

2016 BUILD SAFE
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Cranes, Hoists and Elevators

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NYC
Buildings

American Institute of Architects Continuing Education System

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.



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Course Description

During this course participants will learn about various types of Cranes, how they are designed, set up, inspected and utilized on the job site.

Additionally, attendees will learn safety requirements for installing, using, operating and removing Cranes to avoid potential safety hazards.

Furthermore, attendees will learn about safety and code issues arising from Hoist and elevator installation under the NYC building code.



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Learning Objectives

At the end of the this course:

1. Participants will be familiarized with the different types of cranes, and will be able to describe their distinctive functions.
2. Participants will examine the requirements for cranes, and apply these provisions to design installations and inspections.
3. Participants will review examples of cranes safety hazards to identify potential safety issues, strategies for prevention and will review rules for cranes in order to mitigate risk.
4. Participants will review and be able to describe new rules and regulations for hoists and elevators.



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Types of Cranes: Tower Cranes



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Types of Cranes: Tower Cranes



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Types of Cranes: Tower Cranes



Types of Cranes: Crawler Cranes



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Types of Cranes: Mobile Cranes



Derrick



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Pile Driver



Certificate of Approval aka Prototype – CD1

- Manuals
- Brochures
- Load Rating Charts
- Maintenance Checklists
- Inspection Checklists
- List of Components
- Counterweight Tables
- Tables of Allowable Installation and Use
- Manufacturer Contact Info
- ISO Certificate



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CD1: Crane/Derrick/Pile Driver Prototype Application

Print Form

NYC Buildings CD1: Crane / Derrick / Pile Driver Prototype Application
Application must be type written.

1 Application Information *Required for all applications:*

New Amendment Prototype Number: Invoice Number: Fee Paid: \$

2 Equipment Information (Maximum Configuration) *Required for all applications:*

Mobile Crane Tower Crane Self-Erecting Tower Crane Dedicated Pile Driver Derrick (Type: _____)

Manufacturer: _____ Model: _____

Maximum Rated Capacity: _____ Capacity Units: Tons Kips Pounds

Boom: _____ ft Jib: _____ ft Other Attachments _____ ft Total _____ ft

Freestanding Height: _____ ft Counterweight Configuration: Min: _____ lbs Max: _____ lbs

Transmission Type	Power	Mast Sections	Climbing Type	Boom Type
<input type="checkbox"/> Hydraulic / Pneumatic	<input type="checkbox"/> Gas	Mast Section Depth _____ ft <input type="checkbox"/> Internal <input type="checkbox"/> Articulating <input type="checkbox"/> Lattice	<input type="checkbox"/> External <input type="checkbox"/> Luffing <input type="checkbox"/> Telescoping	
<input type="checkbox"/> Mechanical	<input type="checkbox"/> Diesel	Mast Section Width _____ ft	<input type="checkbox"/> Self-Erecting	
<input type="checkbox"/> Electric		Mast Section Height _____ ft		

Carrier Type Overall Carrier Cable Size

Crawler Rough Terrain Length _____ ft Width _____ ft 1 _____ 2 _____

Industrial Truck All Terrain Width With Outriggers Extended _____ ft 3 _____ 4 _____

Commercial Truck (Boom Truck) Tailswing _____ ft Number of Drums: _____

3 Engineer Information *Required for all applications. On Behalf Of: Owner Manufacturer*

Last Name _____ First Name _____ Business Telephone _____
Business Name _____ Business Fax _____
Business Address _____ Mobile Telephone _____
City _____ State _____ Zip _____ Country _____
E-Mail _____ License Number (if applicable) _____

4 Manufacturer *Required for all applications:*

Last Name _____ First Name _____ Title _____
Business Name _____ Mobile Telephone _____
Business Address _____ Business Telephone _____
City _____ State _____ Zip _____ Business Fax _____
E-Mail _____ Country _____

5 Owner Information *Only for new application filed by the Owner:*

Last Name _____ First Name _____ Title _____
Business Name _____ Mobile Telephone _____
Business Address _____ Business Telephone _____
City _____ State _____ Zip _____ Business Fax _____
E-Mail _____ Country _____

6 Prototype Test Information *Only for mobile and tower cranes that require prototype testing:*

The prototype test was conducted in accordance with:

