION SHALL NOT PROCEED. SUBMITTALS STAMPED IN THIS MANNER ARE NOT PERMITTED ON THE PROJECT SITE.

P. ALL NEW AND EXISTING FULL-HEIGHT PARTITIONS (I.E., TO UNDERSIDE OF SLAB ABOVE) EXCEPT ROOMS WHERE HUMIDIFICATION OR INTEGRITY OF SOUNDPROOFING IS REQUIRED, SHALL BE PROVIDED WITH A TRANSFER OPENING IN WALL ABOVE CEILING. MECHANICAL CONTRACTOR TO CO- ORDINATE THIS REQUIREMENT WITH THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR. TRANSFER OPENINGS (T.O.) SHALL BE SIZED FOR A VELOCITY OF 400 FT./MIN. AND PROVIDED WITH FIRE DAMPERS UNLESS OTHERWISE NOTED.

Q. REMOVABLE ACCESS TILES OR ACCESS DOORS ARE REQUIRED IN HUNG CEILING FOR VOLUME DAMPERS, FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AUTOMATIC LOUVER DAMPERS, SMOKE DETECTORS, VALVES, AND ALL OTHER MECHANICAL EQUIPMENT WHICH REQUIRES SERVICE. FURNISH ACCESS LOCATION REQUIREMENTS TO CONSTRUCTION MANAGER/GENERAL CONTRACTOR.

R. PREPARE AND FURNISH TO THE OWNER "AS-BUILT" DRAWINGS UTILIZING THE LATEST VERSION OF AUTOCAD EMPLOYING THE BUILDING OWNER'S LAYERING SYSTEM FOR ALL WORK INSTALLED. PROVIDE OPERATING AND MAINTENANCE MANUALS (3 COPIES), INCLUDING WIRING DIAGRAMS, LUBRICATION CHARTS AND RECOMMENDED PREVENTATIVE MAINTENANCE PROCEDURES, FOR EACH SYSTEM OR PIECE OF EQUIPMENT.

3. GRILLES, REGISTERS, DIFFUSERS,

A. CEILING DIFFUSERS, RETURN GRILLES AND REGISTERS SHALL BE SIZED IN ACCORDANCE WITH THE TABLES ON THE DRAWING. SUPPLY REGISTERS SHALL BE FURNISHED WITH O.B.D.'S AND PATTERN CONTROLLERS. RETURN REGISTERS SHALL BE PROVIDED WITH O.B.D.'S. FRAME AND BORDER TYPES ARE TO BE COMPATIBLE WITH CEILING CONSTRUCTION. THE COLOR OF ALL AIR DEVICES IS SUBJECT TO THE ARCHITECT'S APPROVAL. PROVIDE BLANK- OFF BAFFLES IN CEILING DIFFUSERS AS SHOWN ON DRAWINGS. FOR EXACT LOCATIONS OF DIFFUSERS, GRILLES AND REGISTERS, REFER TO ARCHITECTURAL DRAWINGS.

B. AIR DISTRIBUTION DEVICES (DIFFUSERS, REGISTERS, LINEARS, AIR SLOTS, ETC.) INSTALLED IN INACCESSIBLE CEILINGS SHALL BE PROVIDED WITH REMOTE DUCT MOUNTED OBD'S OPERABLE THROUGH THE FACE OF THE AIR DISTRIBUTION DEVICE.

C. AS PART OF THIS WORK, ALL AIR OUTLETS SHOWN ON DESIGN DRAWINGS SHALL BE BALANCED BY AN INDEPENDENT BALANCER. SUBMIT BALANCING REPORTS FOR APPROVAL TO ARCHITECT AND ENGINEER.

4. SHEETMETAL AND DUCTWORK

A. DUCT LAYOUT SHOWN IS A SCHEMATIC REPRESENTATION OF DESIGN INTENT. NO ADDED COMPENSATION SHALL BE PERMITTED FOR VARIATIONS DUE TO FIELD CONDITIONS. COORDINATION WITH BOTH NEW AND EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. ANY MAJOR VARIANCES OR DISCREPANCIES ARE TO BE INDICATED ON THE SHOP DRAWINGS AND REPORTED TO THE ARCHITECT AND/OR ENGINEER.

B. SHEET METAL DUCT AND PLENUM CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF SMACNA , "HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE" SECOND EDITION 1995, WITH THE EXCEPTIONS HEREIN NOTED.

C. SHOP STANDARDS FOR SHEET METAL AND DUCT CONSTRUCTION MUST BE SUBMITTED AND APPROVED PRIOR TO FABRICATION.

D. NEW DUCTWORK (OVERHEAD SUPPLY AND GENERAL EXHAUST) SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH TABLE 1-5 FOR 2 INCH STATIC PRESSURE, EXCEPT THAT ALL LONGITUDINAL SEAMS, TAPS AND TRANSVERSE JOINTS SHALL BE SEALED CLASS "A"

E. ALL BRANCH DUCTWORK (SUPPLY AND RETURN) SHALL BE PROVIDED WITH VOLUME CONTROL DAMPERS. VOLUME CONTROL DAMPERS SHALL BE OF THE QUADRANT TYPE CONSTRUCTED IN ACCORDANCE WITH FIGURES 2-12 AND 2-13 OF THE SMACNA STANDARDS.

F. WHEREVER REINFORCING IS REQUIRED ON 2 SIDES, THE ENDS OF THE REINFORCING MUST BE CONNECTED TOGETHER BY MEANS OF RODS OR ANGLES AS SHOWN IN FIGURE 1-11 OF THE SMACNA STANDARDS.

G. THE USE OF BUTTON PUNCH, SNAP-LOCK (L-2), STANDING SEAM (L-4) AND SINGLE CORNER SEAM (LO-5) LONGITUDINAL SEAMS IS PROHIBITED.

H. THE FOLLOWING TRANSVERSE JOINTS ARE NOT PERMITTED: LAP (T-4), REINFORCED S SLIP (T-7), STANDING SEAMS (T-15 AND T-16), POCKET LOCK (T-17, T-18 AND T-19) AND CAPPED FLANGE (T-20).

I. WHERE MANUFACTURED TRANSVERSE JOINTS ARE USED (SMACNA T-25A, T- 25B, I.E. DUCT MATE, TDC, TDF ETC.), THEY SHALL BE SUBMITTED WITH AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S STANDARDS FOR CONSTRUCTION AND INSTALLATION.

5. DAMPERS

5.1 GENERAL REQUIREMENTS

A. DAMPERS SHALL BE CONSTRUCTED AND INSTALLED IN STRICT ACCORDANCE WITH THE FOLLOWING:

1. MANUFACTURER'S REQUIREMENTS.
2. UL 33: STANDARD FOR HEAT RESPONSIVE LINKS FOR FIRE-PROTECTION SERVICE.
3. UL 555: STANDARD FOR FIRE DAMPERS.
4. UL 555S: STANDARD FOR SMOKE DAMPERS.
5. ANSI/SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
6. SMACNA HVAC SYSTEM DUCT DESIGN AND THE SMACNA FIRE, SMOKE AND RADIATION DAMPER INSTALLATION GUIDE FOR HVAC SYSTEMS.

B. DAMPERS SHALL BE MANUFACTURED WITH PRODUCTS CONFORMING WITH THE FOLLOWING:

1. GALVANIZED STEEL SHEET METAL: G90, MILL PHOSPHATIZED (ASTM A653/A653M).
2. REINFORCEMENT SHAPES AND PLATES: GALVANIZED-STEEL REINFORCEMENT WHERE INSTALLED ON GALVANIZED SHEET METAL DUCTS; COMPATIBLE MATERIALS FOR ALUMINUM AND STAINLESS STEEL DUCTS.

C. DAMPERS THAT REQUIRE PARALLEL BLADE ACTION: DAMPERS IN TWO-POSITION SERVICE, SUCH AS OUTDOOR AIR INTAKE AND EXHAUST AIR DAMPERS IN 100 PERCENT OUTDOOR AIR VENTILATION SYSTEMS, FAN DISCHARGE DAMPERS, GENERATOR INTAKES AND EXHAUSTS, AND FLOOR ISOLATION DAMPERS IN SUPPLY AND RETURN AIR DUCTS.

D. WHERE APPLICABLE, DAMPER AXLES SHALL BE MADE OF 1/2 INCH (13 MM) PLATED STEEL AND BE DOUBLE THROUGH-BOLTED TO THE BLADES AT EACH END.

5.2 MANUAL BALANCING DAMPERS

A. MANUAL BALANCING DAMPERS SHALL BE OF THE QUADRANT TYPE, OF HEAVY CONSTRUCTION, PIVOTED TO TURN EASILY, AND PROVIDED WITH APPROVED BEARINGS, OPERATING AND LOCKING DEVICES, MOUNTED ON THE OUTSIDE OF THE DUCT IN AN ACCESSIBLE LOCATION.

B. SINGLE-BLADE DAMPERS MAY ONLY BE USED IN DUCTS LESS THAN 12 INCHES (305 MM) HIGH. IN DUCTS 18 INCHES (457 MM) WIDE OR LESS, THEY SHALL BE CONSTRUCTED OF 20 GAUGE GALVANIZED STEEL WITH HEMMED EDGES. IN DUCTS GREATER THAN 18 INCHES WIDE BUT NO GREATER THAN 48 INCHES (1,219 MM), THE BLADES SHALL BE CONSTRUCTED OF 16 GAUGE GALVANIZED STEEL SUPPORTED WITH A CONTINUOUS 1/2 INCH (13 MM) ROD AND CAST ALLOY BEARINGS. BLADES FOR ROUND DAMPERS SHALL BE 2 X 20 GAUGE LAMINATED TOGETHER.

C. MULTI-BLADE DAMPERS SHALL BE CONSTRUCTED OF 16 GAUGE (MINIMUM) GALVANIZED STEEL HAT CHANNEL WITH MITERED CORNERS REINFORCED WITH CORNER GUSSETS FOR STRENGTH. BLADES SHALL BE A MAXIMUM OF 6 INCH (150 MM) WIDE 16 GAUGE V-BLADE (TRIPLE-V) DESIGN.

D. MANUAL BALANCING DAMPERS IN ACCESSIBLE CEILINGS SHALL BE PROVIDED WITH A HAND-LOCKING QUADRANT FOR SETTING OF BLADES AT ANY POSITION. QUADRANT OPERATORS ON INSULATED DUCTS MUST BE RAISED TYPE SIMILAR TO DURO DYNE ESO SERIES.

5.3 COMBINATION FIRE/SMOKE DAMPERS

A. SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS SHALL BE CLASS II LEAKAGE RATED TO MEET THE REQUIREMENTS OF NFPA 90A, NFPA 90B AND NFPA 92A, AND SHALL BE DYNAMICALLY RATED, TESTED AND LABELED TO CLOSE AGAINST 4 INCHES W.G. AT AN ELEVATED TEMPERATURE OF 350°F (177°C), AT AN AIRFLOW OF 2,000 FT./MIN. (10 M/S) IN ACCORDANCE WITH UL 555S.

B. COMBINATION FIRE/SMOKE DAMPERS SHALL BE DYNAMICALLY RATED, TESTED AND LABELED AS 1-1/2 HOUR OR 3 HOUR IN ACCORDANCE WITH UL 555.

C. COMBINATION FIRE/SMOKE DAMPERS SHALL BE FURNISHED WITH ONE-TIME HEAT-RESPONSIVE LINKS RATED FOR A MINIMUM 165°F (74°C) AND MAXIMUM 350°F (177°C) AND SHALL MEET THE REQUIREMENTS OF, AND BE MANUFACTURED IN ACCORDANCE WITH, UL 33. DAMPER SHALL BE CAPABLE OF BEING REOPENED ONLY UP TO THE LINK DISCONNECT TEMPERATURE.

D. SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS SHALL BE SUITABLE FOR INSTALLATION IN BOTH VERTICAL AND HORIZONTAL MOUNTING CONFIGURATIONS.

E. SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS SHALL BE CONSTRUCTED WITH 5 INCH (127 MM) X 1 INCH (25 MM) WELDED FRAMES OF 16 GAUGE MINIMUM GALVANIZED STEEL, ROLL-FORMED INTO TRIPLE "U" CONFIGURATION, OR 2 INCH (50 MM) X 1 INCH (25 MM) X 1/8 INCH

(3 MM) WELDED GALVANIZED STEEL CHANNEL FRAME. BLADES SHALL BE NOT LESS THAN 16 GAUGE GALVANIZED STEEL FORMED WITH MULTIPLE LONGITUDINAL BREAKS AND INTERLOCKING V-GROOVE EDGES. MAXIMUM BLADE WIDTH, 8 INCHES (203 MM); MAXIMUM BLADE LENGTH, 48 INCHES (1,219 MM). BLADES SHALL PIVOT ON 1/2 INCH (13 MM) DIAMETER ZINC-PLATED STEEL AXLES THROUGH-BOLTED TO BLADE AND MOUNTED IN LOW-FRICTION BEARINGS. SMOKE DAMPERS SHALL BE PROVIDED WITH STAINLESS STEEL BEARINGS. DAMPER BLADE LINKAGES SHALL BE FACE-MOUNTED ON THE BLADES. DRIVE LINKAGE AND DAMPER OPERATORS SHALL BE LOCATED OUTSIDE OF THE DUCT. DAMPER OPERATOR DRIVE BRACKETS AND LINKAGE HARDWARE, INCLUDING BRACKETS, COUPLINGS, CONNECTING RODS, BOLTS AND SET SCREWS, SHALL BE ZINC- OR CADMIUM-PLATED STEEL OF SUFFICIENT SIZE AND STRENGTH TO OPERATE DAMPERS AGAINST THE MAXIMUM RATED STATIC PRESSURE. LINKAGE TRUNNIONS SHALL BE BRASS OR BRONZE. ALL DAMPER HARDWARE SHALL BE BOLTED IN PLACE. SPEED SCREWS SHALL NOT BE PERMITTED.

F. TOTAL BLADE HEIGHT SHALL NOT BE LESS THAN DUCT HEIGHT MINUS THE DAMPER FRAME WIDTH. BLANK-OFF PLATES SHALL NOT BE PERMITTED. BLADE STOPS SHALL NOT EXCEED 3/4 OF AN INCH (19 MM).

G. SMOKE DAMPERS SHALL HAVE CONTINUOUS STAINLESS STEEL SPRING JAMB SEALS INSTALLED THE FULL HEIGHT OF EACH VERTICAL FRAME MEMBER TO MAINTAIN TENSION ON THE THRUST BEARING SEALING THE BLADE ENDS AND AXLE.

H. COMBINATION FIRE/SMOKE DAMPERS SHALL BE SUPPLIED WITH MINIMUM 20 GAUGE STEEL SLEEVES OF THE APPROPRIATE LENGTH. SLEEVES FOR DAMPERS LESS THAN 16 INCHES (406 MM) IN HEIGHT SHALL BE 16 INCHES (406 MM) LONG. SLEEVES FOR DAMPERS LARGER THAN 16 INCHES (406 MM) IN HEIGHT SHALL BE 20 INCHES (508 MM) LONG.

I. COMBINATION FIRE/SMOKE DAMPERS SHALL BE SUPPLIED WITH FRAMED RETAINING ANGLES FOR PROPER INSTALLATION.

J. ACTUATORS SHALL BE FACTORY-INSTALLED BY THE ORIGINAL EQUIPMENT MANUFACTURER AND SHALL HAVE AN INTERNAL SPRING-RETURN MECHANISM. DAMPER AND ACTUATOR ASSEMBLY SHALL BE FACTORY-CYCLED NO LESS THAN THREE (3) TIMES TO ENSURE CORRECT OPERATION.

K. DAMPER OPERATORS: ALL DAMPER OPERATORS SHALL BE OF THE ELECTRICALLY ACTUATED SPRING-RETURN TYPE, AND SHALL BE FULLY PROPORTIONING, UNLESS OTHERWISE SPECIFIED. DAMPERS IN TWO-POSITION SERVICE (OPEN/CLOSE) SHALL BE PROVIDED WITH 120 VAC ACTUATORS, 50 VA MAXIMUM. DAMPERS IN MODULATING SERVICE SHALL BE PROVIDED WITH 24 VAC ACTUATORS UTILIZING 2 -10 VDC CONTROL SIGNAL. THEY SHALL BE QUIET IN OPERATION AND HAVE AMPLE POWER TO OVERCOME FRICTION OF DAMPER LINKAGE AND AIR PRESSURE ACTING ON LOUVERS TO POSITION DAMPERS ACCURATELY AND SMOOTHLY FOR VELOCITIES UP TO 3,500 FPM. THE DAMPER OPERATOR MOUNTING ARRANGEMENT SHALL BE OUTSIDE THE AIR STREAM WHEREVER POSSIBLE. THE CONTROL MANUFACTURER SHALL PROVIDE A SUBSTANTIAL (STRONG) LINKAGE BETWEEN OPERATOR AND DAMPER. OPERATORS SHALL BE CAPABLE OF OPERATING AT VARYING RATES OF SPEED TO CORRESPOND TO THE DICTATES OF THE CONTROLLERS AND VARIABLE LOAD REQUIREMENTS. THE OPERATORS SHALL BE CAPABLE OF OPERATING IN SEQUENCE WHEN REQUIRED BY THE SEQUENCE OF OPERATION. THE OPERATORS SHALL HAVE EXTERNAL ADJUSTABLE STOPS TO LIMIT THE STROKE IN EITHER DIRECTION. THE OPERATOR LINKAGE ARRANGEMENT SHALL BE SUCH AS TO PERMIT NORMALLY OPEN OR NORMALLY CLOSED POSITIONS OF THE DAMPERS AS REQUIRED.

AUTOMATIC CONTROL DAMPERS

L. AUTOMATIC CONTROL DAMPER LEAKAGE AND PRESSURE DROP SHALL BE CERTIFIED BY TESTS PERFORMED IN ACCORDANCE WITH AMCA STANDARD 500 AT AN INDEPENDENT AMCA-APPROVED TESTING LABORATORY. TEST DATA, INCLUDING THE CLOSE-OFF TORQUE REQUIRED TO ACHIEVE THE SPECIFIED LEAKAGE RATES, SHALL BE INCLUDED WHEN SUBMITTED FOR APPROVAL. THE AIR LEAKAGE THROUGH A CLOSED DAMPER SHALL NOT EXCEED THE FOLLOWING VALUES:

DAMPER DIMENSIONS HEIGHT X WIDTH	DIFFERENTIAL S.P. INCHES W.G.	TOTAL LEAKAGE CFM
48 INCHES (1,219 MM) X	4.0	160
48 (1,219 MM) INCHES	(1 KPA)	(0.64 CU.M/S/SQ.M)

DAMPERS SHALL BE CONSTRUCTED WITH 5 INCH (127 MM) X 1 INCH (25 MM) WELDED FRAMES OF 16 GAUGE MINIMUM GALVANIZED STEEL, ROLL-FORMED INTO TRIPLE "U" CONFIGURATION, OR 2 INCH (50 MM) X 1 INCH (25 MM) X 1/8 INCH (3 MM) WELDED GALVANIZED STEEL CHANNEL FRAME. BLADES SHALL BE NOT LESS THAN 16 GAUGE GALVANIZED STEEL FORMED WITH MULTIPLE, LONGITUDINAL BREAKS AND INTERLOCKING V-GROOVE EDGES. MAXIMUM BLADE WIDTH, 8 INCHES (203 MM); MAXIMUM BLADE LENGTH, 48 INCHES (1,219 MM). BLADES SHALL PIVOT ON 1/2 INCH (13 MM) DIAMETER ZINC-PLATED STEEL AXLES THROUGH-BOLTED TO BLADE AND MOUNTED IN LOW-FRICTION BEARINGS. DAMPER BLADE LINKAGES SHALL BE FACE-MOUNTED ON THE BLADES. DRIVE LINKAGE AND DAMPER OPERATORS SHALL BE LOCATED OUTSIDE OF THE DUCT. DAMPER OPERATOR DRIVE BRACKETS AND LINKAGE HARDWARE, INCLUDING BRACKETS, COUPLINGS, CONNECTING RODS, BOLTS AND SET SCREWS, SHALL BE ZINC- OR CADMIUM-PLATED STEEL OF SUFFICIENT SIZE AND STRENGTH TO OPERATE DAMPERS AGAINST THE MAXIMUM RATED STATIC PRESSURE. LINKAGE TRUNNIONS SHALL BE BRASS OR BRONZE. ALL DAMPER HARDWARE SHALL BE BOLTED IN PLACE. SPEED SCREWS SHALL NOT BE PERMITTED.

M. DAMPERS SHALL HAVE CONTINUOUS STAINLESS STEEL SPRING JAMB SEALS INSTALLED THE FULL HEIGHT OF EACH VERTICAL FRAME MEMBER TO MAINTAIN TENSION ON THE THRUST BEARING SEALING THE BLADE ENDS AND AXLE. DAMPERS SHALL BE PROVIDED WITH FABRIC-REINFORCED OR VINYL NEOPRENE BLADE EDGE SEALS.

6. PIPING AND INSULATION

1. PIPE AND FITTING SCHEDULE:
A. GLYCOL CHILLED WATER SUPPLY AND RETURN AND COOLING COIL CONDENSATE
\- TYPE L HARD COPPER W/ WROUGHT COPPER - 95/5 SOLDERED FITTINGS.

2. INSULATION SCHEDULE:
A. GLYCOL CHILLED WATER (1-1/4" AND UNDER)
-1-1/2" FIBERGLASS (R=6.3)
B. GLYCOL CHILLED WATER (1-1/2" AND LARGER)
-1" FIBERGLASS (R=4.2)
C. GLASS-FIBER PIPE INSULATION: GLASS-FIBER PIPE INSULATION SHALL BE MOLDED ONE-PIECE INSULATION WITH WHITE KRAFT, FIBERGLASS-REINFORCED, AND ALUMINUM FOIL-LAMINATED, SELF-SEALING ALL-SERVICE JACKET (ASJ). PIPE INSULATION SHALL BE CAPABLE OF CONTINUOUS SERVICE AT A PIPE TEMPERATURE OF 450°F WITHOUT OXIDATION OR BURNOUT OF BINDERS OR THE DEVELOPMENT OF ODORS OR SMOKE BY ANY CONSTITUENT OF THE MATERIAL. PHYSICAL CHARACTERISTICS SHALL BE AS FOLLOWS:
- MINIMUM DENSITY: 4 LBS/CU.FT.
- THERMAL CONDUCTIVITY: 0.23 BTU-IN./HR/SQ.FT./°F.
- MAXIMUM SERVICE TEMPERATURE: 850F.
- JACKET VAPOR PERMEABILITY: 0.02 PERMS.
- JACKET PUNCTURE RESISTANCE: 50 UNITS (BEACH).