SAE J1083-1993 EN 13000-2004
 SAE J887-2003 EN 14459-2006

CD1 12/16

CD1 Prototype Number: _____ PAGE 2

8 Prototype Test Information continued

Prototype Test Witness *Only where SAE testing is conducted:*

Last Name _____ First Name _____ Middle Initial _____
Business Name _____ Business Telephone _____
Business Address _____ Business Fax _____
City _____ State _____ Zip _____ Mobile Telephone _____
E-Mail _____ License Number (if applicable) _____

7 Standards *Required for all applications:*

The device is designed and constructed to, and the supplied manuals and load rating charts are in accordance with:

Standard	Year	Standard	Year
<input type="checkbox"/> ASME	_____	<input type="checkbox"/> EN	_____
<input type="checkbox"/> Other	_____	<input type="checkbox"/> Other	_____

9 Attachments *Required for all applications:*

Yes	No	Yes	No	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10 Statement and Signatures *Required for all applications:*

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 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.

Manufacturer's Statement **Test Witness' Statement**

As an authorized representative of the manufacturer of the subject crane, derrick, or pile driver, I certify: (1) that the information submitted by the manufacturer as part of this application is correct to the best of my knowledge; (2) that safety bulletins and recall notices will be provided by the manufacturer to the Department in accordance 1 RCNY §3319-01 (d)(6) and; (3) the manufacturer possesses an ISO 9001 certification, or an equivalent international certification, in accordance with 1 RCNY §3319-01 (e)(4).

I certify that the tests specified in Section 6 above were performed in accordance with 1 RCNY §3319-01 (e)(3) and the standard identified in Section 6 above. In addition, the above information is correct to the best of my knowledge.

Signature: _____ Date: _____ Signature: _____ Date: _____

Engineer's Statement

I certify: (1) that the information submitted as part of this application is correct to the best of my knowledge; (2) that the subject crane, derrick or pile driver is designed and constructed to, and the supplied manuals and load rating charts are in accordance with 1 RCNY §3319-01 and the standard identified in Section 7 above; (3) (when prototype testing is required) the crane, in all configurations for which approval is sought, successfully passed the prototype test identified in Section 6 above and; (4) (for a tower crane, other than a self-erecting tower crane) the attached Tables of Allowable Installation and Use are in accordance with 1 RCNY §3319-01 (g)(1), (ii) and ASCE 7-2005.

Signature: _____ Date: _____

STAMP

Internal Use Only

Examiner Name: _____ Date Received: _____
Examiner Signature: _____ Date: _____

CD1-12/16



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CD1-OA: Crane/Derrick/Pile Driver Owner's Prototype Amendment Application

NYC Buildings CD1-OA: Crane / Derrick / Pile Driver Owner's Prototype Amendment Application *Application must be approved.*

1 Application Information Required for all applications.

Amendment Prototype Number: Invoice Number: Fee Paid: \$

2 Equipment Information (Maximum Configuration) Required for all applications.

Mobile Crane Tower Crane Self-Erecting Tower Crane Dedicated Pile Driver Derrick (Type: _____)

Manufacturer: _____ Model: _____

Maximum: Rated Capacity: _____ Capacity Units: Tons Kips Pounds

Boom: _____ ft Job: _____ ft Other Attachments: _____ ft Total: _____ ft

Free-standing Height: _____ ft (On the height (C/height): Min: _____ ft Max: _____ ft)

Transmission Type	Power	Mast Sections	Climbing Type	Boom Type
<input type="checkbox"/> Hydraulic / Hydraulic	<input type="checkbox"/> Gas	Mast Section Depth: _____ ft	<input type="checkbox"/> Internal	<input type="checkbox"/> Lattice
<input type="checkbox"/> Mechanical	<input type="checkbox"/> Diesel	Mast Section Width: _____ ft	<input type="checkbox"/> External	<input type="checkbox"/> Telescoping
	<input type="checkbox"/> Electric	Mast Section Height: _____ ft	<input type="checkbox"/> Self-Erecting	

Carrier Type: _____ Overall Carrier: _____ Cable Size: _____

Crawler Rough Terrain Length: _____ ft Width: _____ ft 1: _____ 2: _____

Industrial Truck All Terrain Width (With Outriggers Extended): _____ ft 3: _____ 4: _____

Commercial Truck (Boom Truck) Tailswing: _____ ft Number of Drums: _____

3 Engineer Information Required for all applications. On Behalf Of: Owner

Last Name: _____ First Name: _____ Business Telephone: _____

Business Name: _____ Business Fax: _____

Business Address: _____ Mobile Telephone: _____

City: _____ State: _____ Zip: _____ County: _____

E-Mail: _____ License Number (if applicable): _____

4 Manufacturer Required for all applications. Manufacturer no longer in business Manufacturer did not reject amendment request

Last Name: _____ First Name: _____ Title: _____

Business Name: _____ Mobile Telephone: _____

Business Address: _____ Business Telephone: _____

City: _____ State: _____ Zip: _____ Business Fax: _____

E-Mail: _____ County: _____

5 Owner Information Required for all applications.

Last Name: _____ First Name: _____ Title: _____

Business Name: _____ Mobile Telephone: _____

Business Address: _____ Business Telephone: _____

City: _____ State: _____ Zip: _____ Business Fax: _____

E-Mail: _____ County: _____

6 Prototype Test Information Only for mobile and tower cranes that require prototype testing.

The prototype test was conducted in accordance with:

SAE J1063—1993 EN 13000—2004

SAE J387—2003 EN 14439—2005

CD1 1215

CD1-OA Prototype Number: _____ PAGE 2

6 Prototype Test Information continued

Prototype Test With: Only where SAE testing is conducted.

Last Name	First Name	Mobile In Mail
Business Name	Business Telephone	
Business Address	Business Fax	
City	State	Zip
		Mobile Telephone
E-Mail		License Number (if applicable)

7 Standards Required for all applications.

The device is designed and constructed to, and the supplied main rail and load attachment are in accordance with:

ASME	Standard	Year	EN	Standard	Year	Other	Standard	Year
<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>		

8 Attachments Required for all applications.

Yes	No	Yes	No	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9 Statement and Signatures Required for all applications.

For most of any crane with a modification and is payable by the or implementor or both. If it is not payable to a city employee, or for a city employee to accept, any fee must be monthly or other fee, as a gratuity to properly performing the job or exchange for special consideration. Violation is payable by implementor or the both.

Owner's Statement **Traffic Officer's Statement**

As an authorized representative of the owner of the subject crane, derrick, or pile driver, I certify: (1) that the information furnished by the owner as part of this application is correct to the best of my knowledge; and (2) the owner will comply with the provisions of the amendment described herein, including but not limited to testing, as applicable, all cranes, derricks, or pile drivers owned by such owner during the amendment period with revised load rating charts and diagrams, as well as plates, tags, and decals as necessary to accord with the specifications of this amendment.

Signature: _____ Date: _____ Signature: _____ Date: _____

Engineer's Statement

I certify: (1) that the information furnished as part of this application is correct to the best of my knowledge; (2) that the manufacturer's original safety factor of the equipment is not exceeded by the amendment; (3) that the derrick, crane, derrick or pile driver is designed and constructed to, and the supplied main rail and load rating charts are in accordance with 1 RCNY § 3319-01 and the standard identified in Section 7 above; (4) where prototype testing is required by the code, in all configurations the crane, derrick or pile driver, as shown by the prototype test identified in Section 6 above; (5) that a tower crane, other than a self-erecting tower crane, is attached to a loadable installation and use are in accordance with 1 RCNY § 3319-01(d)(4) and sub E-2005; and, (6) I approve the modification(s) specified in this amendment.

P.E. Seal (apply seal, then sign and date over seal)

Signature: _____ Date: _____

Internal Use Only

Exam File Name: _____ Date Received: _____

Exam File Signature: _____ Date: _____ CD11215



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Certificate of Approval aka Prototype – CD1

Prototype amendment can be filed by

- A. The manufacturer.
- B. On behalf of the equipment owner by NYS PE provided:
 - The manufacturer is no longer in business; or
 - The equipment owner has submitted to the manufacturer a detailed description of the proposed amendment, and has asked the manufacturer to request the amendment, but:
 1. The manufacturer has not rejected the request. A rejection must be in the form of a written explanation from the manufacturer that rejects the request and explains the reasons for the rejection; and
 2. The manufacturer declines to review the request; or
 3. The manufacturer, within 30 days of the request, fails to acknowledge the request or initiate a review of the request; or
 4. The manufacturer acknowledges the request or begins a review of the request, but, within 120 days of the request, fails to submit an amendment to the department.