D. WHEN SUPPLY DUCTWORK IS EXPOSED AND LOCATED WITHIN THE SPACE IT IS SERVING, INSULATION IS NOT REQUIRED.

7. CLEANING, TESTING AND ADJUSTING

A. DURING CONSTRUCTION, PROPERLY PROTECT ALL OPEN ENDS OF PIPING AND DUCTWORK TO PREVENT THE ENTRANCE OF SAND, DIRT AND OTHER FOREIGN MATTER IN ACCORDANCE WITH SMACNA STANDARDS.

B. ALL AC UNITS, FANS, REGISTERS AND DIFFUSERS ARE TO BE BALANCED WITHIN PLUS 10%, MINUS 5% OF THE QUANTITIES SHOWN ON THE PLANS. BALANCING IS TO BE PERFORMED BY AN INDEPENDENT BALANCING AGENCY IN ACCORDANCE WITH A.A.B.C. OR N.A.A.B. NATIONAL STANDARDS.

8. INSTALLATION

1. ALL DUCTWORK AND PIPING SHALL BE PROVIDED WITH PERMANENT PHENOLIC LABELS WITH 1 1/2" HIGH LABELS AT 5'-0" INTERVALS.
2. ALL EQUIPMENT SHALL HAVE PERMANENT LABELLING

9. APPROVED MANUFACTURERS

A. GRILLES: ANEMOSTAT/TITUS
B. FANS: GREENHECK
C. FAN COIL UNITS: IEC
D. COMBINATION FIRE/SMOKE DAMPERS AND AUTOMATIC CONTROL DAMPERS: IMPERIAL/POTTORFF/RUSKIN

10. CONTROLS

A. ALL CONTROL DEVICESS, DDC CONTROLLERS, TEMPERATURE SENSORS, CONTROL VALVES, ACTUATORS, SOFTWARE PROGRAMMING, NETWORK COMPUTER GRAPHICS, POWER AND CONTROL WIRING, AND CONDUIT WIRING SUCH AS INTERLOCKS, START/STOPS, POWER WIRING OF CONTROL DEVICES AND PANELS, AND INTERCONNECTION OF SAFETIES, ETC., FOR ALL HVAC EQUIPMENT SHALL BE PROVIDED AND INSTALLED BY THIS CONTRACTOR. ALL REFERENCES TO A DIRECT DIGITAL CONTROL SYSTEM SHALL BE THE EXISTING JOHNSON CONTROLS DIRECT DIGITAL CONTROL RETAIL SYSTEM. THE CONTROL WORK DESCRIBED HEREIN SHALL BE INTERFACED TO THE EXISTING JOHNSON CONTROLS RETAIL BMS SYSTEM. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL NEW DIRECT DIGITAL CONTROL PRODUCTS TO INTERFACE TO THE EXISTING SYSTEM. ALL REQUIRED POWER AND CONTROL WIRING, SOFTWARE PROGRAMMING OF NEW CONTROL UNITS, SOFTWARE PROGRAMMING OF EXISTING NETWORK COMPUTER DATABASE AND GRAPHICS AND NEW COMMUNICATIONS WIRING SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. THE INSTALLING CONTRACTOR SHALL BE JOHNSON CONTROLS. THIS CONTRACTOR SHALL FIELD SURVEY THE EXISTING INSTALLATION AND ANY ONGOING PROJECTS TO BECOME FAMILIAR WITH THE EXISTING RETAIL BMS SYSTEM. SUBMIT CUTS OF ALL CONTROL EQUIPMENT AS WELL AS DETAILED CONTROL SEQUENCE SHOP DRAWINGS FOR APPROVAL BY ENGINEER.

B. ALL NEW DDC CONTROLLERS SHALL BE POWERED BY NORMAL POWER. WIRING AND CONDUIT BETWEEN THE SPARE CIRCUITS IN THE NORMAL POWER PANELS AND ALL NEW DIRECT DIGITAL CONTROL UNITS, FIELD EQUIPMENT CABINETS, AND UNITARY CONTROLLERS, ETC., SHALL BE FURNISHED AND INSTALLED BY THIS SECTION OF THE SPECIFICATIONS.

C. CONTROL VALVES

1) AUTOMATIC CONTROL VALVES SHALL BE SINGLE-SEATED GLOBE VALVES AND SHALL HAVE EQUAL PERCENTAGE FLOW CHARACTERISTICS UNLESS SPECIFIED OTHERWISE. CONTROL VALVES 2 INCHES AND SMALLER SHALL HAVE BRONZE BODIES AND STAINLESS STEEL TRIM AND STEM. END CONNECTIONS SHALL BE THREADED. CONTROL VALVES 2-1/2 IN. AND LARGER IN A SERVICE WHERE PRESSURE DOES NOT EXCEED 125 PSIG AT 350°F, SHALL HAVE 125 POUND CAST IRON BODIES. TRIM AND STEM SHALL BE STAINLESS STEEL. END CONNECTIONS SHALL BE FLANGED. VALVES 2-1/2 IN. AND LARGER IN A SERVICE WHERE PRESSURE DOES NOT EXCEED 250 PSIG AT 400°F SHALL HAVE 250 POUND CAST IRON BODIES. TRIM AND STEM SHALL BE STAINLESS STEEL. END CONNECTIONS SHALL BE FLANGED. VALVES SHALL HAVE SUFFICIENT STUFFING BOX PROTECTION TO ENSURE AGAINST LEAKAGE AT HYDROSTATIC HEAD INVOLVED.
2) SINGLE-SEATED VALVES SHALL MEET ANSI CLASS IV LEAKAGE (0.01% OF CV).
3) THE VALVES SHALL BE QUIET IN OPERATION AND FAIL-SAFE IN EITHER NORMALLY OPEN OR NORMALLY CLOSED POSITION IN THE EVENT OF POWER FAILURE. ALL VALVES SHALL BE CAPABLE OF OPERATING AT VARYING RATES OF SPEED TO CORRESPOND TO THE EXACT DICTATES OF THE CONTROLLERS AND VARIABLE LOAD REQUIREMENTS. THE VALVES SHALL BE CAPABLE OF OPERATING IN SEQUENCE WITH OTHER VALVES AND/OR DAMPERS WHEN REQUIRED BY THE SEQUENCE OF OPERATION. ALL CONTROL VALVES SHALL BE SIZED BY THE CONTROL MANUFACTURER AND SHALL BE GUARANTEED TO MEET THE HEATING AND COOLING LOADS AS SCHEDULED. ALL CONTROL VALVES SHALL BE SUITABLE FOR THE PRESSURE CONDITIONS AND SHALL CLOSE AGAINST THE DIFFERENTIAL PRESSURES INVOLVED. ALL VALVE OPERATORS SHALL BE SPRING-RETURN ELECTRICALLY ACTUATED TYPE. BODY PRESSURE RATING AND CONNECTION TYPE CONSTRUCTION SHALL CONFORM TO FITTING AND VALVE SCHEDULES, AS PER THE HEATING, VENTILATING AND AIR CONDITIONING SECTION OF THE SPECIFICATIONS.
4) CHILLED WATER CONTROL VALVES SHALL HAVE EQUAL PERCENTAGE FLOW CHARACTERISTICS.
5) CONTROL VALVE SHALL BE PROVIDED WITH A TRAVEL INDICATOR (POINTER) ATTACHED TO THE STEM AND A TRAVEL INDICATOR SCALE ATTACHED TO THE YOKE TO INDICATE VALVE TRAVEL.
6) CHILLED WATER VALVES SHALL BE NORMALLY CLOSED TYPE. VALVES SHALL BE MANUFACTURED BY BELIMO, JOHNSON CONTROLS INC., HONEYWELL, SIEMENS OR AS APPROVED.

D. AUTOMATIC CONTROL AND AUTOMATIC SMOKE DAMPERS
1) LOW LEAKAGE AUTOMATIC CONTROL DAMPERS, AUTOMATIC SMOKE DAMPERS AND/OR COMBINATION SMOKE/FIRE DAMPERS SHALL BE FURNISHED BY OTHERS. THIS SECTION SHALL BE RESPONSIBLE FOR PROVIDING ACTUATORS FOR ANY AUTOMATIC CONTROL DAMPERS. ALL ELECTRICAL WIRING (POWER AND CONTROL), IF REQUIRED, FOR THE COMBINATION SMOKE/FIRE DAMPERS, E/PS AND ELECTRONIC FUSIBLE LINKS WILL BE FURNISHED AND INSTALLED BY THIS SECTION.
2) DAMPERS WHICH REQUIRE OPPOSED BLADE ACTION
a. DAMPERS UNDER MODULATING CONTROL SUCH AS OUTDOOR AIR, RETURN AIR AND SPILL AIR DAMPERS IN AIR CONDITIONING SYSTEMS AND AIR INTAKE, RECIRCULATION AIR, AND EXHAUST AIR DAMPERS IN VENTILATION SYSTEMS.
3) DAMPERS WHICH REQUIRE PARALLEL BLADE ACTION
a. DAMPERS IN TWO-POSITION SERVICE SUCH AS OUTDOOR AIR IN-TAKE AND EXHAUST AIR DAMPERS IN 100 PERCENT OUTDOOR AIR VENTILATION SYSTEMS, FAN DISCHARGE DAMPERS AND FLOOR ISOLATION DAMPERS IN SUPPLY AND RETURN AIR DUCTS.
4) DAMPER OPERATORS: ALL AUTOMATIC LOUVERED DAMPER OPERATORS IN TWO-POSITION (OPEN/CLOSED) SERVICE SHALL BE 120 VAC ELECTRICALLY ACTUATED SPRING-RETURN TYPE. SPRING-RETURN RUNNING TIME SHALL NOT EXCEED 20 SECONDS.ALL AUTOMATIC LOUVERED DAMPER OPERATORS IN MODULATING SERVICE SHALL BE EITHER 120 VAC OR 24 VAC, ELECTRICALLY ACTUATED SPRING-RETURN TYPE, AND SHALL BE FULLY PROPORTIONING, UNLESS OTHERWISE SPECIFIED. SPRING-RETURN RUNNING TIME SHALL NOT EXCEED 20 SECONDS. SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPER OPERATORS SHALL BE PROVIDED WITH 120 VAC ACTUATORS. AUTOMATIC LOUVERED DAMPER OPERATORS SHALL BE PROVIDED WITH MANUAL OVERRIDE AND EXTERNAL DIRECTION OF ROTATION SWITCH.THEY SHALL BE QUIET IN OPERATION AND HAVE AMPLE POWER (TORQUE) TO OVERCOME FRICTION OF DAMPER LINKAGE AND AIR PRESSURE ACTING ON LOUVERS TO POSITION DAMPERS ACCURATELY AND SMOOTHLY FOR VELOCITIES UP TO 4,000 FPM. OPERATORS SHALL BE CAPABLE OF OPERATING AT VARYING RATES OF SPEED TO CORRESPOND TO THE DICTATES OF THE CONTROLLERS AND VARIABLE LOAD REQUIREMENTS. THE OPERATORS SHALL BE CAPABLE OF OPERATING IN SEQUENCE WHEN REQUIRED BY THE SEQUENCE OF OPERATION. THE OPERATORS SHALL HAVE EXTERNAL ADJUSTABLE STOPS TO LIMIT THE STROKE IN EITHER DIRECTION. THE OPERATOR LINKAGE ARRANGEMENT SHALL BE SUCH AS TO PERMIT NORMALLY OPEN OR NORMALLY CLOSED POSITIONS OF THE DAMPERS AS REQUIRED.
5) A SUFFICIENT NUMBER OF DAMPER OPERATORS SHALL BE INSTALLED TO OPERATE SINGLE AND MULTIPLE DAMPER SECTIONS SMOOTHLY AND IN UNISON AT THE MAXIMUM RATED STATIC PRESSURE AND AIR VELOCITY, AND TO PROVIDE THE CLOSE-OFF TORQUE REQUIRED TO MEET DAMPER LEAKAGE CRITERIA. PROVIDE AUXILIARY DRIVE SHAFTS WITH PILLOW BLOCK BEARINGS AND BEARING SUPPORT BRACKETS RIGIDLY ATTACHED TO THE DAMPER FRAME ASSEMBLY ON DAMPER BANKS MORE THAN ONE DAMPER SECTION WIDE.
6) DAMPER ACTUATORS SHALL BE MANUFACTURED BY BELIMO, JOHNSON CONTROLS, SIEMENS AND HONEYWELL.

E. DESCRIPTION OF OPERATION:
1) FAN COIL UNIT (TYPICAL OF EACH):
a. PACKAGED FAN COIL UNIT SHALL BE A FLOOR MOUNTED CHILLED WATER COIL AND ELECTRIC HEAT UNIT WITH FACTORY CONTROLLED MICROPROCESSOR CONTROLLER. A WALL-MOUNTED CONTROLLER, FURNISHED WITH THE UNIT, WILL BE INSTALLED AND WIRED BY THIS SECTION. THIS CONTRACTOR SHALL PROVIDE THE CHILLED WATER VALVE.
b. THE UNIT WILL BE STARTED LOCALLY AND SHALL RUN CONTINUOUSLY. WHEN THE UNIT IS IN OPERATION, ITS FACTORY INSTALLED CONTROLLER SHALL CYCLE THE CHILLED WATER VALVE AND ELECTRIC HEATING COIL TO MAINTAIN SPACE TEMPERATURE SETPOINT.
c. A SPACE TEMPERATURE SENSOR WILL BE FURNISHED AND INSTALLED BY THIS SECTION IN THE ROOM SERVED BY THE UNIT. THE SENSOR WILL BE MONITORED AT THE EXISTING BMS AND WILL ANNUNCIATE A HIGH AND LOW TEMPERATURE ALARM AT THE OPERATOR WORKSTATION SENSING A TEMPERATURE ABOVE OR BELOW SET POINT (ADJUSTABLE).
d. A SPOT LEAK DETECTOR FURNISHED BY THE UNIT MANUFACTURER WILL BE INSTALLED AND WIRED TO EACH AIR CONDITIONG UNIT FOR LEAK ALARM MONITORING. SPOT LEAK DETECTOR AND THE CONDENSATE PUMP HIGH-LEVEL SWITCH WILL BE WIRED TO THE DDC SYSTEM TO ACTIVATE A REMOTE COMBINATION LEAK / CONDENSATE PUMP HIGH-LEVEL SWITCH ALARM AT THE WORKSTATION.

2) EXHAUST FAN (TYPICAL OF EACH):
a. WHEN THE FAN IS OFF, THE INTAKE AND EXHAUST DAMPERS SHALL BE CLOSED.
b. WHEN THE FAN STARTS, A HARDWIRED TIME DELAY SHALL PREVENT THE FAN FROM STARTING UNTIL ITS INTAKE AND DISCHARGE DAMPERS ARE FULLY OPEN. DAMPERS SHALL BE HARDWIRED INTERLOCKED WITH FAN OPERATION. WHEN THE DAMPERS ARE FULLY OPEN, THE FAN SHALL START.
c. EACH FAN SHALL BE STARTED BY THE OPERATOR AT THE WORKSTATION AND RUN CONTINUOUSLY.
d. FAN RUN STATUS SHALL BE MONITORED AT THE DDC SYSTEM VIA A CURRENT-SENSING RELAY FURNISHED, INSTALLED AND WIRED BY THIS SECTION.
e. HIGH-DISCHARGE PRESSURE SWITCHES AND LOW-SUCTION PRESSURE SWITCHES: PRESSURE DIFFERENTIAL SWITCHES INSTALLED IN THE DISCHARGE OF THE EXHAUST FAN SHALL SENSE DISCHARGE PRESSURE AND STOP THE FAN AND TRANSMIT AN ALARM TO THE OPERATOR WORKSTATION BY MEANS OF A DIGITAL INPUT TO THE SYSTEM DDC CONTROLLER, IF THE PRESSURE SET POINT OF THE SWITCH IS EXCEEDED. A SEPARATE PRESSURE SWITCH, INSTALLED IN THE INLET OF THE EXHAUST FAN, SHALL ALSO STOP THE FAN AND TRANSMIT THE ALARM IF FAN SUCTION PRESSURE IS BELOW ITS SET POINT. THE FAN SHUTDOWN SHALL BE OPERATIVE WHETHER THE STARTER H-O-A SWITCH IS IN THE "AUTO" OR "HAND" POSITION. PRESSURE SWITCHES SHALL BE MANUALLY RESET TYPE.

F. THE FOLLOWING POINTS SHALL BE MONITORED AND/OR CONTROLLED VIA THE DDC SYSTEM:

1) FAN COIL UNIT (TYPICAL OF EACH)
a. FAN STATUS (VIA CURRENT SENSING RELAY)
b. SPACE TEMPERATURE
c. LEAK / CONDENSATE PUMP HIGH LEVEL SWITCH ALARM

2) EXHAUST FAN (TYPICAL OF EACH):
a. START/STOP.
b. STATUS (VIA CURRENT-SENSING RELAY).
c. HIGH DISCHARGE PRESSURE SWITCH.
d. LOW SUCTION PRESSURE SWITCH.

G. FURNISH OPERATION AND MAINTENANCE MANUALS FOR ALL MECHANICAL EQUIPMENT TO THE OWNER PER CODE REQUIREMENTS.

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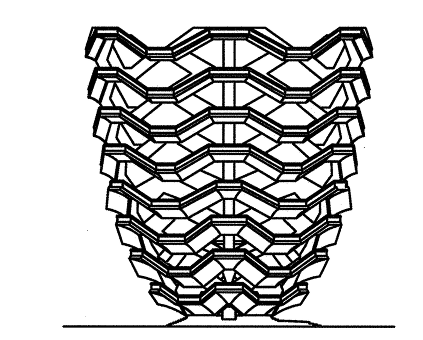

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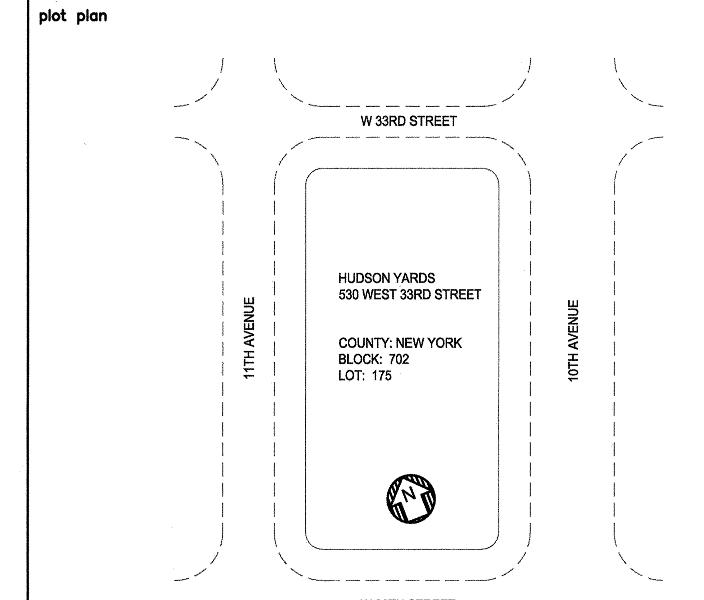
plot plan



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SPECIFICATIONS SHEET

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MG	N.T.S.	CO	M-002.00
date	project no.	rev	
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NYC Buildings
APPROVED
Date: 12/07/2016
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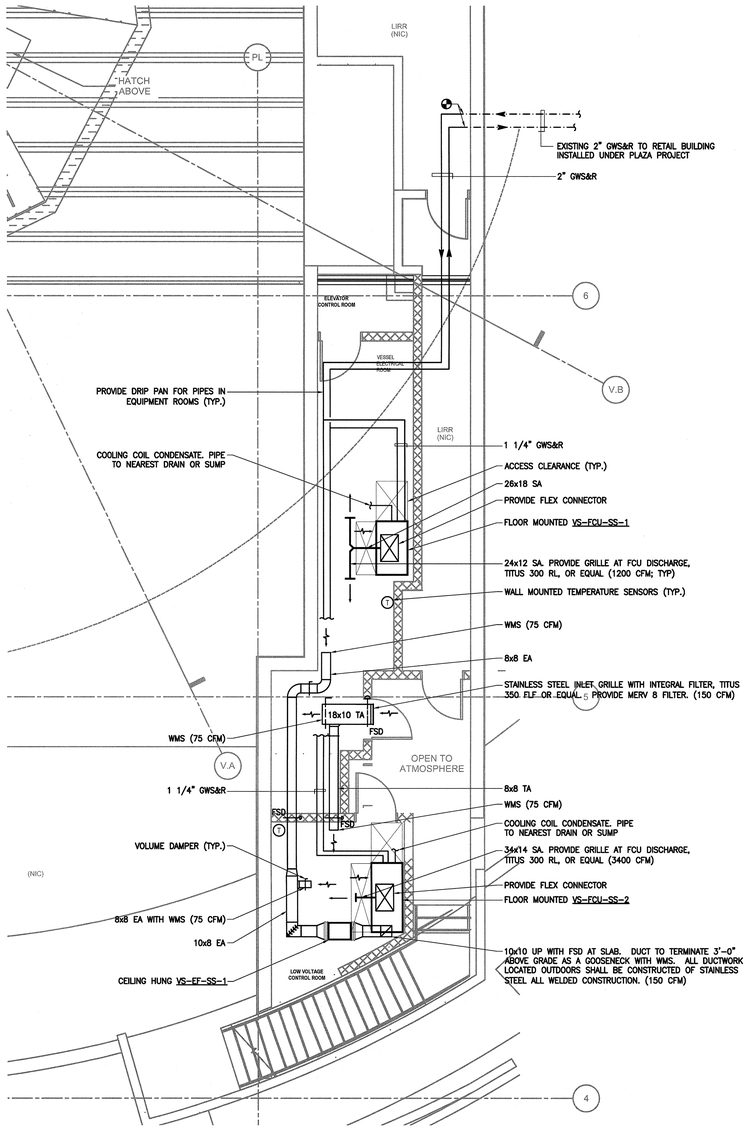
STATE OF NEW YORK
ANTHONY M. ARBORE
NO. 062531-1
LICENSED PROFESSIONAL ENGINEER



1 MECHANICAL MER PART PLAN
1/4" = 1'-0"

EXHAUST FANS

(COOK AS STANDARD)

TAG	LOCATION	SERVICE	CAPACITY (CFM)	STATIC PRESSURE (IN. H2O)	MAX. OUTLET VELOCITY (FPM)	ARRANGEMENT AND DISCHARGE DIRECTION	FAN R.P.M.	FAN ROTATION	WHEEL DIAMETER (INCHES)	UNIT TYPE	UNIT MODEL	UNIT SIZE	B.H.P.	MIN. MOTOR H.P.	MOTOR R.P.M.	MOTOR LOCATION	VOLTS	PHASE	Hz	EMERGENCY POWER	VARIABLE SPEED DRIVE	VIBRATION BASE MIN. STATIC DEFLECTION (IN.)	REMARKS
VS-EF-SS-1	SUB SURFACE LEVEL LOW VOLTAGE CONTROL ROOM	VESSEL SUPPORT MER EXHAUST	150	1.0	–	ALTERNATE INLINE	1450	–	–	CABINET	GEMINI	GC-188	–	–	–	–	115	1	60	–	NO	⅜"	

NOTES
1. PROVIDE NEOPRENE IN SHEAR VIBRATION ISOLATORS
2. PROVIDE MOTOR STARTER

FAN COIL UNITS

(INTERNATIONAL AS STANDARD)

TAG	LOCATION	SERVICE	AIR CAPACITY (CFM MED. SPEED)	EXTERNAL S.P. (IN.)	SENS. COOLING CAPACITY (BTU/HR)	TOTAL COOLING CAPACITY (BTU/HR)	COOLING AT MEDIUM SPEED: ENTERING TEMP. (°F) DB	ENTERING TEMP. (°F) WB	ENTERING WATER TEMP. (°F)	LEAVING WATER TEMP. (°F)	COOLING WATER CAPACITY (GPM)	MAXIMUM WATER PRESS. DROP (FT. H2O)	No. OF ROWS	WORKING PRESSURE (PSI)	HEATING TYPE	HEATING CAPACITY (KW)	MOTOR R.P.M.	MOTOR HP	MOTOR AMPS (FLA)	VOLTS/PHASE/FREQ.	MODEL No.	REMARKS
VS-FCU-SS-1	VESSEL ELECTRICAL ROOM	VESSEL ELECTRICAL ROOM HEATING AND COOLING	2400	0.75	55,600	64,000	80	67	45	61	8	2.2	8	–	ELEC	10	–	1	1.9	460/3/60	VBA30	
VS-FCU-SS-2	VESSEL LOW VOLTAGE CONTROL ROOM	VESSEL LOW VOLTAGE CONTROL ROOM HEATING AND COOLING	3400	0.75	78,600	90,300	80	67	45	61	11.3	5.8	8	–	ELEC	10	–	1.5	2.8	460/3/60	VBA30	

NOTES
1. PROVIDE MERV 8 FILTERS
2. PROVIDE THERMOSTAT AND INTEGRAL CONTROLLER
3. WATER TO BE 45% PROPYLENE GLYCOL BY VOLUME
4. PROVIDE CONDENSATE PUMP
5. PROVIDE VIBRATION ISOLATORS

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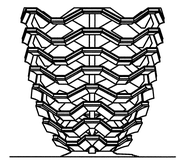

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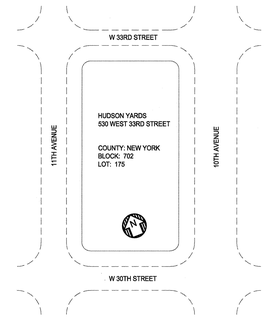
plot plan



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MECHANICAL SYSTEM SCHEMATIC, SCHEDULES, EQUIPMENT ROOM PLAN

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MG	AS NOTED	DT
date	project no.	rev
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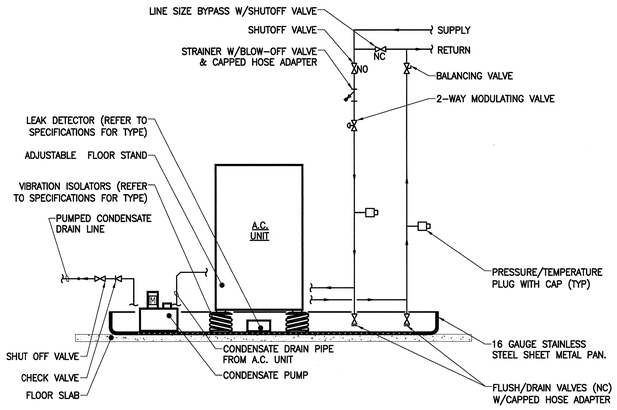
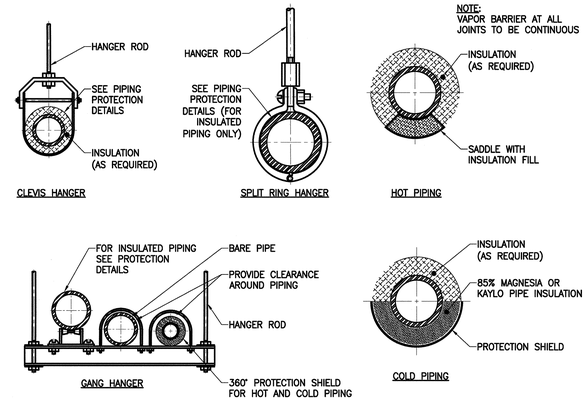


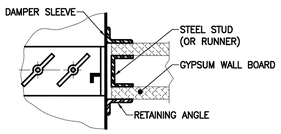
FLOOR MOUNTED A.C. UNIT, OVERHEAD WATER PIPING CONNECTION DETAIL



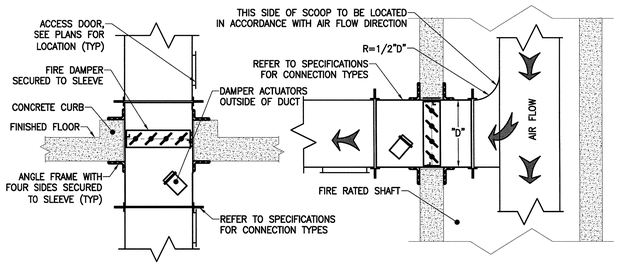
PIPING SUPPORT AND INSULATION DETAILS

FIRE DAMPER NOTES:

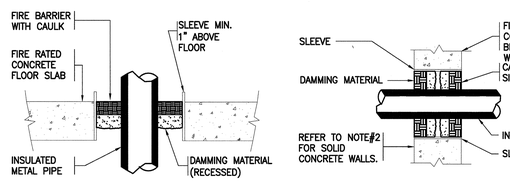
1. DRY WALL FRAMING AT FIRE DAMPERS MUST BE IN ACCORDANCE WITH WALL SYSTEM MANUFACTURER'S UL APPROVED DETAILS.
2. SHEET METAL SLEEVES TO BE 16 GA FOR DAMPERS NOT EXCEEDING 24" HIGH OR 36" WIDE. 14 GA FOR LARGER SIZE DAMPERS.
3. FIRE DAMPERS ARE TO BE INSTALLED IN FULL ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS PER UL 555D.
4. SEE ARCH'L DWGS FOR STUD LOCATION AT DAMPERS.



DETAIL OF FIRE DAMPER AT WALL



HORIZONTAL AND VERTICAL FIRE OR FIRE SMOKE DAMPERS INSTALLATION DETAIL



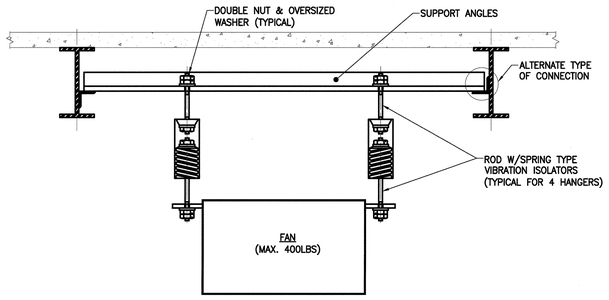
NOTES:

1. THE MAXIMUM ANNULAR SPACE TO BE FILLED IS 2", THE MINIMUM ANNULAR SPACE IS 3/4", THE MAXIMUM PIPE SIZE IS A NOMINAL 4" DIAMETER.
2. FOR SOLID CONCRETE WALLS, THE CAULK MAY BE CENTERED IN THE WALL WITH DAMMING MATERIAL ON BOTH SIDES OF THE CAULK.
3. PENETRATIONS SHALL BE CAULKED ON BOTH SIDES. SELF LEVELING CAULK SHALL BE USED ON ALL HORIZONTAL SURFACES.
4. THE DEPTH OF THE CAULK SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

CAULK DEPTH (MIN.)	INSULATION
1"	1" THICK
2"	2" THICK

5. INSTALLATION MUST CONFORM WITH PRODUCT MANUFACTURERS PERFORMANCE RATINGS PER ASTM E-814 (UL 1479) FIRE TEST AND UL RESPECTIVE CLASSIFICATION FOR FIRE STOPPING.
6. IN ADDITION TO THE REQUIREMENTS OF THE APPROVED UL LISTED FIRE STOPPING ASSEMBLIES, ESCUTCHEON PLATES SHALL BE INSTALLED ON EACH SIDE OF THE FIRE RATED WALL AND SLAB CONSTRUCTION IN ACCORDANCE WITH ARTICLE 15005-1.25 OF THE SPECIFICATIONS AND AS REQUIRED BY THE NEW YORK CITY BUILDING CODE.

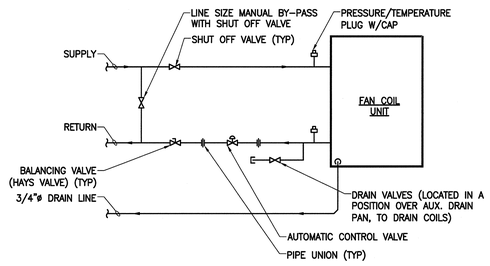
PENETRATION FIRESTOP FOR INSULATED METAL PIPE THROUGH A CONCRETE FLOOR OR WALL



NOTES:

1. AFTER ALL STEEL IS IN PLACE AND ALL WELDING IS COMPLETED, RESTORE ALL FIREPROOFING THAT WAS REMOVED OR DAMAGED DURING CONSTRUCTION.
2. CONTRACTOR TO SUBMIT UNIT SUPPORT DETAIL FOR APPROVAL BY STRUCTURAL ENGINEER.

FAN SUPPORT DETAIL



TYPICAL TWO PIPE FAN COIL UNIT PIPING CONNECTION DETAIL

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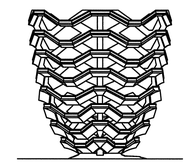

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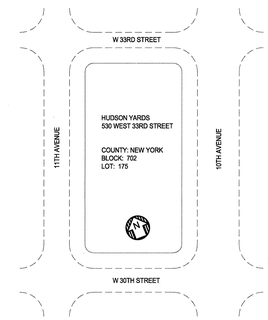

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ABBREVIATION SCHEDULE

A	AIR
ABD	AUTOMATIC BALL DRIP
AD	AREA DRAIN
ADJ.	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFP	AUTOMATIC FIRE PUMP
AFPH	ANTI-FREEZE POST HYDRANT
AFWH	ANTI-FREEZE WALL HYDRANT
AI	AIR INTAKE
AP	ACCESS PANEL
Ar	ARGON
@	AT
AUTO	AUTOMATIC
AV	ACID VENT
AW	ACID WASTE
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BLKHD	BULKHEAD
BMS	BUILDING MANAGEMENT SYSTEM
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BR	BRANCH
BSMT	BASEMENT
BW	BLACK WATER
BWV	BLACK WATER VENT
BWW	BLACK WATER WASTE
CAB	CABINET
CB	CATCH BASIN
CEM	CEMENT(ITIOUS)
CF	CUBIC FEET
CI	CAST IRON
CLG	CEILING
CLOS	CLOSET
CO	CAPPED OUTLET
CO2	CARBON DIOXIDE
CODP	CLEAN OUT DECK PLATE
COL	COLUMN
COMP'T	COMPLIMENT
CONC	CONCRETE
COND	CONDENSATE
CTPD	COOLING TOWER PUMP DISCHARGE
CONF	CONFERENCE
CORR	CORRIDOR
CONST	CONSTRUCTION
CON'T	CONTINUATION
CONV	CONVECTOR
COWP	CLEAN OUT WALL PLATE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CT	COOPER TUBE
CTMU	COOLING TOWER MAKE UP
CV	CHECK VALVE
CW	COLD WATER
CWPD	COLD WATER PUMP DISCHARGE
CWVO	COLD WATER VALVED OUTLET
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY
DCTIRN	DUCTILE IRON
DCV	DOUBLE CHECK VALVE.
DET	DETAIL
DI	DEIONISED
DIAG	DIAGONAL
DIAM	DIAMETER
DIM	DIMENSION
DIR	DEIONISED RETURN
DN	DOWN
DP	DRY PIPE
DPV	DRY PIPE VALVE
DR	DRAIN
DRW	DRINKING WATER
DW	DISHWASHER
DWG	DRAWING
DWPD	DOMESTIC WATER PUMP DISCHARGE
EA.	EACH
ED	EJECTOR DISCHARGE
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
EMR	ELEVATOR MACHINE ROOM
ENCL	ENCLOSURE
ENGNR	ENGINEER
ENTR	ENTRANCE
EOS	END/EDGE OF SLAB
EQUIP	EQUIPMENT
EXIST	EXISTING
EXH	EXHAUST
EXP	EXPRESS
EXP. JT.	EXPANSION JOINT
EXT	EXTERIOR
F	FIRE
FAI	FRESH AIR INTAKE
FD	FLOOR DRAIN
FDN	FOUNDATION
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE
FIN	FINISH(ED)
FIN.FL	FINISH(ED) FLOOR
FIN.GR	FINISHED GRADE
FL	FLOOR
FPRF	FIREPROOFING
FPSC	FIREPROOF SELF CLOSING
FS	FIRE SERVICE PIPE
FSK	FLOOR SINK
FSP	FIRE STANDPIPE
FT	FOOT, FEET
FTG	FITTING
FXT	FIXTURE
G	GAS (LOW PRESSURE)
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTING
GD	GARAGE DRAIN
GEN	GENERAL
G(HP)	GAS (HIGH PRESSURE)
G(MP)	GAS (MEDIUM PRESSURE)
GR	GREASE
GRD	GRADE
GT	GRAVITY TANK
GV	GAS VENT
GW	GRAY WATER
GWV	GRAY WATER VENT
GWW	GRAY WATER WASTE
HB	HOSE BIBB
HC	HANDICAPPED
He	HELIUM
HGT	HEIGHT
HORIZ	HORIZONTAL
HP	HIGH POINT
HR	HOUR
H2	HYDROGEN
HTG	HEAT(ING)
HTR	HEATER
HVAC	HEATING, VENTILATION & AIR CONDITIONING
HW	HOT WATER
HWC	HOT WATER CIRCULATION
HWH	HOT WATER HEATER
HZ	HIGH ZONE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INSUL	INSULATION
IRR	IRRIGATION
IW	INDIRECT WASTE
JAN	JANITOR
JAN.CL.	JANITOR'S CLOSET
JP	JOCKEY PUMP
JT	JOINT
L	LEADER
LAB	LABORATORY
LP	LOW POINT
LV	LOCAL VENT (W/BEDPAN WASHERS)
LVR	LOUVER
LZ	LOW ZONE
MA	MEDICAL AIR
MACH	MACHINE
MAX	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
MER	MECHANICAL EQUIPMENT ROOM
MEZZ	MEZZANINE
MFR	MANUFACTURE
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNTED
MTG	MEETING
MTL	METAL
MV	MEDICAL VACUUM
MZ	MID ZONE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
No.	NUMBER
NO	NORMALLY OPEN
NOM	NOMINAL
N2	NITROGEN
N2O	NITROUS OXIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OVERFLOW DRAIN
OF	OVERFLOW
OFF	OFFICE
OPNG	OPENING
OPP	OPPOSITE
O2	OXYGEN
OVHD	OVERHEAD
P	PNEUMATIC
P-1 & P-1A	WATER CLOSET
P-3 & P-3A	LAVATORY
P-5	SHOWER
P-6 & P-6A	DRINKING FOUNTAIN
PA	PREACTION
PAN.	PANEL
PAV	PREACTION VALVE
PD	PLAZA DRAIN
PE	PASSENGER ELEVATOR
PERF	PERFORATED
PL	PLATE
PLAS	PLASTER
PLBG	PLUMBING
PO	PLUGGED OUTLET
POL	POLISH(ED)
PR	PAIR
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RCV	RISER CONTROL VALVE
RD	ROOF DRAIN
REFR	REFRIGERATOR
REINF	REINFORCED
REQT'S	REQUIREMENTS
REV	REVISED
RM	ROOM
RO	REVERSE OSMOSIS
RODI	REVERSE OSMOSIS DEIONISED
RODIR	REVERSE OSMOSIS DEIONISED RETURN
ROR	REVERSE OSMOSIS RETURN
RPDA	REDUSED PRESSURE DETECTOR ASSEMBLY
RPZ	REDUSED PRESSURE ZONE ASSEMBLY
RV	RELIEF VALVE
S	SOIL, SANITARY
SCHED	SCHEDULE
SD	SUMP DISCHARGE
SE	SERVICE ELEVATOR
SECT	SECTION
SH	SHOWER
SHT	SHEET
SIM	SIMILAR (TO)
SLV	SLEEVE
SPFCA	SPRINKLER FLOW CONTROL ASSEMBLY
SPO	SANITARY PLUGGED OUTLET
SPR	SPRINKLER
SQ	SQUARE
SQ.FT.	SQUARE FEET (#)
SS	STAINLESS STEEL
SSP	SPECIAL SERVICE FIRE PUMP
ST	STREET PRESSURE
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SYMM	SYMMETRICAL
TDH	TOTAL DYNAMIC HEAD
TEL	TELEPHONE
TEMP	TEMPORARY
TER	TERRACE
THRU	THROUGH
TOS	TOP OF SLAB
TP	TRAP PRIMER
TTB	TIGHT TO BEAM
TW	TEPID WATER
TWC	TEPID WATER CIRCULATION
TYP.	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VACUUM
VCO	VALVED, CAPPED OUTLET
VE	VACUUM EXHAUST
VEX	VENT EXHAUST
VERT	VERTICAL
VEST	VESTIBULE
VO	VALVED OUTLET
VPO	VENT PLUGGED OUTLET
VTR	VENT THRU ROOF
W	WASTE
W/	WITH
WAGD	WASTE ANESTHETIC GAS DISPOSAL
WE	WASTE ANESTHETIC GAS DISPOSAL EXHAUST
WF	WIDE FLANGE
WH	WALL HYDRANT
WP	WATERPROOFING
WPO	WASTE PLUGGED OUTLET

SYMBOLS SCHEDULE

PRIMARY SYSTEMS PIPING

- COLD WATER PIPING
- STORM PIPING — L
- STORM OVERFLOW PIPING — OF

SECONDARY SYSTEMS PIPING

- COLD WATER FROM GRAVITY TANK — GT
- DOMESTIC WATER INCOMING SERVICE — CW(S)
- P

VALVES

- CHECK VALVE
- CHECK VALVE W/BALL DRIP
- VALVE ON HORIZONTAL PIPE (NORMALLY OPEN)
- VALVE ON HORIZONTAL PIPE (NORMALLY CLOSED)
- VALVE ON VERTICAL PIPE
- OS&Y VALVE ON HORIZONTAL PIPE
- OS&Y VALVE ON VERTICAL PIPE
- 3-WAY VALVE
- 3-WAY VALVE SOLENOID
- 2-WAY VALVE SOLENOID
- 2-WAY VALVE MOTORISED
- GAS VALVE
- CHECK VALVE W/ VACUUM BREAKER ASSEMBLY
- PRESSURE RELIEF VALVE
- ZONE CHECK VALVE ASSEMBLY
- ZONE DOUBLE CHECK VALVE ASSEMBLY
- DOUBLE CHECK VALVE — DCV
- REDUCED PRESSURE ZONE VALVE — RPZ

PIPING SYSTEM COMPONENTS COMMON SYMBOLS

- PIPE SLEEVE
- PIPE TURNING UP
- PIPE TURNING DOWN
- PIPE TAP
- CAPPED PIPE
- PIPE BREAK
- VACUUM BREAKER
- HOSE BIBB
- PIPE CLEANOUT OPENING
- PIPE RUNNING TRAP (ON RISERS)
- PIPE RUNNING TRAP (ON PLANS)
- PIPE RUNNING TRAP W/SINGLE CLEAN OUT(ON PLANS)
- PIPE RUNNING TRAP W/SINGLE CLEAN OUT(ON RISERS)
- PIPE RUNNING TRAP W/DOUBLE CLEAN OUT(ON PLANS)
- PIPE RUNNING TRAP W/DOUBLE CLEAN OUT(ON RISERS)
- PIPE RUNNING TRAP W/SINGLE CLEAN OUT EXTENDED TO CODP (ON RISERS)
- CLEANOUT DECK PLATE
- FLOOR/ ROOF/ AREA OR PLENUM DRAIN

COMMON EQUIPMENT SYMBOLS

- WATER METER — M

ANNOTATION SYMBOLS

- CW, HW, SAN, HWR RISER LABEL — P / #
- STORM LEADER RISER LABEL — L / #
- CENTER LINE SYMBOL — ℄
- DIRECTION OF LIQUID FLOW
- DIRECTION OF PUMPED LIQUID FLOW
- POINT OF CONNECTION NEW WORK TO EXISTING

DRAWING LIST

	DRAWING No.	DRAWING TITLE	ISSUED FOR FILING 05/20/2016		
1	P-001.00	SYMBOLS, LEGENDS, DRAWING LIST	✓		
2	P-100.00	PEDESTAL & FIRST LEVEL FLOOR PLAN	✓		
3	P-101.00	LEVELS 2 & 3 FLOOR PLAN	✓		
4	P-102.00	LEVELS 4 & 5 FLOOR PLAN	✓		
5	P-103.00	LEVELS 6 & 7 FLOOR PLAN	✓		
6	P-104.00	LEVEL 8 & 9 FLOOR PLAN	✓		
7	P-110.00	LEVEL 10 FLOOR PLAN	✓		
8	P-111.00	LEVEL 11 FLOOR PLAN	✓		
9	P-112.00	LEVEL 12 FLOOR PLAN	✓		
10	P-113.00	LEVEL 13 FLOOR PLAN	✓		
11	P-114.00	LEVEL 14 FLOOR PLAN	✓		
12	P-115.00	LEVEL 15 FLOOR PLAN	✓		
13	P-116.00	LEVEL 16 FLOOR PLAN	✓		
14	P-200.00	STORM AND DOMESTIC WATER RISER DIAGRAM	✓		
15	P-400.00	DETAILS	✓		
16	P-401.00	PLUMBING SCHEDULES AND SPECIFICATIONS	✓		

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. EXISTING PIPING WHERE SHOWN FOR VARIOUS SYSTEMS IS DIAGRAMMATIC ONLY.
3. BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AT THE BUILDING OF THE PRESENT INSTALLATIONS, INCLUDING LOCATIONS, SIZES, AND ELEVATIONS OF PIPING, TO WHICH CONNECTIONS MUST BE MADE OR WHICH MUST BE CHANGED OR ALTERED. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREINAFTER, AND NO CONSIDERATION WILL BE GRANTED BY REASON OF LACK OF FAMILIARITY ON THE PART OF THE CONTRACTOR WITH ACTUAL PHYSICAL CONDITIONS AT THE SITE.
4. INSTALL ALL WORK IN FULL ACCORDANCE WITH THE REQUIREMENTS OF ALL LOCAL AND GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION OVER THESE MATTERS, AS WELL AS WITH ANY REQUIREMENTS OF THE NFPA, UL, AND OTHER APPLICABLE CODES. SECURE AND PAY FOR NECESSARY APPROVALS, PERMITS, INSPECTIONS, ETC., AND DELIVER THE OFFICIAL RECORDS OF THE GRANTING OF PERMITS TO THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
5. PREPARE AND SUBMIT FOR APPROVAL MANUFACTURER'S SHOP DRAWINGS AND DATA FOR EQUIPMENT, AND DETAILED DRAWINGS OF ALL PLUMBING WORK.
6. KEEP AN ACCURATE RECORD ON ALL DEVIATIONS BETWEEN WORK SHOWN ON DRAWINGS AND THAT WHICH IS ACTUALLY PERFORMED.