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Certificate of Approval aka Prototype – CD1

Manufacturer supplements to the certificate of approval.

- Manual updates
- Updates to inspection and maintenance checklists
- Contact information updates
- Jobsite specific wind analysis for tower cranes
- Safety bulletins and recall notices
- ISO certification



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Certificate of Approval aka Prototype – CD1

- **Current certificate of approval holders:** Any crane or derrick that conforms with a previously issued, currently valid certificate of approval need not apply for a new certificate of approval.
- **De-Rating:** Load rating charts and amendments to load rating charts submitted on or after January 1, 2016 may not be de-rated to circumvent licensing provisions or to meet exemptions contained within 3319-01 or within the New York City Construction Codes.
- **Suspension or revocation of a certificate of approval:** The department may suspend or revoke a certificate of approval in accordance with Section 28-105.10 of the New York City Administrative Code.



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Prototype Design Standards

- **Mobile cranes:** ASME B30.5 (2004, 2007, 2011, or 2014 editions), or EN 13000 (2004, 2010, or 2014 editions).
- **Tower cranes:** ASME B30.3 (2004, 2009, or 2012 editions), or EN 14439 (2006 or 2009 editions).
- **Derricks:** ASME B30.6 (2003 or 2010 editions).
- **Articulating boom crane:** ASME B30.22 (2005 or 2010 editions).
- **Self-erecting tower crane:** ASME B30.29 (2012 edition), or EN 14439 (2009 edition).
- **Dedicated pile drivers:** EN 996 (2009 or 2014 editions).
- **Equivalent standards:** For any type of crane or derrick, such other standard as the commissioner deems equivalent to the ASME or EN standards listed above.



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Certificate of Operation aka CD-2, CD, TCAO

	Crane / Derrick / Mobile Work Platform Approval and Operation Application / Certificate <small>Please File 2 Copies Application Must Be Typewritten</small>		For Internal Use Only CD Number 4321 Date Received 3/25/15 Fee Paid \$1,000 Invoice No. 12345678	
	1. Application Type <input checked="" type="checkbox"/> Original <input type="checkbox"/> Renewal <input type="checkbox"/> Change Equipment Type: <input checked="" type="checkbox"/> Mobile Crane <input type="checkbox"/> Fix / Climber Tower Crane <input type="checkbox"/> Derrick <input type="checkbox"/> Work Platform		2 CD Number 4321	
3. Applicant Send correspondence to: <input type="checkbox"/> Applicant <input checked="" type="checkbox"/> Owner Name: BARNEY RUBBLE Title: PRESIDENT E-mail: INFO@BRCRANES.COM Company: BR CRANES INC. Address: 1234 MAIN STREET City: ANYWHERE State: NY Zip: 12345 Telephone: 212-555-0001 Fax: 212-555-1234			Owner Name: BARNEY RUBBLE Title: PRESIDENT E-mail: INFO@BRCRANES.COM Company: BR CRANES INC. Address: 1234 MAIN STREET City: ANYWHERE State: NY Zip: 12345 Telephone: 212-555-0001 Fax: 212-555-1234	
4. Crane / Derrick / Work Platform Information				
Prototype No.: P-603 Manufacturer: ACME Model: GR-1000XL-2 Model Year: 2014 Serial Number: 123456		Drums Number of Drums: 2 No. Wire Rope Size 1 3/4 in. 2 3/4 in. 3 in. 4 in.		Work Platform Information Platform Type: <input type="checkbox"/> Single Mast <input type="checkbox"/> Twin Mast <input type="checkbox"/> Free Standing Platforms I.D.'s:
Transmission <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Mechanical		Power <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Diesel <input type="checkbox"/> Electric		Capacity:
5. Tower / Boom / Jib Section Information				
Maximum Configuration: Tower Crane: Tower: Boom: Jib: Total: Lift Crane: Boom: Jib: Total:				
Tower/Mast Section I.D. <input type="checkbox"/> Latticed <input type="checkbox"/> Solid		Boom Section I.D. X 1234G1-23', 1234G2-34' Jib / Sill / Leg Section I.D. X		
6. Equipment Dimension				
Overall Carrier Length 47' 1" ft Width 10' 10" ft		Tower / Mast Property Tower/Mast Depth ft Tower/Mast Width ft Tower/Mast Height ft		Derrick Information Type <input type="checkbox"/> Chicago Boom <input type="checkbox"/> Guy Derrick <input type="checkbox"/> Gin Pole <input type="checkbox"/> Stiffleg Derrick
7. Statement and Signatures				
<small>* The Owner certifies that he will comply with the requirements of § 15.0 of Reference Standards RS 19-2 of the Building Code regarding "Inspection Required by Owner for Cranes & Derricks." * Falsification of any statement is a misdemeanor under § 26-124 of the Administrative Code and is punishable by a fine or imprisonment, or both. * Falsification of any statement is a misdemeanor under § 26-124 of the Administrative Code and is punishable by a fine of imprisonment, or both.</small>				
Applicant's Signature: <i>[Signature]</i> Date: 3-20-2015		Owner's Signature: <i>[Signature]</i> Date: 3-20-2015		
For Internal Use Only		T TEMPORARY CERTIFICATE OF APPROVAL C TEMPORARY CERTIFICATE OF OPERATION A THIS CERTIFICATE SHALL BE KEPT ON MACHINE AT ALL TIMES 4hr		TCAO Issued For: 15416+5815= 212 Total <input type="checkbox"/> This Site Only Expiration Date: 6/25/15 75 Date: 3/25/15
Issued by: JD Date: 1234		Approved by Cranes & Derricks: <i>[Signature]</i> Authorized Signature Date: 3/25/15		