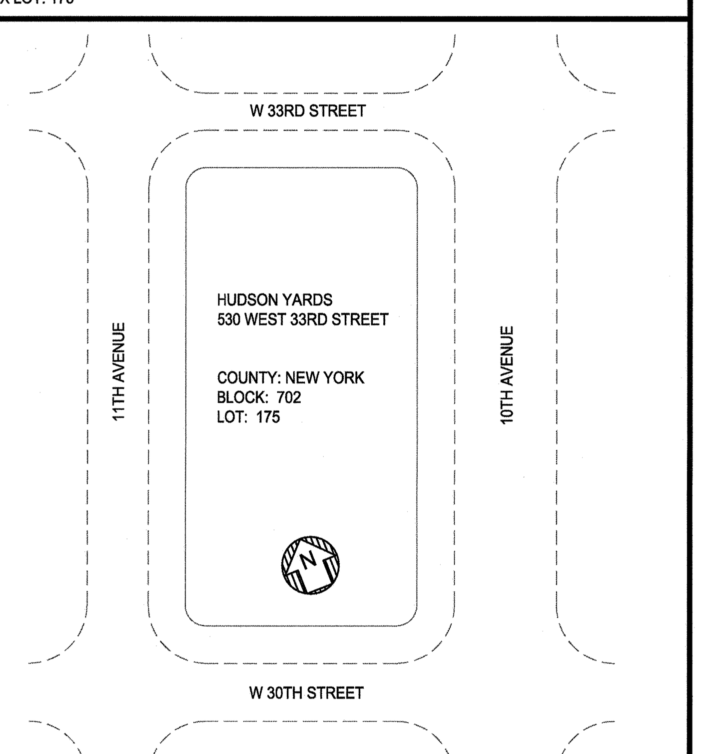
NEW YORK CITY PLUMBING NOTES

THE PLUMBING SYSTEMS (SANITARY, WASTE, VENT, & WATER DISTRIBUTION) AND ALL ASSOCIATED EQUIPMENT WILL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE FULL REQUIREMENTS OF THE 2014 BUILDING CODE OF THE CITY OF NEW YORK AND THE 2014 PLUMBING CODE OF THE CITY OF NEW YORK.

1. THE SANITARY SYSTEM SHALL BE PROVIDED IN FULL ACCORDANCE WITH THE GENERAL PROVISIONS OF SECTION PC 701.
2. THE MATERIALS USED IN THE PLUMBING SYSTEM WILL BE PROVIDED IN FULL ACCORDANCE WITH SECTION PC 303.
3. EQUIPMENT HOOK-UP AND THE JOINING OF PIPING WILL BE IN FULL COMPLIANCE WITH CHAPTER 4.
4. THE INSTALLATION OF FIXTURES WILL BE IN FULL ACCORDANCE WITH CHAPTER 4.
5. TRAPS FOR FIXTURES AND DRAIN LINES WILL BE PROVIDED IN FULL COMPLIANCE WITH CHAPTER 10 AND CLEANOUTS INSTALLED IN FULL COMPLIANCE WITH CHAPTER 7.
6. VERTICAL AND HORIZONTAL PIPING WILL BE HUNG AND SUPPORTED AS DIRECTED IN SPECIFICATIONS AND WITH SECTION PC 308.
7. THE WATER SUPPLY SYSTEMS OF THE SUBJECT BUILDING SHALL BE INSTALLED AND MAINTAINED IN FULL COMPLIANCE WITH CHAPTER 6.
8. THE SANITARY DRAINAGE SYSTEM WILL BE SIZED AND INSTALLED IN FULL COMPLIANCE WITH SECTIONS PC 709 AND PC 710.
9. THE VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM OF THE SUBJECT BUILDING WILL BE INSTALLED IN FULL COMPLIANCE WITH CHAPTER 9.
10. ALL TRENCHING SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 306.
11. RODENT PROOFING SHALL BE IN ACCORDANCE WITH SECTION PC 304.
12. TEMPORARY TOILET FACILITIES SHALL BE PROVIDED FOR WORKMAN AS PER SECTION PC 311.

PLOT PLAN & ZONING DATA

PROJECT ADDRESS: 530 WEST 33RD STREET, NEW YORK, NY
TAX BLOCK: 702
TAX LOT: 175



NYC DOB FILING NOTE

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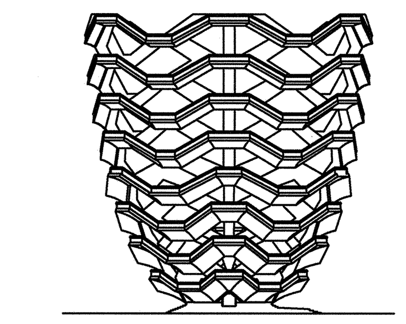
HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JB&B
JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

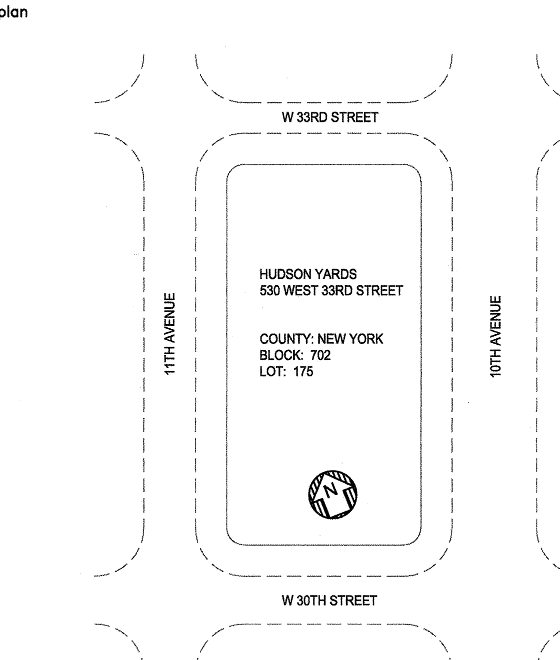
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



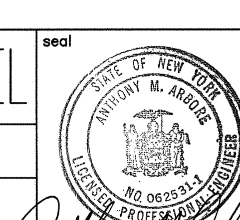
HUDSON YARDS VESSEL

SYMBOLS, LEGENDS, DRAWING LIST

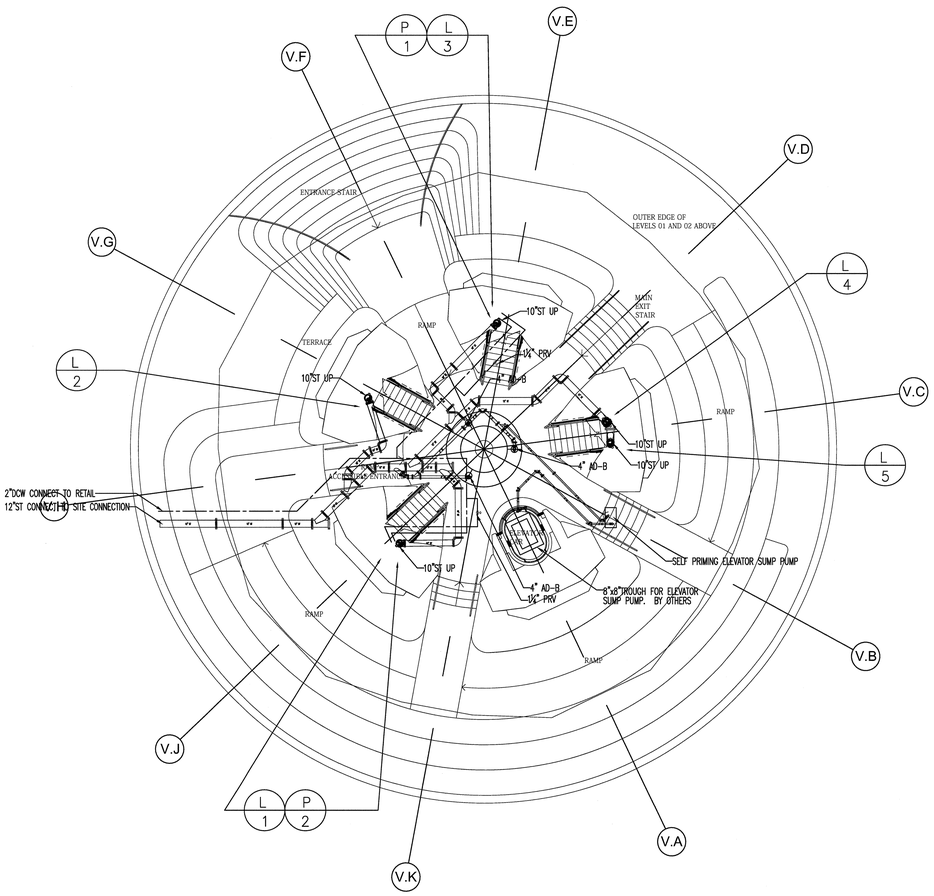
drawn by	scale	check by
JA	N.T.S.	PP
date	project no.	rev
5/06/16	14986	0

P-001.00

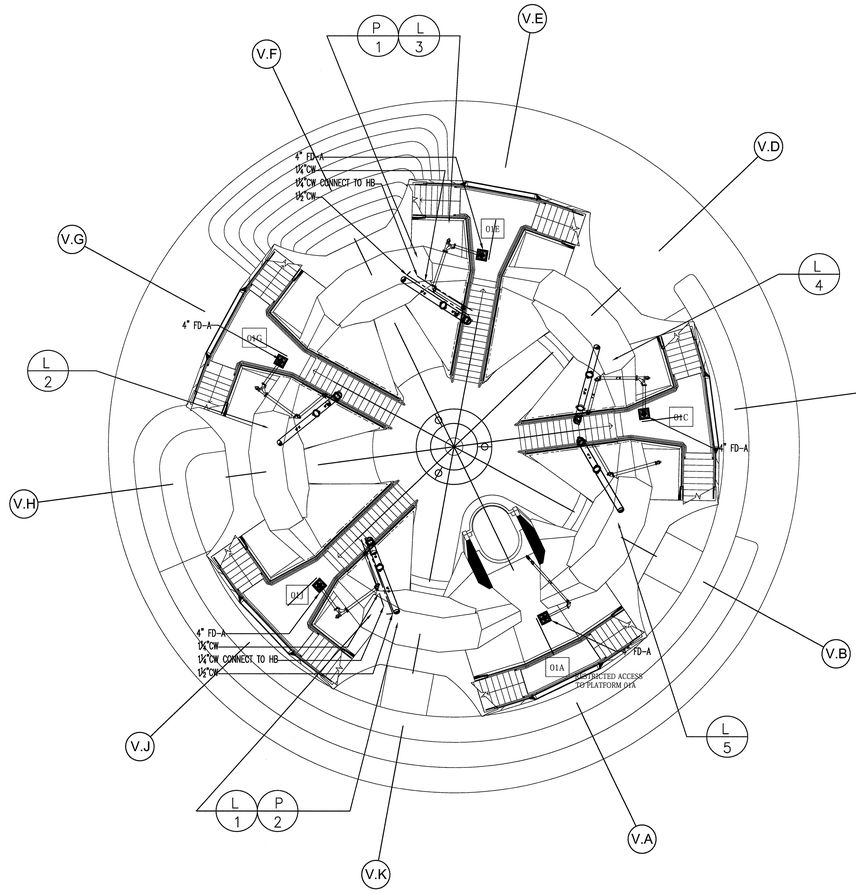
seal



Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub



PEDESTAL LEVEL PIPING PART PLAN



LEVEL 1 PIPING PART PLAN

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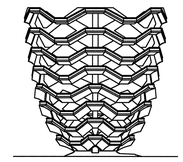
4. WATER PIPE TO BE DRAINED FOR WINTERIZING.
5. ALL PIPING SHOWN IS AT UNDERSIDE OF LEVEL SHOWN

HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

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JAROS BAUM & BOLLES

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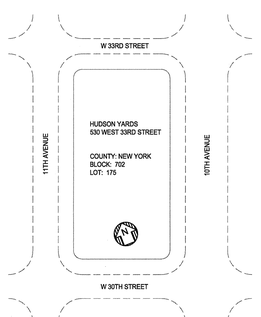
HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



HUDSON YARDS VESSEL

PEDESTAL & FIRST LEVEL PLUMBING PLAN

drawn by	scale	check by
JA	1/8"=1'-0"	PP
date	project no.	rev
5/06/16	14986	0

Damian Titus
Director of Sustainable Development
Under Direction of Agent
NYC Development Hub

seal

STATE OF NEW YORK
ANTHONY M. ARBORE
NO. 062531-1
LICENSED PROFESSIONAL ENGINEER

D-100.00

DEPT OF BLDGS 421101183 Job Number
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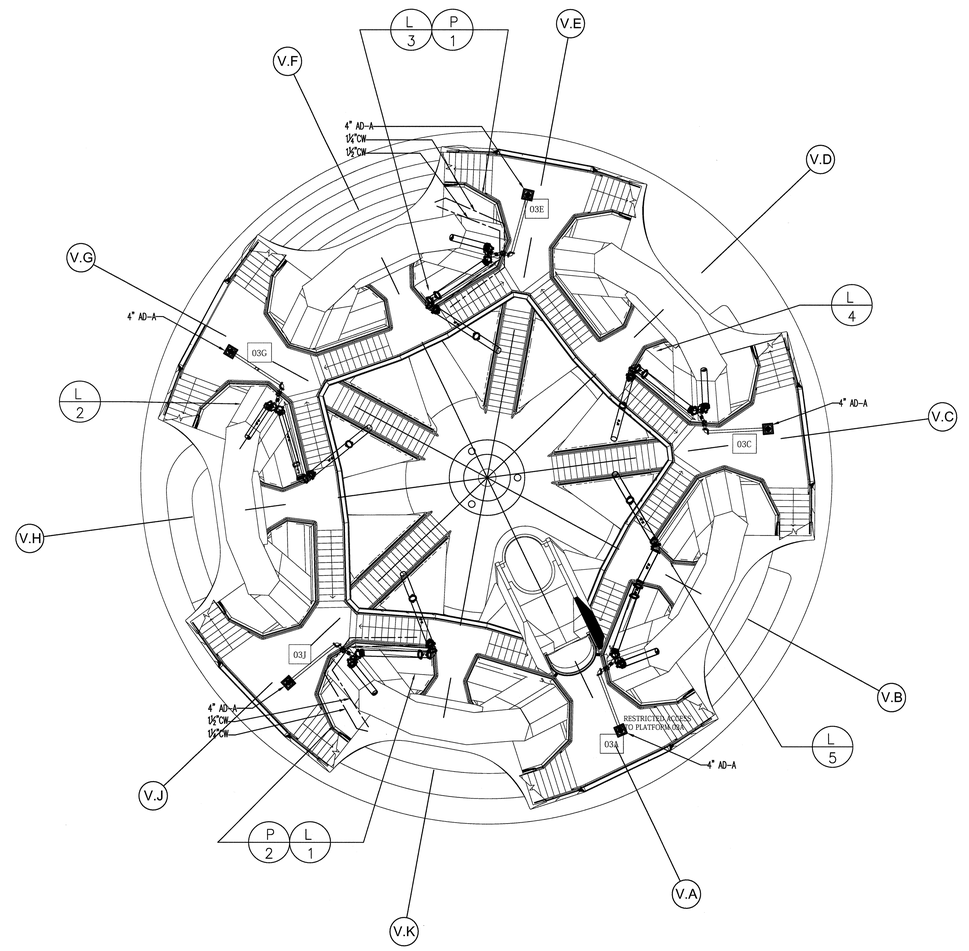
LEVEL 2 PIPING PART PLAN



LEVEL 3 PIPING PART PLAN

NYC DOB FILING NOTE

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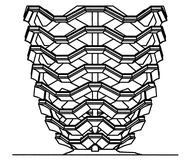
HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



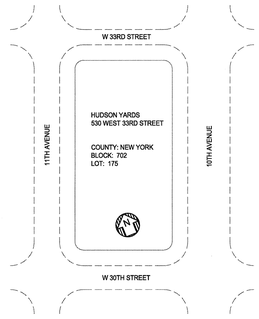
RELATED COMPANIES
60 COLUMBUS CIRCLE
NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES
80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

PACE PLUMBING CORP.
41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100
HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



HUDSON YARDS VESSEL

LEVELS 2 & 3 FLOOR PLAN

drawn by	scale	check by
JA	1/8"=1'-0"	PP
date	project no.	rev
5/06/16	14986	0

P-101.00

seal

3 OF 16

DEPT OF BLDGS 121101183 Job Number
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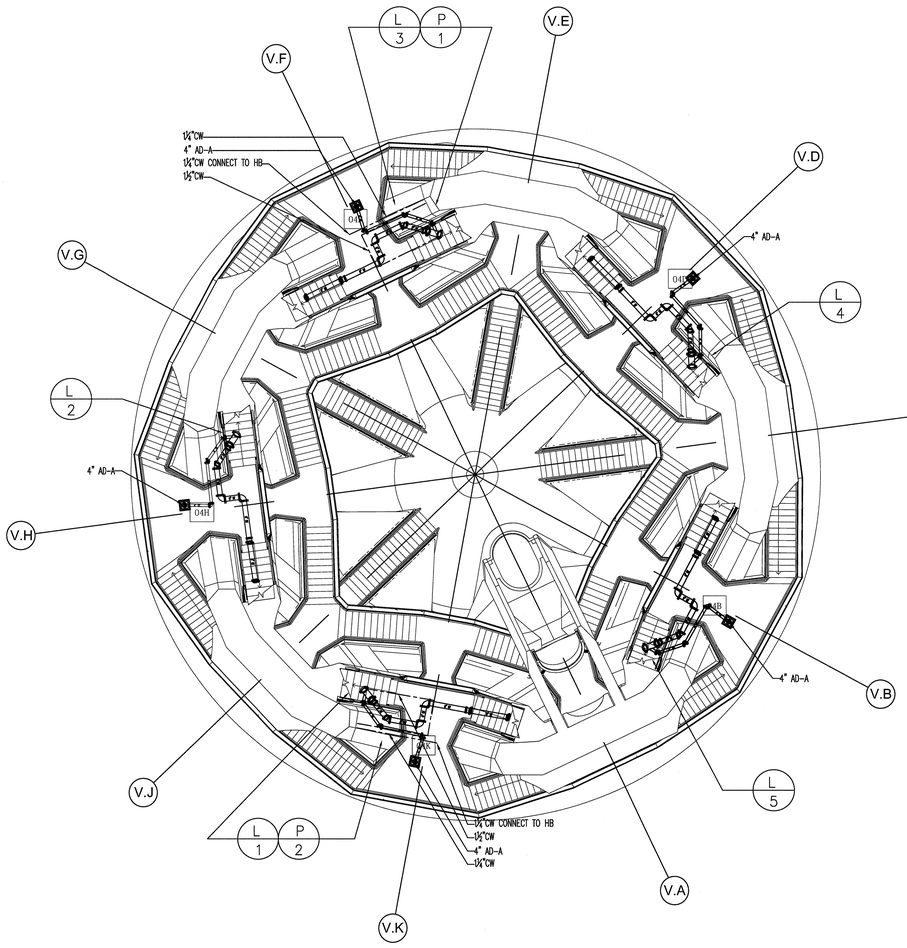
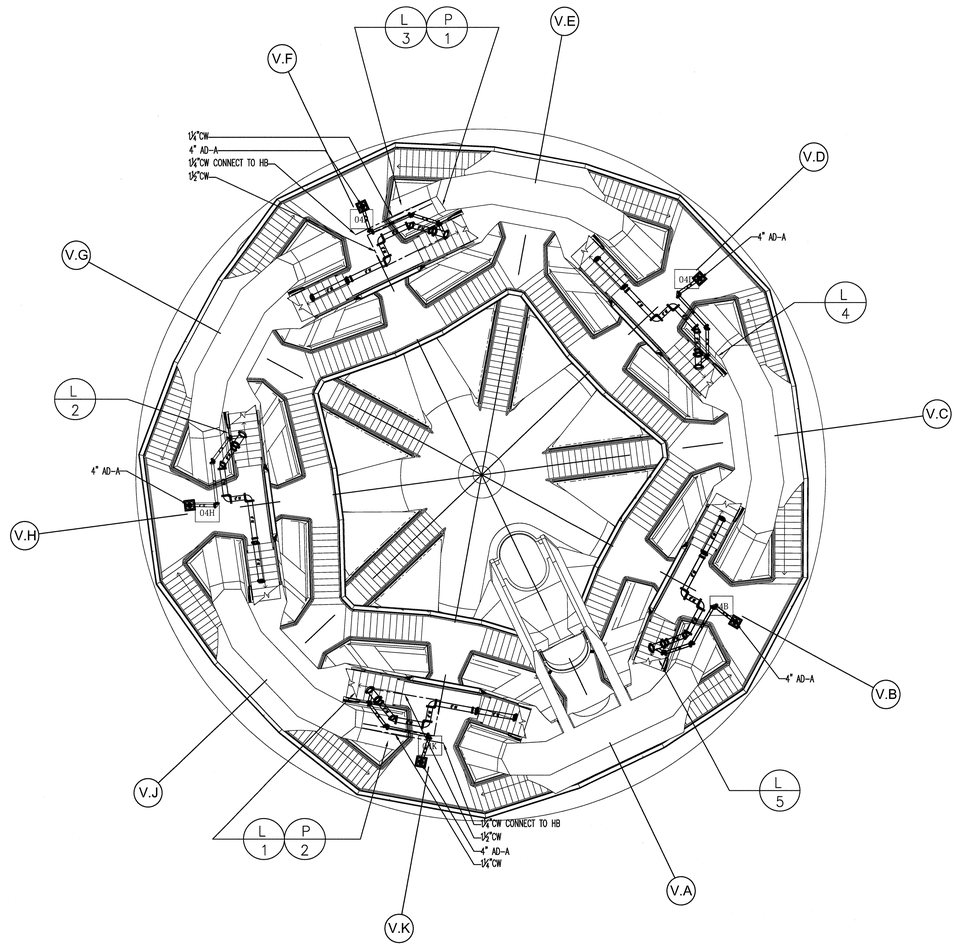


LEVEL 4 PIPING PART PLAN



LEVEL 5 PIPING PART PLAN

NYC DOB FILING NOTE

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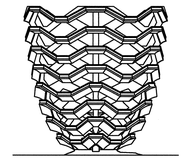
HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



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PACE PLUMBING CORP.