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Certificate of Operation aka CD-2, CD, TCAO

For Internal Use Only		TCAO Issued For:	
Not Approved unless stamped		<input type="checkbox"/> This Site Only	
		Expiration Date	
Issued by:	Date	Approved by Cranes & Derricks	Authorized Signature
			Date

Site Address If Site Specific (points to the main form area)


Maximum Configuration (points to the "This Site Only" checkbox)

Expiration Date (points to the "Expiration Date" field)



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Certificate of Operation: CD-3

	Crane Approval and Operation Application Certificate <small>For truck cranes with telescopic, hydraulic or folding booms, over 90 feet and not more than 136 feet with a maximum capacity of 3 tons or less. Please File 2 Copies Application Must Be Typewritten</small>	For Internal Use Only CD Number: 4321												
		Date Received: 3/25/15 Fee Paid: \$200 Invoice No: 24688642												
1. Application Type Original <input type="checkbox"/> Renewal <input checked="" type="checkbox"/> Change <input type="checkbox"/> Boom / Jib Type: <input checked="" type="checkbox"/> Telescopic <input type="checkbox"/> Laced <input type="checkbox"/> Folding		2 CD Number 4321												
3. Applicant Send correspondence to: <input checked="" type="checkbox"/> Applicant <input type="checkbox"/> Owner		Owner												
Name: BARNEY RUBBLE Title: PRESIDENT Company: BR CRANES INC. Address: 1234 MAIN STREET City: ANYWHERE State: NY Zip: 12345 Telephone: 212-555-0001 Fax: 212-555-1234		Name: BARNEY RUBBLE Title: PRESIDENT Company: BR CRANES INC. Address: 1234 MAIN STREET City: ANYWHERE State: NY Zip: 12345 Telephone: 212-555-0001 Fax: 212-555-1234												
4. Crane Information		Carrier Information												
Manufacturer: INTERSTATE Model: G8SR-MHA HI-REACH Model Year: 2007 Serial Number: FS-3899		Drums: Length 30 ft Number of Drums: 8 Wire Rope Size: 3/8 in. Width with Outriggers Extended: 18' ft Overall Weight: 15,000 lb Make & Model of Carrier: BICOASTAL 5200												
<table border="1"> <thead> <tr> <th>Transmission</th> <th>Power</th> <th>No.</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Hydraulic</td> <td>Gas</td> <td>2</td> </tr> <tr> <td><input type="checkbox"/> Mechanical</td> <td><input checked="" type="checkbox"/> Diesel</td> <td>3</td> </tr> <tr> <td></td> <td>Electric</td> <td>4</td> </tr> </tbody> </table>		Transmission	Power	No.	<input checked="" type="checkbox"/> Hydraulic	Gas	2	<input type="checkbox"/> Mechanical	<input checked="" type="checkbox"/> Diesel	3		Electric	4	
Transmission	Power	No.												
<input checked="" type="checkbox"/> Hydraulic	Gas	2												
<input type="checkbox"/> Mechanical	<input checked="" type="checkbox"/> Diesel	3												
	Electric	4												
5. Boom / Jib Section Information Maximum Configuration: Boom 85 ft Jib: 0 ft Total: 85 ft Boom Section I.D. _____ Jib Section I.D. _____		How is boom extended? <input type="checkbox"/> Cable extension <input checked="" type="checkbox"/> Hydraulic piston <input type="checkbox"/> Manually extended & pinned												
6. Statement and Signatures <small>* The Owner certifies that he will comply with the requirements of Section 15.0 of Reference Standards RS 19-2 of the Building Code regarding "Inspection Required by Owner for Cranes & Derricks." * Falsification of any statement is a misdemeanor under section 26-124 of the Administrative Code and is punishable by a fine or imprisonment, or both. Delivery is of crime. A person who gives or offers a bribe to any employee of the City of New York or an employee who takes or solicits a bribe, is guilty of a felony punishable by imprisonment or both.</small>														
Applicant's Signature: _____ Date: 3-20-2015		Owner's Signature: _____ Date: 3-20-2015												
For Internal Use Only		TCO Issued For: 85' TEL Boom Total Expiration Date: 3/1/16 Issued by: RS Date: _____												
<div style="border: 1px solid black; padding: 5px; text-align: center;"> T TEMPORARY CERTIFICATE OF APPROVAL C TEMPORARY CERTIFICATE OF OPERATION A O <small>THIS CERTIFICATE SHALL BE KEPT ON MACHINE AT ALL TIMES.</small> </div>														
<div style="text-align: center; color: red; font-weight: bold; font-size: 1.2em;"> NO CERT. OF ON-SITE INSP. REQ'D. REF. 27-1057 [(a) (3)] </div>														
Approved by Cranes & Derricks: JD 1234		Authorized Signature: John Doe Date: 3/25/15												