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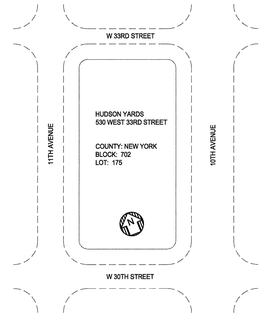
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



HUDSON YARDS VESSEL

LEVELS 4 & 5 FLOOR PLAN

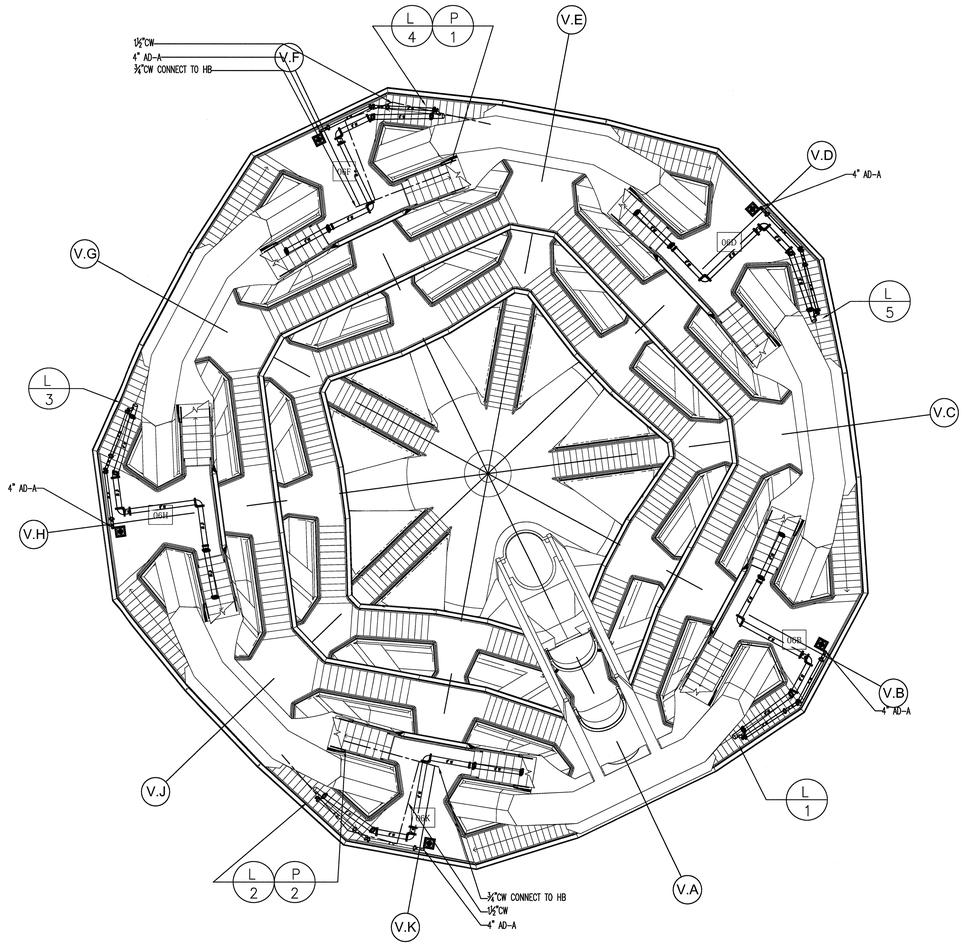
Approved
Jade Doyle, Ladbsp

drawn by	scale	check by
JA	1/8" = 1'-0"	PP
date	project no.	rev.
5/06/16	14986	0

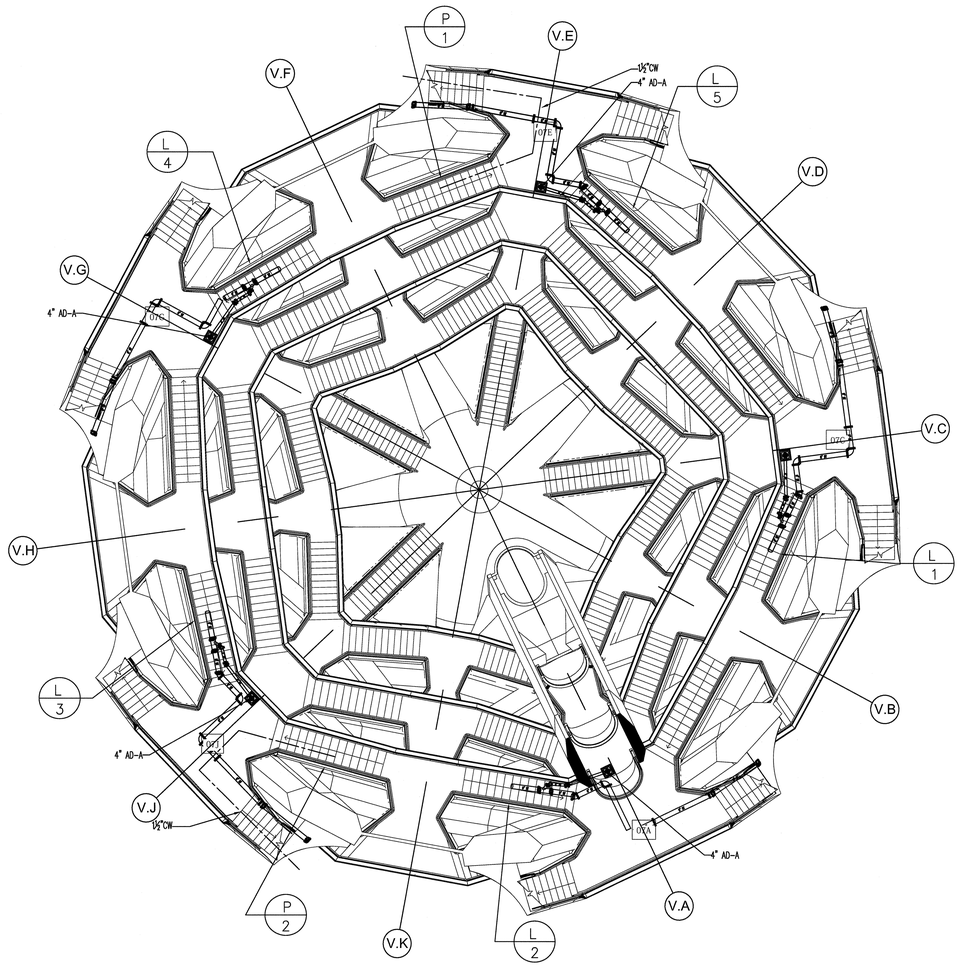
NYC Development Hub

P-102.00

seal



LEVEL 6 PIPING PART PLAN



LEVEL 7 PIPING PART PLAN

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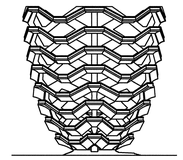
HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

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TEL: 212-801-1000

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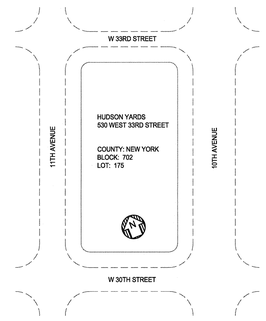
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



HUDSON YARDS VESSEL

Damian Titus

LEVELS 6 & 7 FLOOR PLAN

Under Direction of Jaros

drawn by	scale	check by
JA	1/8"=1'-0"	PP
date	project no.	rev
5/06/16	14986	0

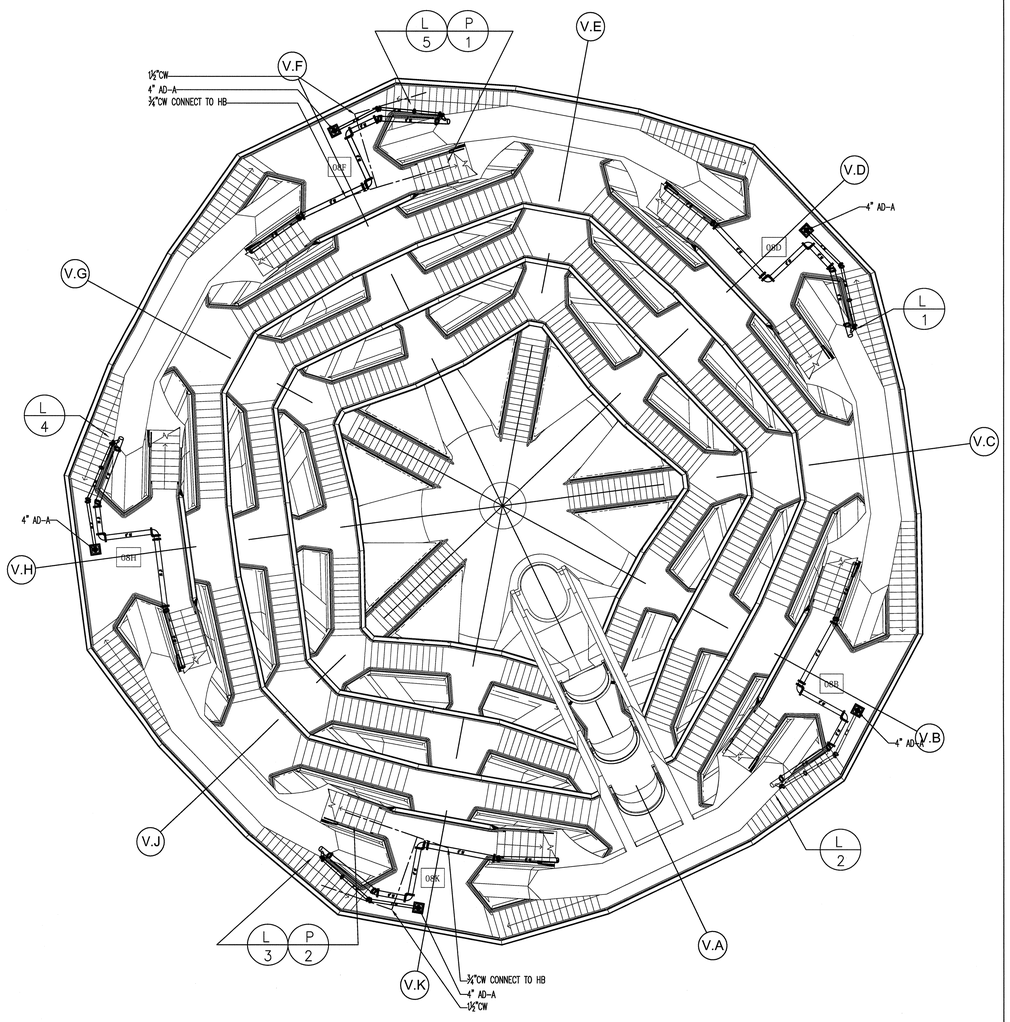
NYC Development Hub

P-103.00

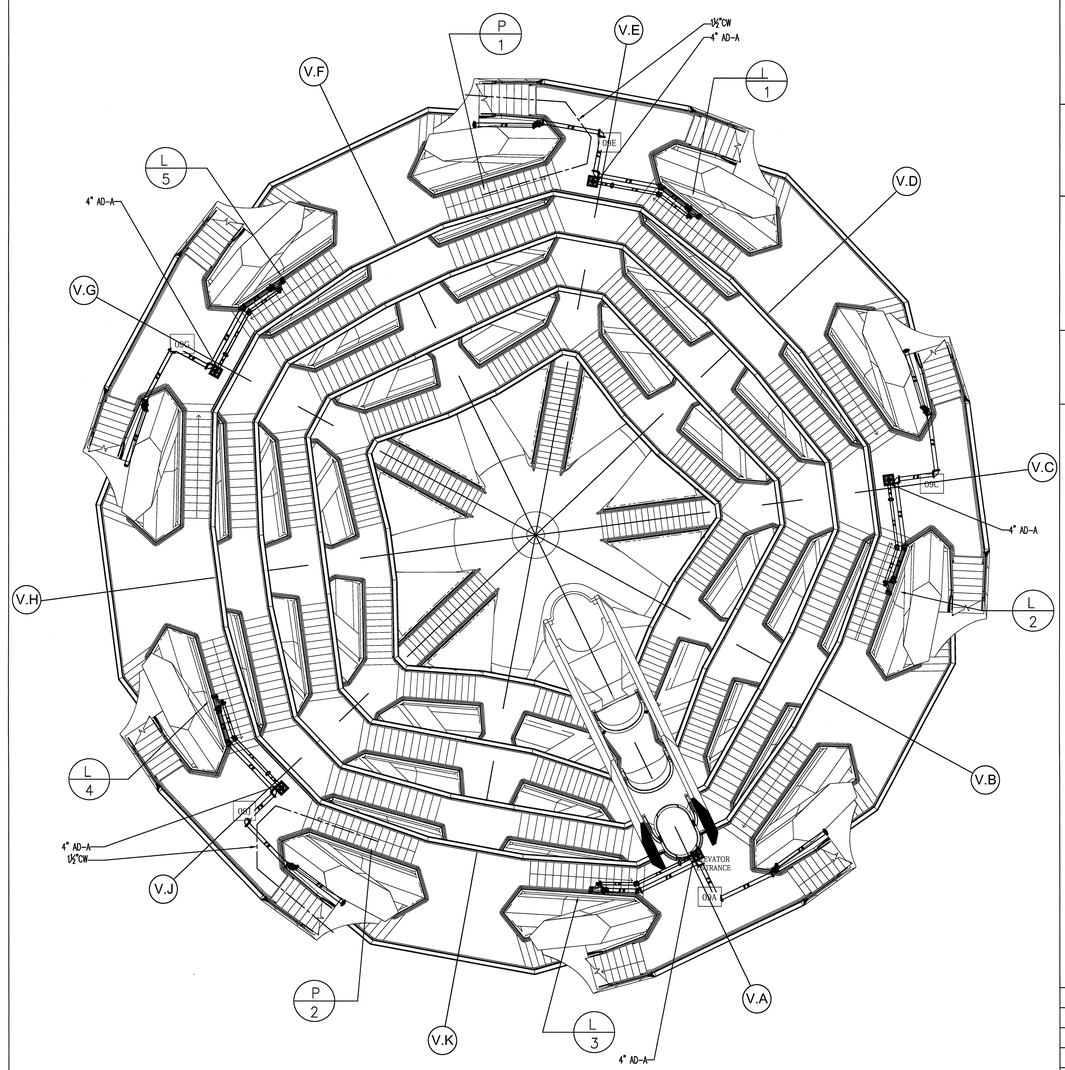
seal

STATE OF NEW YORK
ANTHONY M. ARBORE
LICENSED PROFESSIONAL ENGINEER
NO. 065231-1

5 OF 16



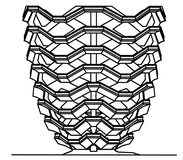
LEVEL 8 PIPING PART PLAN



LEVEL 9 PIPING PART PLAN

HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

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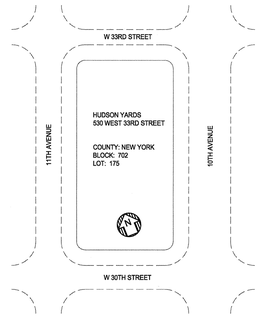
HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



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4. WATER PIPE TO BE DRAINED FOR WINTERIZING.
6. ALL PIPING SHOWN IS AT UNDERSIDE OF LEVEL SHOWN.

HUDSON YARDS VESSEL

Damian Trust

LEVELS 8 & 9 FLOOR PLAN

Under Directive 2 of 1975

drawn by	scale	check by
JA	/8"=1'-0"	PP
date	project no.	rev
5/06/16	14986	0

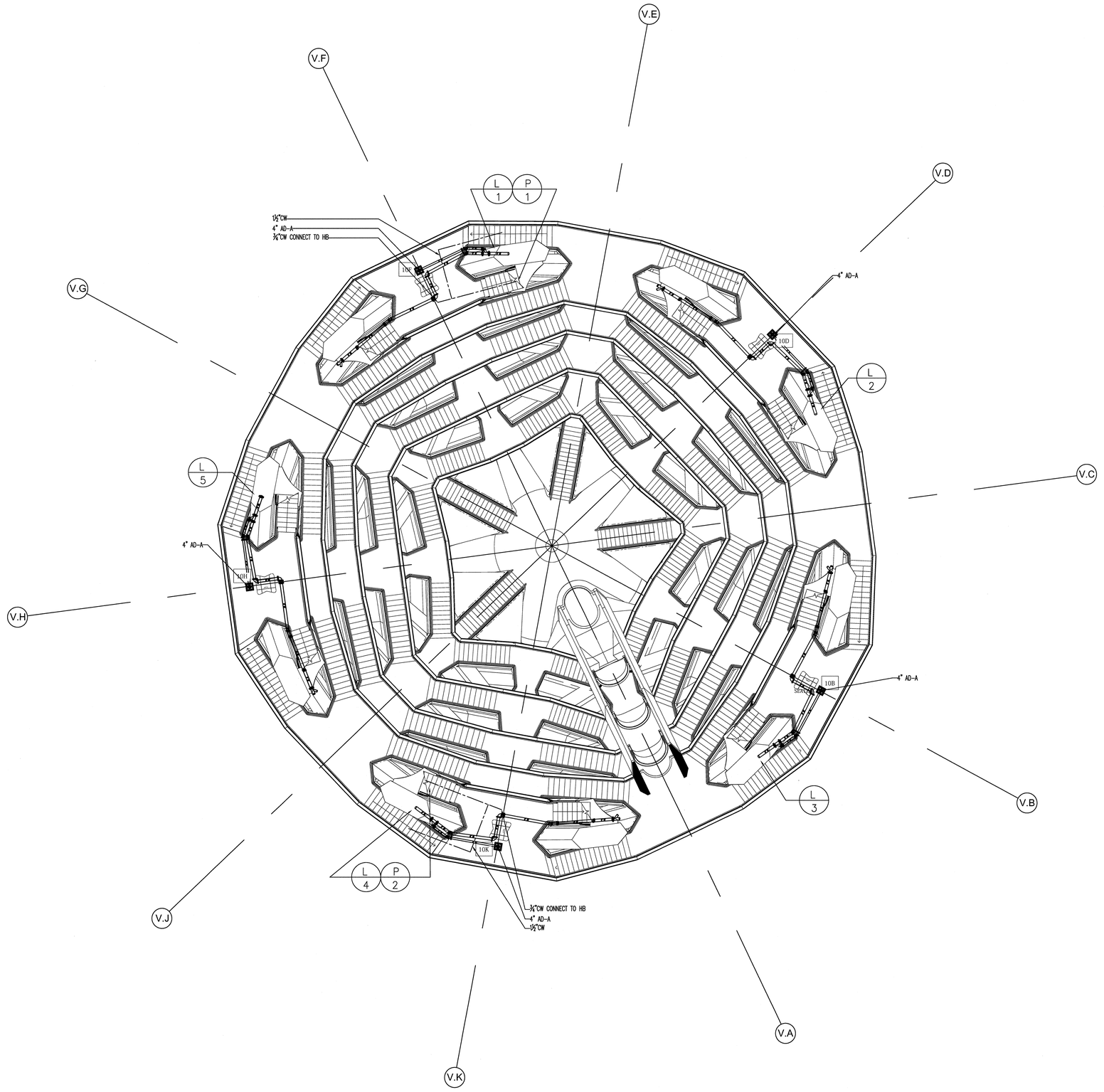
NYC Development Hub

D-104.00

seal

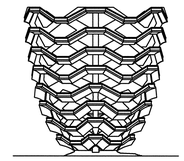
STATE OF NEW YORK
ANTHONY M. ARBORE
NO. 062831-1
LICENSED PROFESSIONAL ENGINEER

6 OF 16



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

60 COLUMBUS CIRCLE
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TEL: 212-801-1000

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JAROS BAUM & BOLLES

80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

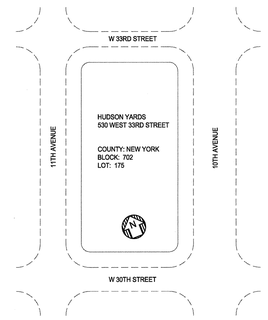
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