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Certificate of Operation: CD-3

- Mobile cranes, including jibs and any other extensions, exceeding 50 feet but not exceeding 135 feet in length, and with a manufacturer's rated capacity of 3 tons or less.

For Internal Use Only		
Not Approved unless stamped	TCO Issued For:	
	Expiration Date	
	Issued by:	Date
Approved by Cranes & Derricks	Authorized Signature	Date



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Certificate of On-site Inspection

CN - CD-4

CD4: Tower & Mobile Crane / Derrick / Mast Climber / Pile Driver
On-Site Inspection Application / Certificate
File 4 copies of Application must be typewritten

CN Number: **CN#0012/34**

1A Application Type

New Renewal Amendment

1B Equipment Type

Mobile Crane Mobile Tower Crane Fix / Climber Tower Crane Derrick Mast Climber Pile Driver

2 Location Information

Borough **BROOKLYN** Block **350** Lot **56**
Address **180 LIVINGSTON STREET** Job Number **421151656**

3A Crane / Derrick / Mast Climber / Pile Driver Information

	CD Number	Serial Number	Expiration Date
1	1234	F012-3456	7/24/15
2	5678	F078-9123	10/16/15
3	5023	F042-2693	9/16/15
4			
5			
6			

3B Configuration / Phase Information

	Mast (ft)	Boom (ft)	Jib (ft)	Total (ft)
1	N/A	221	72	293
2	N/A	221	72	293
3	N/A	221	72	293
4	N/A			
5	N/A			
6	N/A			

4 Applicant Information

Name **WILLIAM C. NOONAN** E-Mail **BSAFE@cityengineers.com**
Title **P.E.** Lic # **000000**
Business Name **CITY ENGINEERS, P.C.**
Address **3333 BUILDING DRIVE**
City **YOUR CITY** State **NY** Zip **07759**
Phone **212-555-4444** Fax **212-555-5555**

5 Equipment User Information

Name **DERRICK CRANE** E-Mail **dcrane@mywayrigs.com**
Title **PROJECT MANAGER**
Company **MY-WAY RIGGING, INC.**
Address **1664 HARNESS DRIVE**
City **BOOMTOWN** State **NY** Zip **11119**
Phone **212-555-1800** Fax **212-555-1801**

6 Statement and Signature

I, the undersigned, hereby certify that the tower & mobile crane / derrick / mast climber / pile driver at the above mentioned site conforms with approved plans, and that the applicant is a duly licensed Professional Engineer or duly licensed Professional Designer, and that the applicant is duly licensed under the provisions of this code or a rule of any agency. I may be barred from filing further applications or documents with the Department of Buildings.