NYC DOB FILING NOTE

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HUDSON YARDS VESSEL

LEVEL 10 FLOOR PLAN

Daiman Titus

Under Direction and Supervision

drawn by	scale	check by	
JA	1/8"=1'-0"	PP	
date	project no.	rev	
5/06/16	14986	0	

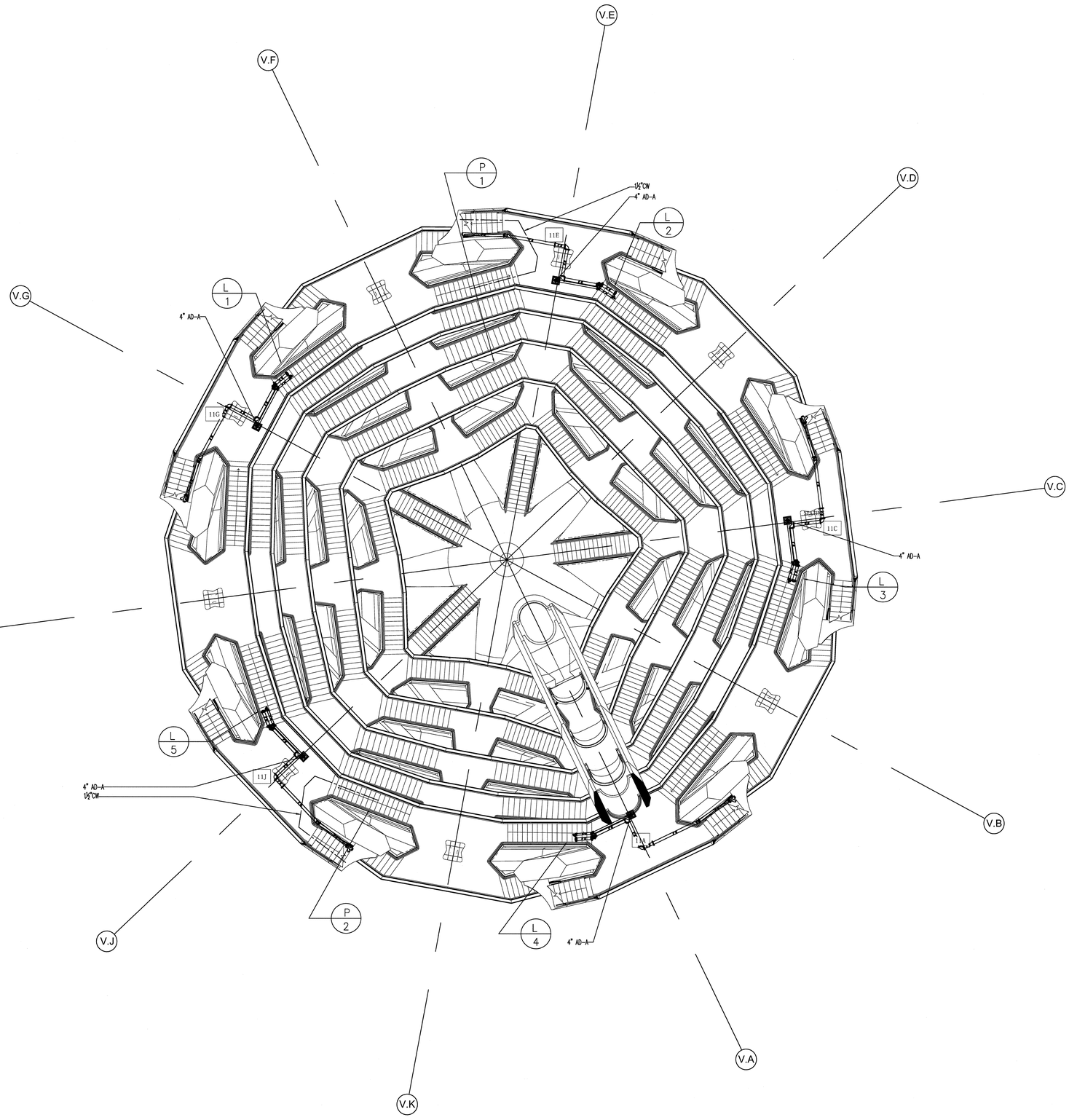
NYC Development Hub

D-110.00

seal

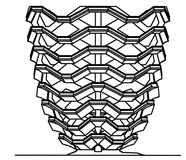
STATE OF NEW YORK
ANTHONY M. ARBORE
NO. 062531-1
LICENSED PROFESSIONAL ENGINEER

7 OF 16



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

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NEW YORK, NEW YORK 10023
TEL: 212-801-1000

JBB
JAROS BAUM & BOLLES

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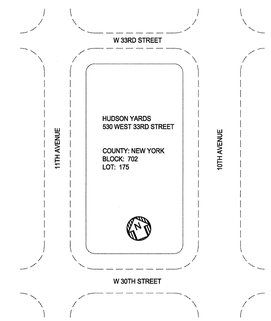
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



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HUDSON YARDS VESSEL

LEVEL 41 FLOOR PLAN

Under Directive 2 of 1975

drawn by	scale	check by
JA	1/8"=1'-0"	PP
date	project no.	rev.
5/06/16	14986	0

Date: 5/20/2016
NYC Development Hub

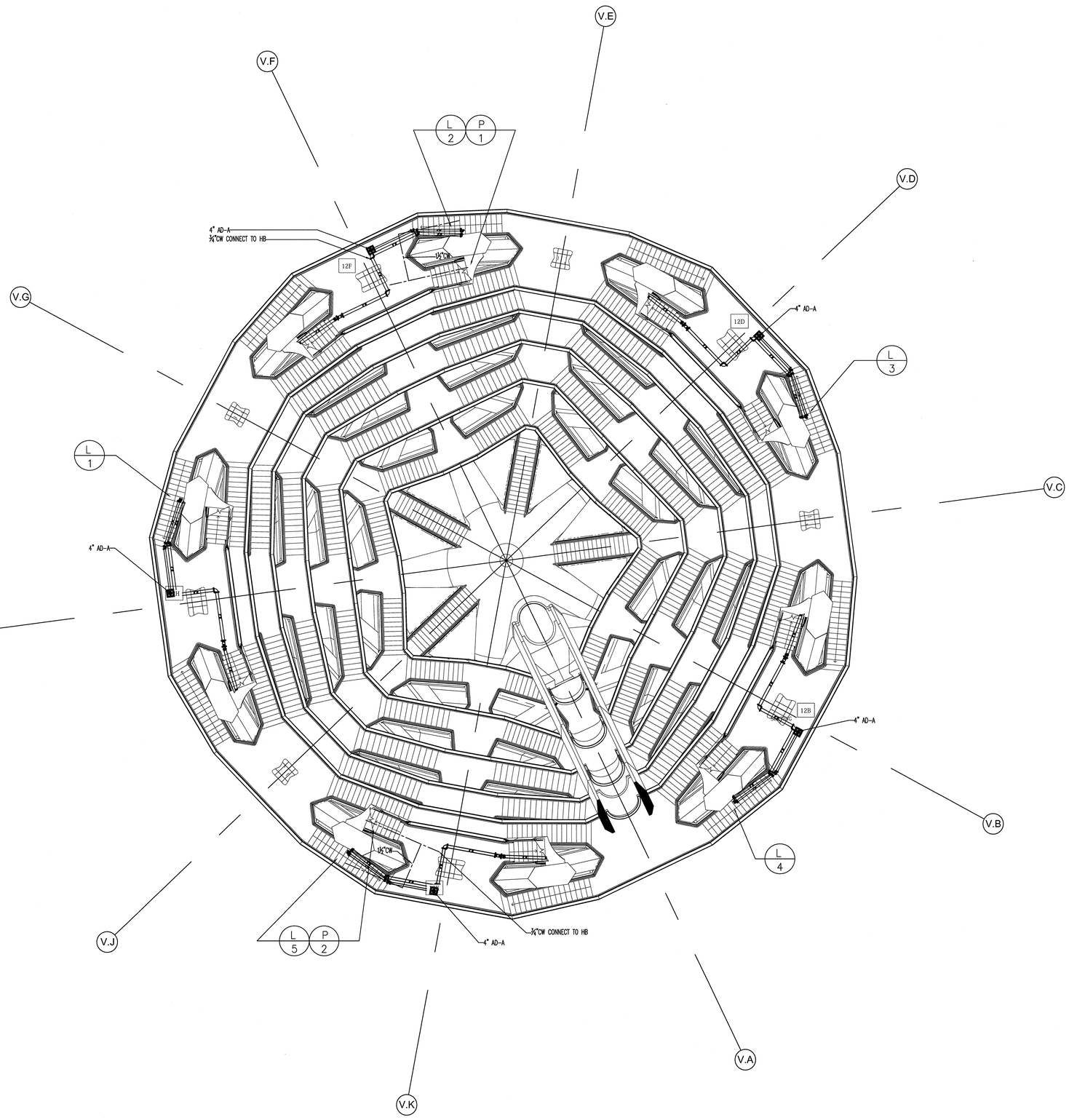
P-111.00

seal

STATE OF NEW YORK
ANTHONY M. ARDUINI
LICENSED PROFESSIONAL ENGINEER
NO. 062531-1

8 OF 16

DEPT OF BLDGS 121013/0 Job Number
E556133/0521 Scan Code



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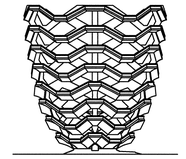
HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



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TEL: 212-801-1000

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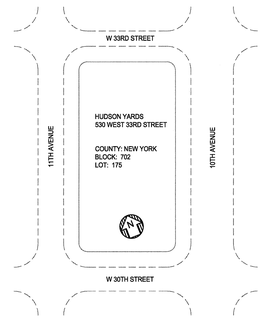
PACE PLUMBING CORP.
41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100
HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



HUDSON YARDS VESSEL

LEVEL 12 FLOOR PLAN

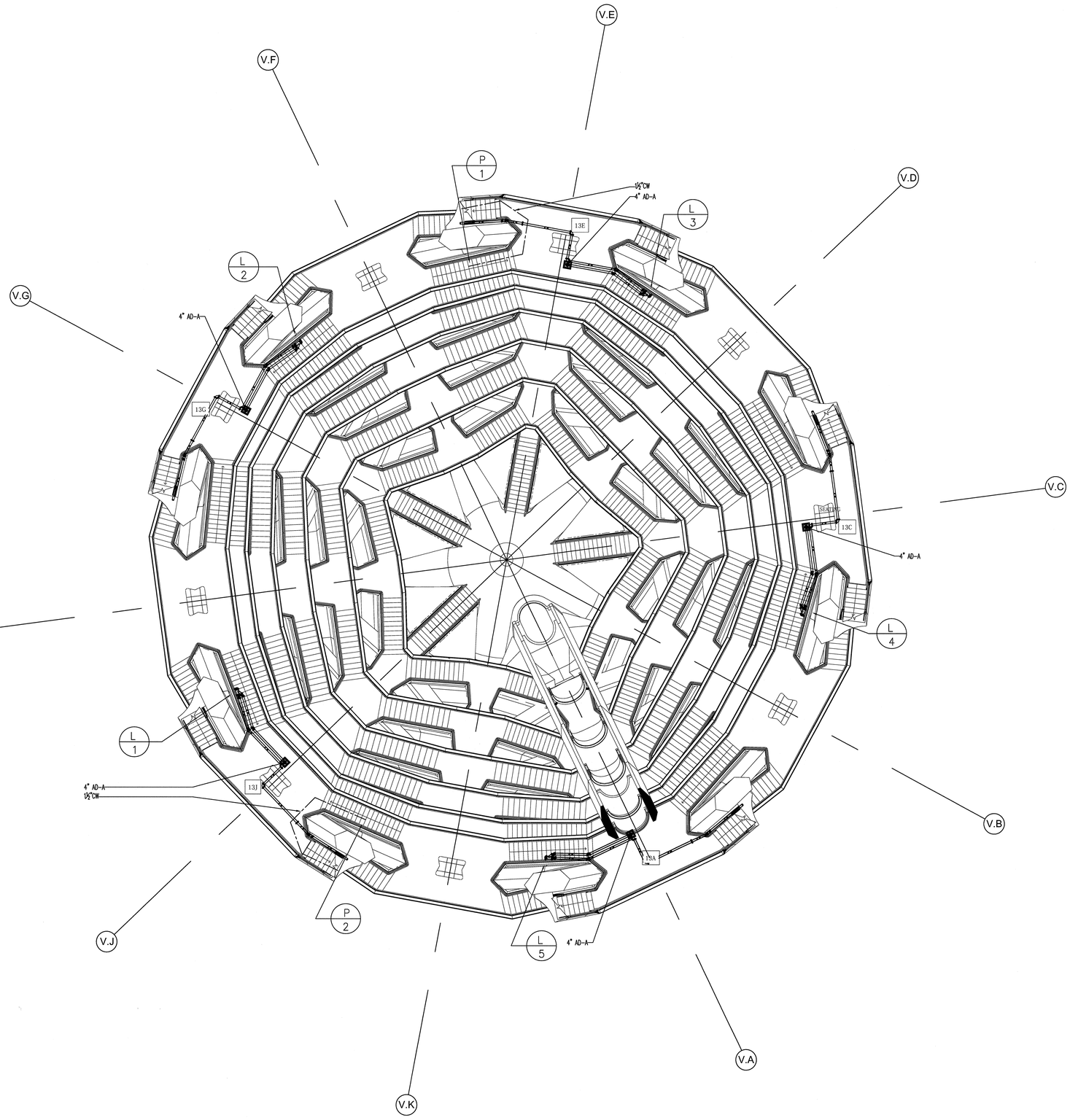
Date of Issue: 05/20/16
Update Directive #:
NYC Development Hub

drawn by	scale	check by
JA	1/8" = 1'-0"	PP
date	project no.	rev
5/06/16	14986	0

D-112.00

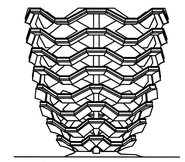
seal

DEPT OF BLDGS 421051383 Job Number
ES1 20160601 Scan Code



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



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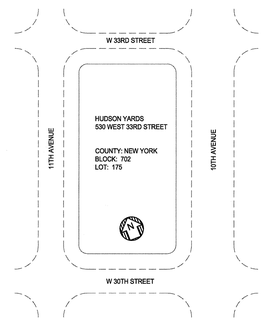
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



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6. ALL PIPING SHOWN IS AT UNDERSIDE OF LEVEL SHOWN.

HUDSON YARDS VESSEL

LEVEL 13 FLOOR PLAN

Daniel Libeskind
Under Direction of Joel Sanders Architect, LLC

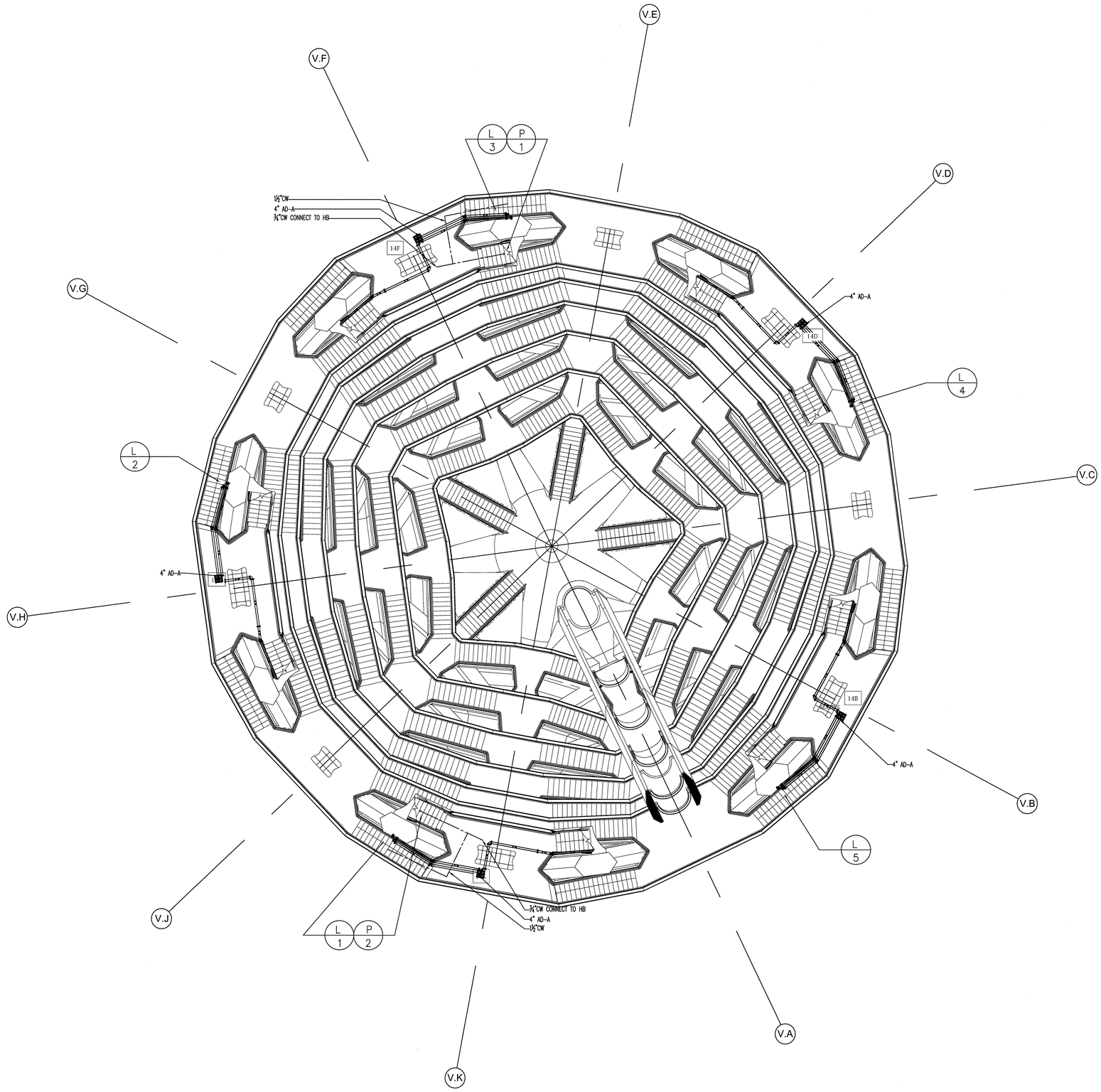
drawn by	scale	check by
JA	1/8"=1'-0"	PP
date	project no.	rev
5/06/16	14986	0

P-113.00

seal

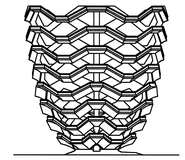
STATE OF NEW YORK
RICHARD W. ARONOW
No. 032937
LICENSED PROFESSIONAL ENGINEER

10 OF 16



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



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60 COLUMBUS CIRCLE
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JAROS BAUM & BOLLES

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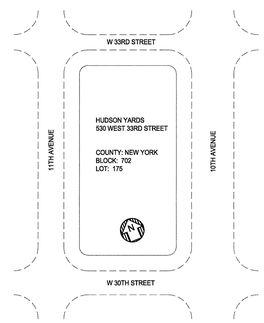
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



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HUDSON YARDS VESSEL

Damian Titus

LEVEL 14 FLOOR PLAN

Under Directive 3 of 1995
NYC Development Hub

drawn by	scale	check by
JA	1/8"=1'-0"	PP
date	project no.	rev
5/06/16	14986	0

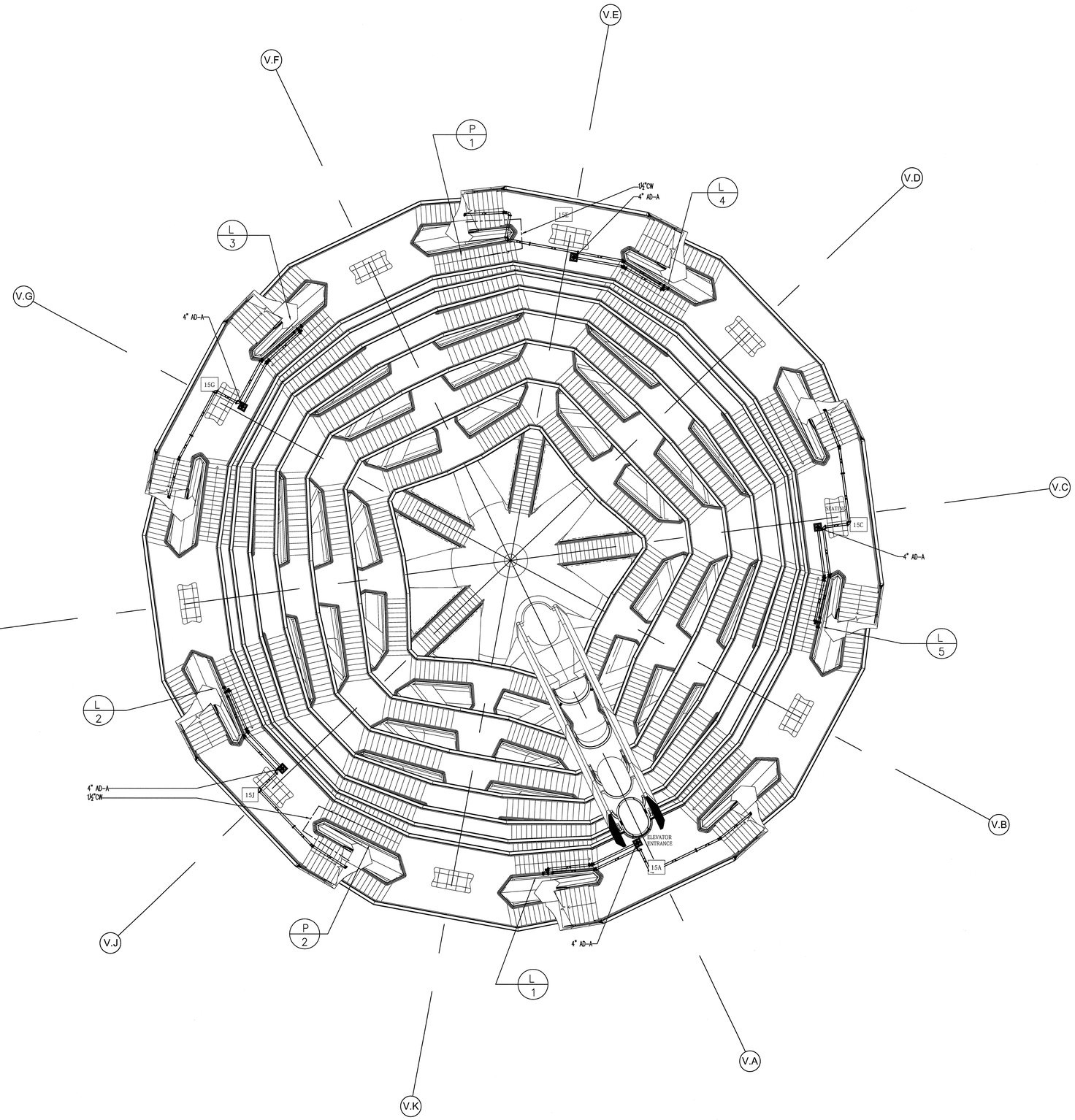
P-114.00

seal

STATE OF NEW YORK
ANTHONY M. ABBOTE
NO. 062537-1
LICENSED PROFESSIONAL ENGINEER

11 OF 16

DEPT OF BLDGS 421051183 Job Number
ES1504437097 Scan Code



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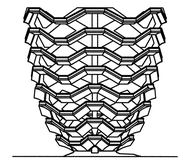
HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

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TEL: 212-801-1000

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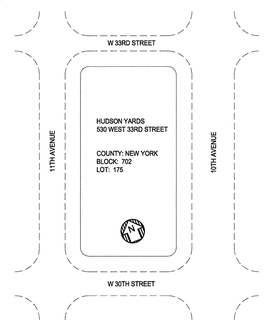
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



HUDSON YARDS VESSEL

LEVEL 15 FLOOR PLAN

Digitally Signed by Anthony M. Rebane
Date: 12/7/2016 2:47:39 PM

drawn by: JA | scale: N.T.S. | check by: PP | project no.: 14986 | rev.: 0 | date: 5/06/16

NYC Development Hub

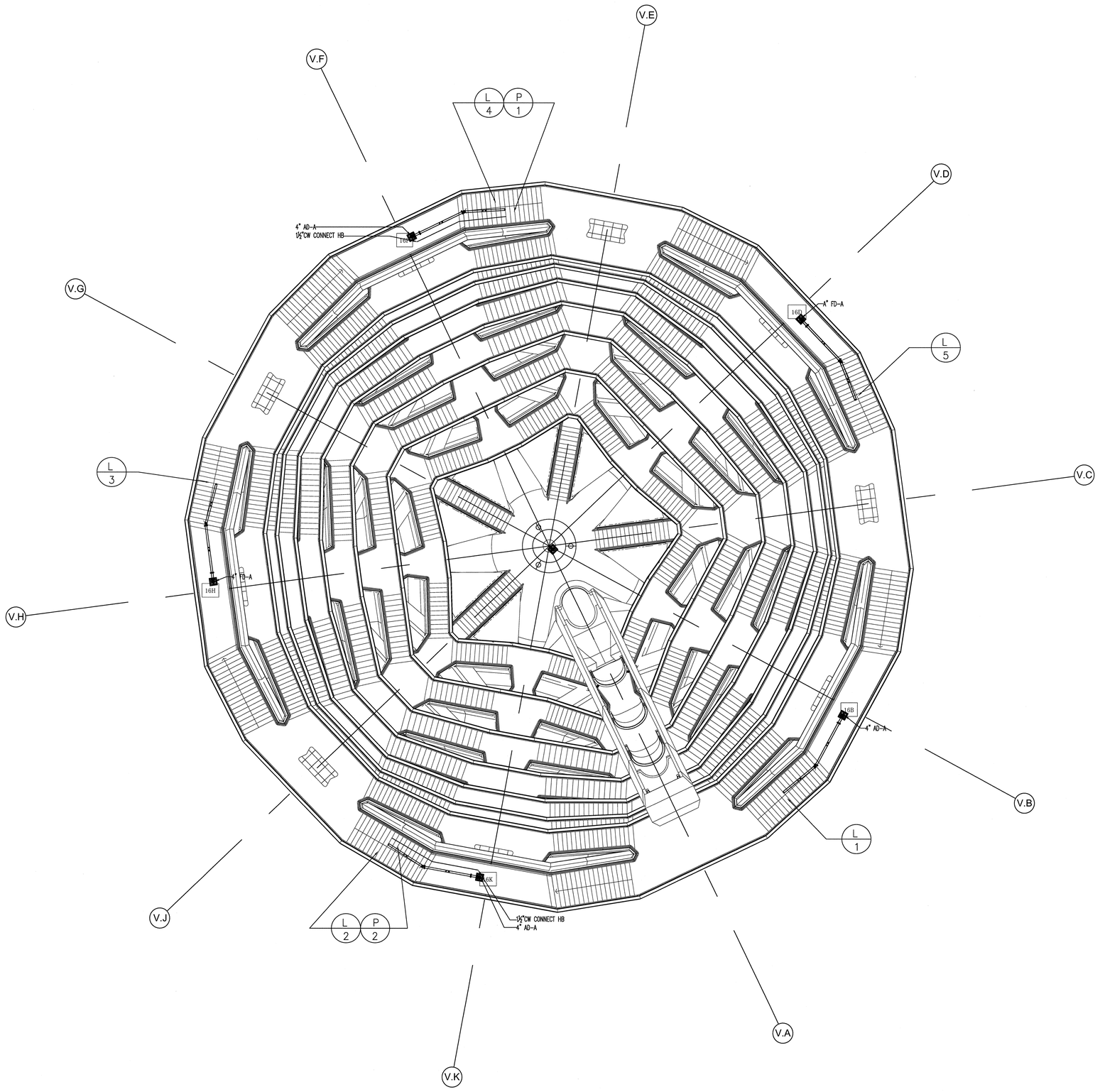
D-115.00

seal

STATE OF NEW YORK
ANTHONY M. REBANE
NO. 050791
LICENSED PROFESSIONAL ENGINEER

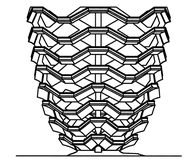
12 OF 16

DEPT OF BLDGS 421101163 Job Number
ES760A00688 Scan Code



HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



RELATED COMPANIES

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TEL: 212-801-1000

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JAROS BAUM & BOLLES
80 PINE STREET | NEW YORK, NY 10005 | T 212.530.9300 | WWW.JBB.COM

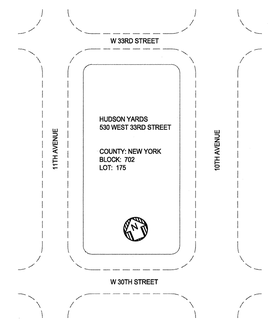
PACE PLUMBING CORP.

41 BOX STREET
BROOKLYN, NEW YORK 11222
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



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HUDSON YARDS VESSEL

LEVEL 4 & 5 FLOOR PLAN

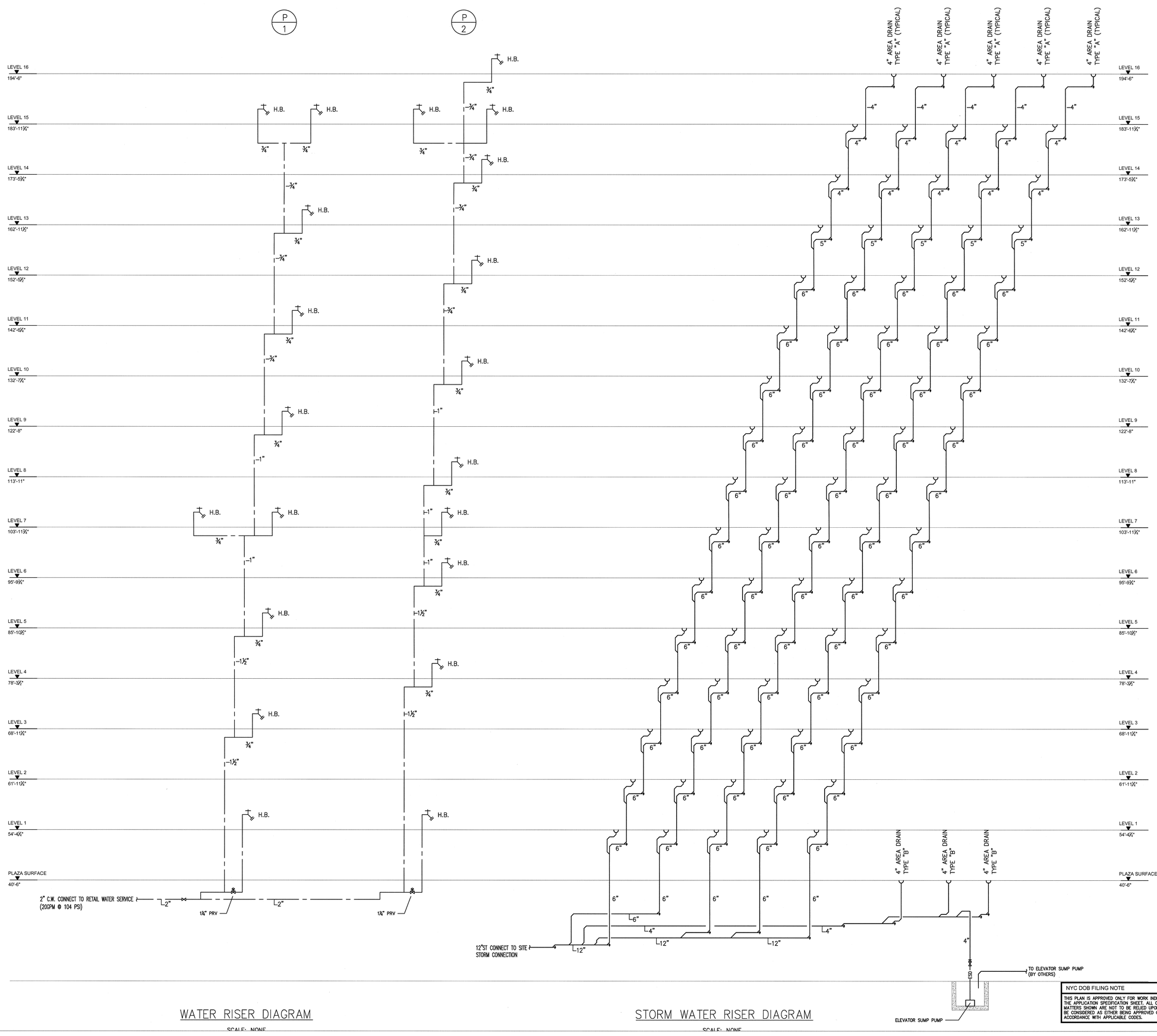
drawn by	scale	check by
JA	1/8"=1'-0"	PP
date	project no.	rev
5/06/16	14986	0

P 116.00

seal

STATE OF NEW YORK
ANTHONY M. ARGENIO
No. 062532
LICENSED PROFESSIONAL ENGINEER

13 OF 16



WATER RISER DIAGRAM

SCALE: NONE

STORM WATER RISER DIAGRAM

SCALE: NONE

NYC DOB FILING NOTE

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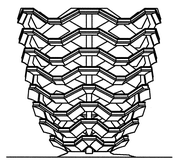
HUDSON YARDS VESSEL

530 WEST 33RD STREET, NEW YORK, NY



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TEL: 212-801-1000

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41 BOX STREET
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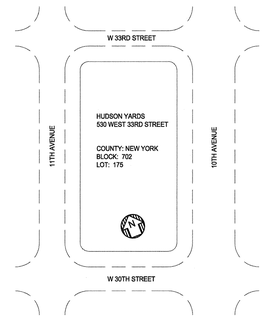
TEL: 718-389-6100

HAROLD BLOCK
MASTER PLUMBER LIC # 0195

REV. #	REVISION DESCRIPTION	DATE	BY
0	ISSUED FOR FILING	05/20/16	

plot plan



HUDSON YARDS VESSEL

STORM AND DOMESTIC RISER DIAGRAM

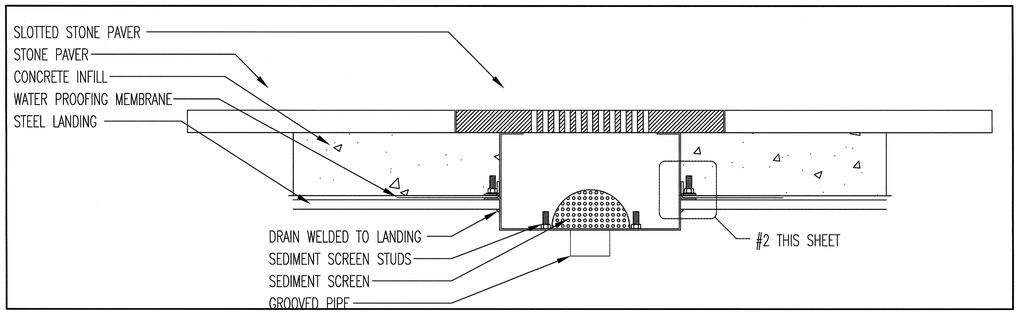
Damian Titus

Under Directive 3 of 1995
NYC Development Hub

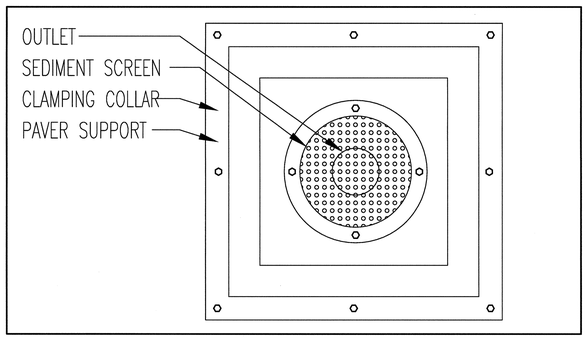
drawn by	scale	check by
JA	N.T.S.	PP
date	project no.	rev
5/06/16	14986	0

P-200.00

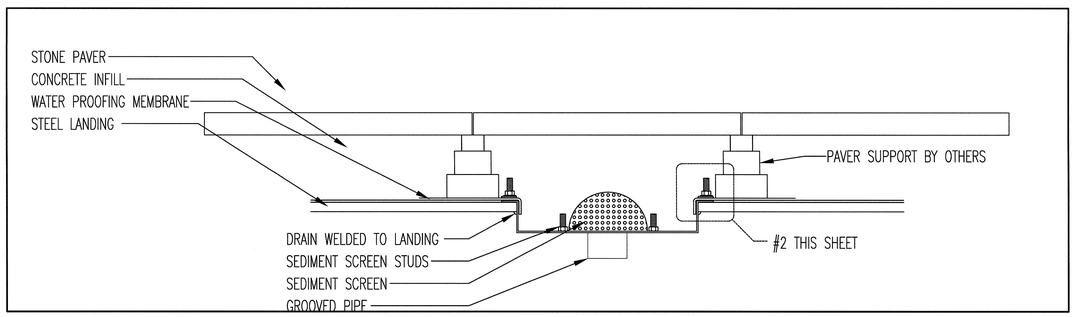
seal



1- ELEVATION VIEW DRAIN DETAIL FOR PAVERS ON MUD SET



3-PLAN VIEW DRAIN DETAIL



4- ELEVATION VIEW DRAIN DETAIL FOR PAVERS ON PEDESTALS

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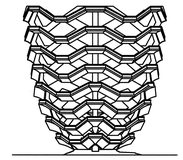

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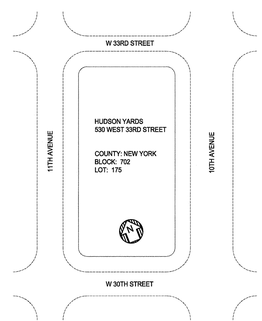
plot plan



NYC DOB FILING NOTE

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

HUDSON YARDS VESSEL — DETAILS

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JA	N.T.S.	PP	
date	project no.	rev.	
5/06/16	14986	0	

Damkjian Baum Eisenberg Architects LLP
Building Department APPROVED
Under Direction of Jack D. Damkjian
NYC Development Hub

seal: STATE OF NEW YORK — ANTHONY M. ARGENIO — NO. 065917 — LICENSED PROFESSIONAL ENGINEER

PLUMBING PUMPS

PUMP COMP. PEERLESS BELL & GOSSETT FLYGHT SYNCROFLOW GOULDS (ITT) PUMPS STANCOR AMT	ABBREV. (P) (B&G) (F) (S) (ITT) (ST) (AMT)	No REQUIRED	G.P.M. EACH PUMP	G.P.M. PER SET	PUMP HEAD (PSI)	MODEL No.	MECH. SEAL	STAGES	VERTICAL SPLIT	HORIZONTAL SPLIT	WORKING PRESS.	H.P. (INDIVIDUAL PUMP)	H.P. (TOTAL PUMP SET)	R.P.M.	VOLTS	PHASE	CYCLE	MANUAL CONTROL	STARTING STEPS	AUTO CONTROL	PLOT LIGHT	PRESSURE GAUGE RANGE	CONTROL CENTER	EMERGENCY POWER	WX-451C-CUSHION TANK	OIL MINDER CONTROLS	NOTES
ESP-1 ELEVATOR SUMP PUMP SLAB LEVEL		1	120		44	AMT-2827						20	½	3450	115/230	1										•	SELF PRIMING ELEVATOR PIT

DRAINS

DESIGNATION	REQUIRED	MODEL NO.	BODY: STAINLESS STEEL	GALVANIZED	ALL BRONZE	POLYMER CONCRETE	CLAMPING DEVICE	DECK CLAMP	BACK WATER VALVE	ROOF SUMP RECEIVER	BRONZE PLUG	TRENCH	STRAINER: CAST IRON	GALVANIZED	STAINLESS STEEL	NICKEL BRONZE	CHROME PLATED	SEDIMENT BUCKET	SECONDARY STRAINER	POLISHED FINISH	SATIN FINISH	TRACTOR GRATE	BRONZE MESH SCREEN	FUNNEL TOP	FLAT TOP	SQUARE TOP	DOME	RAISED LIP	EXTENSION	VANDAL PROOF	REMARKS: LOCATION
AD-A	●	CUSTOM	●				●								●			●													ALL LANDINGS
AD-B	●	WADE 3004-42-39-IPS		●									●	●				●													PEDESTAL LEVEL

MATERIAL SCHEDULE

NOTES:
1. FOR REQUIRED PRESSURE RATINGS SEE RISER DIAGRAM.
2. INSTALL IN TRENCH OR SPLIT TILE CONDUIT.
3. ALL MATERIALS SELECTED ON THIS SCHEDULE MUST BE APPROVED BY THE LOCAL AUTHORITIES.

SYSTEMS	PIPE: REQUIRED	C.I.	STL. SCHED. 40	DURION A.R.C.I.	BLACK	STAINLESS STEEL	C.T. "L"	C.T. "M"	D.I.W.P.	GLASS	POLYPROPYLENE P.P.	C.P.V.C. SCHEDULE 80	FITTINGS: C.I. NO-HUB	C.I. SOIL	C.I. DRAINAGE	STD.C.I.-175# W.W.P.	EX. H. C.I. 400# W.W.P.	STD. C.I. FLG.-175# W.W.P.	STD. MALL.-300# W.W.P.	DURION A.R.C.I.	CAST BRONZE-175# W.W.P.	CAST BRONZE-400# W.W.P.	POLYPROPYLENE P.P.	SOLDER FITTINGS	C.P.V.C. SCHEDULE 80	GLASS	BLACK	CAST STAINLESS STEEL	JOINTS: CAULKED	THREADED	SOLDERED 95-5	S.S. COUPLING	BRAZED	NO-HUB S.S. COUPLING	VICTAULIC GALVANIZED	SOLVENT WELDED
LEADER DRAINS	●					●																						●				●				
LEADERS – STACKS	●					●																						●				●				
C.W.	●						●																	●							●					

NOTE:
FREEZE PROTECTION AND FIBERGLASS TYPE INSULATION TO BE PROVIDED ON ALL STORM PIPING. RAYCHEM HEAT TRACE / ACS CONTROL SYSTEM, WITH ALL CONNECTORS. AMBIENT TEMPERATURE MONITORING SYSTEM, 5XL2 CR AND 8XL2 CR CABLE TO BE UTILIZED.

NOTE: THIS VALVE SCHEDULE IS BASED ON MILWAUKEE VALVES

PLUMBING PRESSURE REDUCING VALVE SCHEDULE

TYPE	WATTS FIG. NO.	SIZE	VALVE SPECIFICATION: FLANGED	SCREWED	SOLDER	SOCKET	BRASS	W/ADAPTER	O.S.&Y.	N.R.S.	BRONZE	I.B.B.M.	ALL IRON	CAST STEEL	HOSE END	175# WWP	200# WWP	250# WWP	300# WWP	400# WWP	500# WWP	600# WWP	960# WWP	1440# WWP	BURIED SERV.	LOCATION: REQ.AT EQUIP.	SUMP DISCH.	EJECT.DISCH.	GAS	C.W.SERVICE	C.W. 4"& UP	C.W. 3"& DN	HW HWC 4"&UP	HW HWC 3"&DN	D.W. D.W.C.	C.W. 2"& DN	HW HWC 2"&DN
PRV	LFU5B	1/2"-2"		●	●		●	●		●	●								●													●					

GENERAL SPECIFICATIONS

1.01 REFFERENCE TO GENERAL CONDITIONS AND SUPPLEMENTAL INSTRUCTIONS:

A. OBTAIN A COPY OF THE GENERAL CONDITIONS AND SUPPLEMENTAL INSTUCTIONS TO THE CONTRACT DOCUMENTS AND PERFORM WORK WITH THE REQUIRMENTS CONTAINED THEREIN

1.02 SCOPE OF WORK:

A. ALL WORK INDICATED ON THE DRAWINGS AND SPECIFICATIONS SHALL BE INCLUDED UNDER THE BASE BID, EXCEPT WHERE THERE IS SPECIFIC REFERENCE TO EXCLUSION AND INCORPORATON IN OTHER QUOTATIONS.

1.03 GENERAL:

A. THE INTENT OF THE WORK IS INDICATED ON THE DRAWINGS AND DESCRIBED HEREINAFTER. NO CONSIDERATION WILL BE GRANTED FOR REASON OF LACK OF FAMILIARIY ON THE PART OF THE CONTRACTOR REGARDING ACTUAL PHYSICAL CONDITIONS AT THE SITE.

B. COORDINATE WORK WITH ALL TRADES AND EXISTING CONDITIONS OF THE JOB SITE.

C. PROVIDE AS PART OF NEW WORK:

1. SCAFFOLDING, RIGGING, AND HOISTING
2. RUBBISH REMOVAL AND CLEANING
3. CUTTING AND PATCHING
4. SLEEVES, OPENINGS AND THE CORE DRILLING OF EXISTING SLABS
5. CAULKING, FIREPROOFING, AND THE PACKING AND FILLING OF SLEEVES AND OPENINGS
6. SHOP DRAWINGS AND "AS BUILT" DRAWINGS
7. OPERATING AND MAINTENANCE INSTRUCTIONS
8. OBTAINING ALL REQUIRED PERMITS, APPROVALS, ACCEPTANCE, FILING AND INSPECTION CERTIFICATES
9. GUARANTEE ALL WORK, LABOR AND MATERIALS FOR ONE YEAR FOLLOWING DATE OF ACCEPTANCE
10. VERIFYING EXISTING CONDITIONS AT THE PROJECT SITE
11. SPARE PARTS AND TOOLS
12. TESTS: OPERATION, PERFORMANCE AND CODE-REQUIRED TESTS
13. PROTECTION OF WORK AND ADJACENT SPACES DURING CONSTRUCTION
14. COORDINATION WITH OTHER TRADES
15. IDENTIFICATION: VALVE TAGS, VALVE TAG SCHEDULES, AND PIPING IDENTIFICATION

D. DRAWINGS ARE DIAGRAMATIC AND THEREFORE DO NOT RELIEVE THIS CONTRACTOR FROM PROVIDING ALL WORK AND EQUIPMENT NECESSARY TO COMPLETE THE INSTALLATION ACCORDING TO THE REQUIREMENTS.