6A Applicant's Statement

The applicant, the person authorized to be in charge of the installation, operation, or maintenance of the tower & mobile crane / derrick / mast climber / pile driver at the above mentioned site, hereby makes and certifies for the use of the tower & mobile crane / derrick / mast climber / pile driver at the above mentioned site in accordance with the approved plans and specifications.

Name (please print) _____ Date **4/27/15**
Signature _____
Seal (apply seal, show sign and date over seal)

6B Equipment User's Statement

I hereby certify that the above equipment will only be used until a valid On-Site Inspection is obtained.

Signature _____ Date **4/27/15**

6C Crane Safety Coordinator's Statement

As a Professional Engineer or a person having at least five years of construction experience, I hereby certify that I will act as the designated safety coordinator and shall be responsible for the control of pedestrian and vehicular traffic within the designated work areas. I will also supervise compliance with this On-site Inspection Certificate and its drawings.

Name **JOHN SAFETY** License Number _____
Address **1664 HARNESS DRIVE**
City **BOOMTOWN** State **NY** Zip **11120**
Phone **212-555-1111** Fax **212-555-1112**
Signature _____ Date **4-27-15**

6D Mast Climber Supervisor's Statement

I am a Professional Engineer or an experienced person qualified for the installation, dismantling, operation and maintenance of the equipment listed in section 3A above. I am aware that this equipment shall not be used as a personnel or material hoist. I will supervise the mast climber installation and operation for this project in accordance with NYC approved drawings, Manufacturer's recommendations and all applicable Federal, State and City laws, rules and regulations.

Name _____ License Number _____
Address _____
City _____ State _____ Zip _____
Phone **APR 00 2015**
Signature **APPROVED** Date _____
THE CITY OF NEW YORK
DEPARTMENT OF BUILDINGS
BUREAU OF CRANES AND DERRICKS
Additional Information: _____

Internal Use Only

Date Received 1/30/15	Invoice/Receipt Number	Inspector's Name (please print)	Fee Paid \$500
Examiner's Name (please print)	(Issuance) Date	Signature	Date
Signature	Expiration date 04/00/16	Signature	Date

12/14



Certificate of On-site Inspection CN - CD-4

3A Crane / Derrick / Mast Climber / Pile Driver Information			
	CD Number	Serial Number	Expiration Date
1			
2			
3			
4			
5			
6			

Internal Use Only			
Date Received	Invoice/Receipt Number	Fee Paid	
Examiner's Name (please print)		Inspector's Name (please print)	
Signature	(Issuance) Date	Signature	Date
Expiration date		Badge Number	



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CD-8 Form



CD8: Technical Report: Statement of Responsibility
File 2 copies / Application must be typewritten

CN Number: **CN#0012/34**

1 Filing Status

Identification of Responsibilities Certification of Completed Inspections / Tests Withdrawal of Responsibility Directive 14 Inspection Request

2 Location Information

House No(s) 180 Street Name LIVINGSTON STREET
Borough BROOKLYN Block 350 Lot 56 BIN 5038192 Job Number 421151656

3 Applicant Information

Last Name NOONAN First Name WILLIAM M.I. C.
Business Name CITY ENGINEERS, P.C. PE License # 000000
Address 3333 BUILDING DRIVE
City YOUR CITY State NY Zip 07759
Phone 212-555-4444 Fax 212-555-5555 E-mail BSAFE@cityengineers.com

4 Crane Information This application can only be used for ONE crane

CD Number	Manufacturer	Model	Boom Length	Jib Length	Total
1234	WAIST-KING	F012-3456	221	72	293
5678	WAIST-KING	F078-9123	221	72	293
5023	WAIST-KING	F042-2693	221	72	293

5 Applicant's Statement

Falsification of any statement is a misdemeanor under 28-211 of the Administrative Code 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 made a false statement or 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.