E. THE ARRANGEMENT, POSITION, AND CONNECTION OF PIPES, DRAINS, VALVES, ETC., INDICATED ON THE DRAWINGS SHALL BE TAKEN AS A CLOSE APPROXIMATION, AND WHILE THEY SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE, THE RIGHT IS RESERVED BY THE OWNER TO CHANGE THE LOCATIONS TO ACCOMMODATE ANY CONDITIONS WHICH MAY ARISE DURING THE PROGRESS OF THE WORK, WITHOUT ADDITIONAL COMPENSATION TO THIS CONTRACTOR FOR SUCH CHANGES, PROVIDED THAT THE CHANGES ARE REQUESTED PRIOR TO THE INSTALLATION OF THIS CONTRACTOR'S WORK.

F. THE RESPONSIBILITY FOR ACCURATELY LAYING OUT THE WORK RESTS WITH THIS CONTRACTOR. SHOULD IT BE FOUND THAT ANY OF HIS WORK IS SO LAID OUT THAT INTERFERENCE WILL OCCUR, HE SHALL SO REPORT THAT TO THE OWNER.

1.04 CODES, PERMITS, AND INSPECTIONS:

A. INSTALL ALL WORK IN FULL ACCORDANCE WITH THE REQUIRMENTS OF ALL LOCAL AND GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION OVER THESE MATTERS, AS WELL AS WITH ANY REQUIREMENTS OF NFPA, UL, FM, BSA, MEA, ETC, AND OTHER APPLICABLE CODES.

B. SECURE AND PAY FOR ALL NECESSARY APPROVALS, PERMITS, INSPECTIONS, CARTING, LEGAL DUMPING, ETC., AND DELIVER THE OFFICIAL RECORDS OF THE GRANTING OF PERMITS TO THE ARCHITECT AND OWNER WITHOUT ANY ADDITIONAL COST TO THE OWNER.

C. PAY ALL FILING FEES TO OBTAIN RELEASE OF APROVED PLANS.

D. PAY ROYALTIES OR FEES REQUIRED IN CONNECTION WITH THE USE OF PATENTED DEVICES OR SYSTEMS, AND SAVE THE OWNER, THE ARCHITECT, THE CONSULTING ENGINEER, AND THE TENANT HARMLESS FROM ANY CLAIMS OR LAWSUITS ARISING FROM SUCH USE, AND INDEMNIFY EACH THEREOF AGAINST ATTRORNEYS' FEES IN CONNECTION THEREWITH.

E. PROVIDE ALL SIGNS REQUIRED BY THE MUNICIPAL AUTHORITIES.

1.05 TESTS:

A. PRIOR TO SUBMITTING AN APPLICATION FOR FINAL ACCEPTANCE OF THE WORK, ALL TESTS DEEMED NECESSARY TO SHOW PROPER EXECUTION OF THE WORK SHALL HAVE BEEN PERFORMED AND COMPLETED IN THE PRESENCE OF AN ARCHITECT'S / OWNER'S REPRESENTATIVE. SCHEDULING OF ALL TESTING PROCEDURES SHALL BE ARRANGED TO SUIT THE CONVENIENCE OF THE ARCHITECT AND/OR OWNER'S REPRESENTATIVE.

1.06 GUARANTEES AND CERTIFICATIONS:

A. ALL WORK SHALL BE GUARANTEED TO BE FREE FROM LEAKS OR DEFECTS. ANY DEFECTIVE MATERIALS OR WORKMANSHIP AS WELL AS DAMAGE TO THE WORK OF OTHER TRADES RESULTING FROM SAME SHALL BE REPLACED OR REPAIRED AS DIRECTED FOR THE DURATION OF STIPULATED GUARANTEE PERIODS. THE DURATION OF GUARANTEE PERIODS SHALL BE ONE YEAR FROM THE DATE OF THE FINAL ACCEPTANCE OF THE INSTALLATION BY THE OWNER, UNLESS A MORE STRINGENT PERIOD IS STIPULATED ELSEWHERE.

1.07 ENGINEER'S REVIEW, SHOP DRAWINGS, AND CERTIFICATIONS:

A. PREPARE AND SUBMIT DETAILED SHOP DRAWINGS. THE ENGINEER WILL REVIEW SHOP DRAWINGS AND SAMPLES FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND THE INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW OF SHOP DRAWINGS AND SAMPLES IS ONLY FOR THE CONVENIENCE OF THE OWNER IN FOLLOWING THE WORK AND DOES NOT RELIEVE THIS TRADE OF RESPONSIBILITY FOR DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW SHALL NOT BE CONSTRUED AS A COMPLETE OR DETAILED CHECK OF THE WORK SUBMITTED, NOR SHALL IT RELIEVE THIS TRADE OF RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS AND SAMPLES, OR FROM THE NECESSITY OF FURNISHING ANY WORK REQUIRED BY THE CONTRACT DOCUMENTS WHICH HAVE BEEN OMITTED FROM THE SHOP DRAWING SUBMITTALS.

B. NO PART OF THE WORK SHALL BE STARTED IN THE SHOP OR IN THE FIELD UNTIL THE ENGINEER HAS REVIEWED THE SHOP DRAWINGS AND SAMPLES FOR THAT PORTION OF THE WORK. THEREAFTER, THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE INDICATED STATUS OF THE REVIEWED SHOP DRAWINGS. PRIOR TO ASSEMBLING THE WORK, THE FOLLOWING SHALL BE SUBMITTED: SCALED FLOOR PLAN AND CEILING DRAWINGS WITH DIMENTIONED LOCATIONS OF ALL PIPING AND EQUIPMENT INCLUDING SIZES, ELEVATIONS, AND APPROPRIATE INDICATION OF COORDINATION BETWEEN STRUCTURAL AND MECHANICAL ELEMENTS. MANUFACTURER'S CATALOGUE CUTS OF ALL EQUIPMENT TO BE USED. SAMPLES OF ALL DEVICES, WHICH WILL BE CLEARLY VISIBLE TO VIEW. ALL SUBMITTALS SHALL BE PROPERLY IDENTIFIED WITH PROJECT NAME, ARCHITECT, ENGINEER, AND SUBCONTRACTOR'S NAME, ADDRESS, AND TELEPHONE NUMBER. PROVIDE CLEAR DETAILED REPRODUCABLE "AS-BUILT" DRAWINGS UPON COMPLETION OF WORK AND PROVIDE SETS OF THE SAME TO LANDLORD AS DIRECTED.

C. THE ARCHITECT AND/OR ENGINEER WILL REVIEW SHOP DRAWINGS AND SAMPLES WITH REASONABLE PROMPTNESS AND WILL RETURN THEM TO THE CONTRACTOR STAMPED TO INDICATE THE APPROPRIATE ACTION AS FOLLOWS:

1. "NO EXCEPTIONS TAKEN" MEANS THAT FABRICATION, MANUFACTURE OR CONSTRUCTION MAY PROCEED PROVIDING THE SUBMITTAL COMPLIES WITH THE CONTRACT DOCUMENTS.

2. "MAKE CORRECTIONS NOTED" MEANS THAT FABRICATION, MANUFACTURE OR CONSTRUCTION MAY PROCEED PROVIDING THE SUBMITTAL COMPLIES WITH THE ARCHITECT'S AND/OR ENGINEER'S NOTATIONS AND THE CONTRACT DOCUMENTS. A COPY OF THE CORRECTED SUBMITTAL SHALL BE RETURNED TO THE ARCHITECT AND/OR ENGINEER FOR RECORD. IF, FOR ANY REASON, THE CONTRACTOR CANNOT COMPLY WITH THE NOTATIONS, THE CONTRACTOR SHALL RESUBMIT AS DESCRIBED FOR SUBMITTALS STAMPED "REVISE AND RESUBMIT".

3. "REVISE AND RESUBMIT" MEANS THAT THE CONTRACTOR MUST COMPLY WITH THE ARCHITECT'S AND/OR ENGINEER'S NOTATIONS AND RESUBMIT BEFORE FABRICATION, MANUFACTURE OR CONSTRUCTION MAY PROCEED. SUBMITTALS STAMPED IN THIS MANNER ARE NOT PERMITTED ON THE JOB SITE.

4. "REJECTED" MEANS THAT THE SUBMITTAL DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS AND THAT FABRICATION, MANUFACTURER CONSTRUCTION SHALL NOT PROCEED. SUBMITTALS STAMPED IN THIS MANNER ARE NOT PERMITTED ON THE JOB SITE.

PLUMBING SPECIFICATIONS

1.01 GENERAL:
A. ALL PROVISIONS IN THE GENERAL SPECIFICATIONS ABOVE APPLY TO THE PLUMBING SPECIFICATIONS.

B. PROVIDE APPROVED BACKFLOW PREVENTION FOR CONNECTION TO NON-POTABLE FIXTURES AND EQUIPMENT AS REQUIRED BY CODE.

1.02 MATERIALS OF PIPING SYSTEMS:
A. WATER PIPING SHALL BE SEAMLESS DRAWN OR EXTRUDED TYPE "L" COPPER TUBING, HARD TEMPER IN ACCORDANCE WITH ATSM SPECIFICATION B-88. JOINTS SHALL BE WROUGHT OR CAST BRASS SOLDERED FITTINGS AS MADE BY AMERICAN BRASS CO., OR AS APPROVED, OF STANDARD DESIGN. SOLDER JOINTS SHALL BE MADE WITH 95-5 (TIN AND ANTIMONY) SOLDER. NO OTHER TYPE OF SOLDER IS TO BE USED FOR ANY PURPOSE ON THE PROJECT.
B. STORM DRAINAGE PIPING SHALL BE STAINLESS STEEL AND CONFORM TO THE FOLLOWING:
1. JOINTS BETWEEN LENGTHS OF S.S. PIPING SHALL BE THREADED, FLANGED, GROOVED OR WELDED AS SCHEDULED HEREIN BELOW OR ON THE CONSTRUCTION DOCUMENTS.
2. MAKE SCREWED JOINTS WITHOUT THE USE OF LAMPWICK OR FILLER, EXCEPT "UTILITY COMPOUND" OR PERMACEL TEFLON TAPE APPLIED TO MALE THREADS ONLY.
3. FITTINGS FOR USE WITH GROOVED STAINLESS STEEL PIPE (G.S.S.) SHALL BE CAST OR SEGMENTALLY WELDED, SCHEDULED TO MATCH THE PIPING MATERIAL THE FITTINGS WILL BE CONNECTED TO. FITTINGS SHALL MEET THE ASTM SPECIFICATION A312 AND/OR A778.
4. MECHANICAL COUPLINGS MAY BE USED IN LIEU OF THREADED STAINLESS STEEL FITTINGS.
5. MECHANICAL COUPLINGS SHALL CONSIST OF TWO (2) PIECES OF STAINLESS STEEL HOUSINGS WITH ANGLED PADS. COUPLING GASKETS SHALL BE AN EPDM SYNTHETIC RUBBER. COUPLING BOLTS AND NUTS SHALL BE HEAT-TREATED CARBON STEEL, TRACKHEAD DESIGN CONFORMING TO PHYSICAL PROPERTIES OF ASTM A-183. ALL MECHANICAL COUPLINGS FOR STAINLESS STEEL PIPE SHALL BE STYLE 489 AS MANUFACTURED BY VICTAULIC COMPANY OF AMERICA.
6. INSTALLATION OF MECHANICAL COUPLINGS SHALL BE PER MANUFACTURER'S LATEST RECOMMENDATIONS.
7. SUPPLY GROOVED FULL-FLOW STANDARD RADIUS FITTINGS WITH ROLL-GROOVED ENDS.

1.03 VALVES:
A. BALL VALVES SHALL BE ALL BRASS OR BRONZE CONSTRUCTION WITH REPLACEABLE TEFLON SEAT RING, TWO PIECE UNION OR THREE-PIECE BOLTED DESIGN AS SCHEDULED HEREIN.

B. THREADED VALVES USED IN BRAZED OR SOLDERED PIPING SYSTEMS SHALL BE FITTED WITH ADAPTERS. WHEN BRAZING, THREE-PIECE DESIGN SHALL BE USED AND REINFORCED TEFLON SEATS MUST BE REMOVED PRIOR TO BRAZING.

C. BALL VALVES SHALL BE TWO-PIECE TYPE WITH ADJUSTABLE STEM PACKING USING A THREADED PACKING NUT. VALVES SHALL PROVIDE POSITIVE SHUTOFF.

D. DRAIN VALVES (AT RISER HEELS AND LOW POINTS): BALL VALVES TO BE USED AS DRAIN VALVES AT ALL LOW POINTS IN WATER PIPING. PROVIDE A 3/4 IN. (19 MM) BALL VALVE WITH MALE THREADED NIPPLE FOR HOSE CONNECTION WITH 3/4 IN. (19 MM) HOSE CAP TO PROTECT HOSE THREADS AND CHAIN APOLLO 70LF-HC SERIES

1.04 INSULATION
A. ALL INSULATION SHALL BE DONE BY AN APPROVED SUBCONTRACTOR SPECIALIZING IN THIS TYPE OF WORK. INSULATION SHALL BE OWENS-CORNING FIBERGLAS, OR AS APPROVED.

B. ENDS OF PIPE INSULATION SHALL BE SEALED OFF AT THE VALVES, FITTINGS, FLANGES AND 21 FEET OF CONTINUOUS RUNS WITH BF 85-20 OR IC-225.
C. ALL VAPOR BARRIERS SHALL BE SEALED AND CONTINUOUS THROUGH HANGERS, SLEEVES, ETC.

D. WHERE MANUFACTURED, USE FACTORY PREMOLDED GLASS FIBER COVERS ON ALL FITTINGS AND VALVES. FOR HOT SERVICE APPLICATIONS, INSULATE FITTINGS WITH OC 100 INSULATING CEMENT TO A THICKNESS EQUAL TO THE ADJOINING INSULATION.

1.05 WATER PIPING CONSTRUCTION DETAILS
A. INSTALL APPROVED TYPE OF VACUUM BREAKERS AND/OR CHECK VALVES OR BACKFLOW PREVENTERS, AS HEREIN SPECIFIED, ON ALL EQUIPMENT AND FIXTURE CONNECTIONS REQUIRED BY CODE, INDICATED ON THE DRAWINGS, AS SPECIFIED, OR AS REQUIRED FOR THE PROPER FUNCTIONING OF THE EQUIPMENT.

1.06 CLEANING:
A. DURING CONSTRUCTION, PROPERLY CAP ALL LINES, SO AS TO PREVENT THE ENTRANCE OF SAND, DIRT, ETC. EACH SYSTEM OF PIPING SHALL BE BLOWN THROUGH AFTER COMPLETION (FOR THE PURPOSE OF REMOVING GRIT, DIRT, SAND, ETC., FROM COILS AND PIPING), FOR AS LONG A TIME AS REQUIRED TO THOROUGHLY CLEAN THE APPARATUS.

B. BEFORE FINAL ADJUSTMENTS ARE MADE AND BEFORE OPERATION OF EQUIPMENT, CLEAN AND REMOVE ALL ACCUMULATION OF DIRT, CHIPS OR OTHER DELETERIOUS MATERIAL. LEAVE ALL DOMESTIC WATER PIPING AND APPURTENANCES IN SUITABLE CONDITION, BEFORE FINAL ACCEPTANCE.
C. COVER AND PROTECT ALL OPENINGS LEFT IN FLOOR FOR PASSAGE OF PIPES. PROTECT PIPES WITH SUITABLE COVERINGS AS SOON AS SET. CLOSE ALL OPEN ENDS OF PIPES WITH A PLUG FITTING TO PREVENT OBSTRUCTION AND DAMAGE.

D. PROTECT THE SYSTEM AGAINST FREEZING IN COLD WEATHER.

E. THE CONTRACTOR SHALL FURNISH ALL REQUIRED PIPE CLEANING CHEMICALS, CHEMICAL FEED EQUIPMENT, MATERIALS, AND LABOR NECESSARY TO STERILIZE THE DOMESTIC WATER PIPING AS HEREIN SPECIFIED. IN ADDITION, THE CONTRACTOR SHALL PERMANENTLY INSTALL NECESSARY CHEMICAL INJECTION FITTINGS COMPLETE WITH STOP VALVES, ETC.

F. AFTER EACH HYDROSTATIC LEAK TESTING PROCEDURE IS COMPLETE, DRAIN THE SYSTEM UNTIL EMPTY. LIQUID FOR HYDROSTATIC TESTING OF DOMESTIC WATER SYSTEMS SHALL BE CLEAN DOMESTIC WATER FROM THE MUNICIPAL WATER SUPPLY.

G. ALL DOMESTIC WATER PIPING AND TANKS SHALL BE THOROUGHLY FLUSHED.

H. UPON COMPLETION OF THE FLUSHING OPERATION, SAMPLES SHALL BE TESTED BY A DEPARTMENT OF HEALTH RECOGNIZED LABORATORY. IF SAMPLES SHOW BACTERIAL CONTAMINATION, STERILIZE THE POTABLE WATER SYSTEM IN ACCORDANCE WITH THE NEW YORK CITY PLUMBING CODE, CHAPTER 6, SECTION PC610.

I. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR PERMIT THE USE OF ANY PORTION OF THE DOMESTIC WATER SYSTEM UNTIL IT HAS BEEN PROPERLY STERILIZED AND CERTIFIED SAME BY THE LOCAL WATER DEPARTMENT OR THE AUTHORITIES HAVING JURISDICTION.

J. J. A MINIMUM OF TWO (2) WEEKS' NOTICE SHALL BE GIVEN TO THE ENGINEER AND OWNER PRIOR TO TESTING AND STERILIZATION.

1.07 TESTS:
A. SUBJECT THE DRAINS, WASTE, TO A WATER TEST IN ACCORDANCE WITH ALL LOCAL REQUIREMENTS. THE SYSTEM SHALL BE TESTED TO A HYDROSTATIC PRESSURE EQUIVALENT TO AT LEAST A TEN FOOT OF HEAD OF WATER. AFTER FILLING, DISCONNECT WATER SUPPLY AND LET IT STAND FOR TWO HOURS UNDER TEST, DURING WHICH TIME THERE SHALL BE NO LOSS OR LEAKAGE.

B. TEST ALL INTERIOR WATER DISTRIBUTION SYSTEMS TO A PRESSURE OF AT LEAST 50 LBS. GAUGE HIGHER THAN THEIR NORMAL OPERATING STATIC PRESSURE; MINIMUM TEST 150 LBS. GAUGE. RUN TEST FOR TWO HOURS WITH NO LOSS IN PRESSURE.

C. FURNISH AND PAY FOR ALL DEVICES, MATERIALS, SUPPLIES AND LABOR REQUIRED IN CONNECTION WITH TESTS. MAKE ALL TESTS IN THE PRESENCE, AND TO THE SATISFACTION OF THE OWNER, ENGINEER, PLUMBING AND OTHER INSPECTORS OF THE AGENCIES HAVING JURISDICTION, AND ANY APPLICABLE INSURANCE ASSOCIATIONS AND PUBLIC UTILITIES. REPAIR, OR IF REQUIRED BY THE ENGINEER, REPLACE DEFECTIVE WORK WITH NEW WORK WITHOUT EXTRA CHARGE TO THE OWNER. REPEAT TESTS AS DIRECTED UNTIL ALL WORK IS PROVEN SATISFACTORY. RESTORE TO ITS ORIGINAL CONDITION ANY WORK DAMAGED OR DISTURBED BY TESTS, ENGAGING THE ORIGINAL TRADES TO DO THE RESTORATION WORK. NOTIFY THE OWNER, ENGINEER, AND INSPECTORS HAVING JURISDICTION AT LEAST 48 HOURS IN ADVANCE OF MAKING THE REQUIRED TESTS SO THAT ARRANGEMENTS MAY BE MADE FOR THEIR PRESENCE TO WITNESS THE SAME.

1.08 GENERAL INSTALLATION OF PIPE:
A. MAINTAIN A MINIMUM OF 1/8" FALL PER FOOT ON ALL DRAINAGE LINES 3" AND LARGER. MAINTAIN A MIN, 1/4" FALL PER FOOT ON ALL DRAINAGE LINES LESS THAN 3".

B. USE REDUCING FITTINGS, UNLESS OTHERWISE APPROVED IN SPECIAL CASES, IN MAKING REDUCTION IN SIZE OF PIPE. BUSHINGS WILL NOT BE ALLOWED UNLESS SPECIFICALLY APPROVED.

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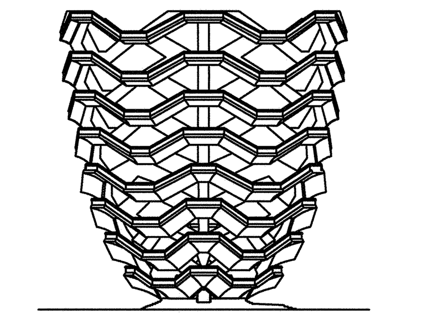

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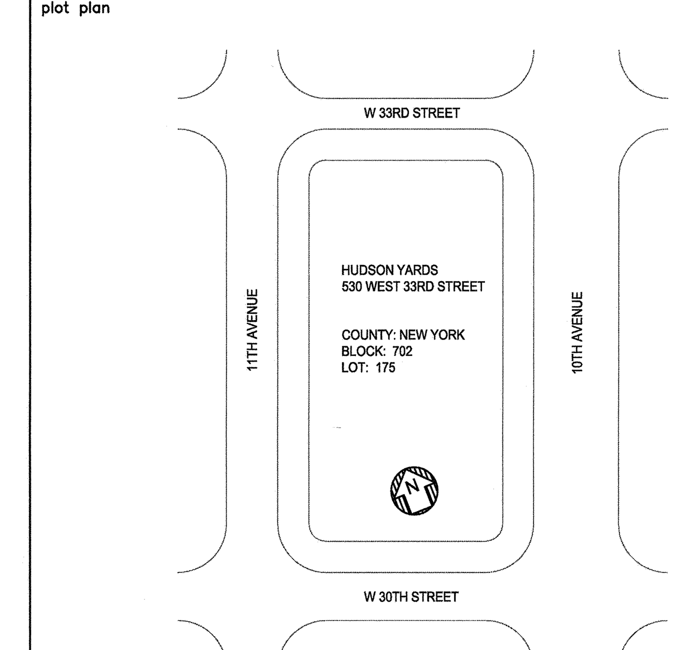
plot plan



HUDSON YARDS VESSEL

PLUMBING SCHEDULES AND SPECIFICATIONS

drawn by	scale	check by	
JA	N.T.S.	PP	P-401.00
date	project no.	rev	
5/06/16	14986	0	

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
Date: 12/07/2016
NYC Development Hub

seal
STATE OF NEW YORK
ANTHONY M. ARBORE
NO. 062531-1
LICENSED PROFESSIONAL ENGINEER