5A Applicant's Statement of Responsibility (10F)

As a licensed Professional Engineer representing the owner or contractor, I hereby state that I designed the foundation for the above crane(s) and will be on-site to inspect the said equipment and support before the commencement of work. All inspection and test reports will be signed by me and filed with the Department promptly.

Name _____
Signature _____ Date _____

Seal (apply seal, then sign and date over seal)

Note: 1) If the field condition or actual setup differs from approved plans and the structural integrity of the foundation cannot be readily proven in the field, applicant may not sign off 10E until amendment on the alternate founding design is first submitted to and approved by Cranes & Derricks Division.
2) For other minor deviations to approved plans, applicants may amend founding design in the field and leave 10E on site. The amended setup must be submitted with 10E to the Cranes and Derricks Division

5B Applicant's Statement of Crane Foundation Inspection (10E)

As a licensed Professional Engineer representing the owner or contractor, I hereby state that I have completed the foundation inspection on 220E NEW and found that it conforms with all approved drawings (see notes). I also found no hazardous condition existed within the scope of the examination.

CD# used _____
Amendment Submitted? Yes No
Name _____
Signature _____ Date 4/27/15

Seal (apply seal, then sign and date over seal)



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Certificate of On-site Inspection

CN - CD-8

4 Crane Information <i>This application can only be used for ONE crane</i>					
CD Number	Manufacturer	Model	Boom Length	Jib Length	Total

5 Applicant's Statement

Falsification of any statement is a misdemeanor under 28-211 of the Administrative Code 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 made a false statement or 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.

5A Applicant's Statement of Responsibility (10F)

As a licensed Professional Engineer representing the owner or contractor, I hereby state that I designed the foundation for the above crane(s) and will be on-site to inspect the said equipment and support before the commencement of work. All inspection and test reports will be signed by me and filed with the Department promptly.

Name _____
 Signature _____ Date _____

Seal (apply seal, then sign and date over seal)

5B Applicant's Statement of Crane Foundation Inspection (10E)

As a licensed Professional Engineer representing the owner or contractor, I hereby state that I have completed the foundation inspection on _____ and found that it conforms with all approved drawings (see note). I also found no hazardous condition existed within the scope of this examination.

CD# used _____
 Amendment Submitted? Yes No
 Name _____
 Signature _____ Date _____

Seal (apply seal, then sign and date over seal)

Note: 1) If the field condition or actual setup differs from approved plans and the structural integrity of the foundation cannot be readily proven in the field, applicant may not sign off 10E until amendment on the alternate founding design is first submitted to and approved by Cranes & Derricks Division.
 2) For other minor deviations to approved plans, applicants may amend founding design in the field and leave 10E on site. The amended setup must be submitted with 10E to the Cranes and Derricks Division



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Certificate of On-site Inspection

CN - CD-4

- **DOB Inspection**
 - Tower cranes
 - Derricks
 - Mobile cranes over 250 feet
- **Engineer Inspection**
 - Mobile cranes up to 250 feet



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CONFERENCE

Certificate of On-site Inspection CN - CD-4

7. Statement and Signatures			
<ul style="list-style-type: none"> • The Owner certifies that he will comply with the requirements of § 15.0 of Reference Standards RS 19-2 of the Building Code regarding "Inspection Required by Owner for Cranes & Derricks." • Falsification of any statement is a misdemeanor under § 26-124 of the Administrative Code and is punishable by a fine or imprisonment, or both. • Falsification of any statement is a misdemeanor under § 26-124 of the Administrative Code and is punishable by a fine or imprisonment, or both. 			
Applicant's Signature <i>[Signature]</i>	Date 1/29/13	Owner's Signature <i>[Signature]</i>	Date 1-29-13
For Internal Use Only		CAO Issued For: $104' B + 32' S = 136' T$	
<div style="border: 2px solid red; padding: 5px; display: inline-block;"> T C A O TEMPORARY CERTIFICATE OF APPROVAL TEMPORARY CERTIFICATE OF OPERATION THIS CERTIFICATE SHALL BE KEPT ON MACHINE AT ALL TIMES </div>		<input type="checkbox"/> This Site Only Expiration Date 1/15/13 PG	
Issued by: <i>(FD)</i>	Date 2272	Approved by Cranes & Derricks <i>[Signature]</i>	Authorized Signature <i>[Signature]</i> Date 1/29/13



2016

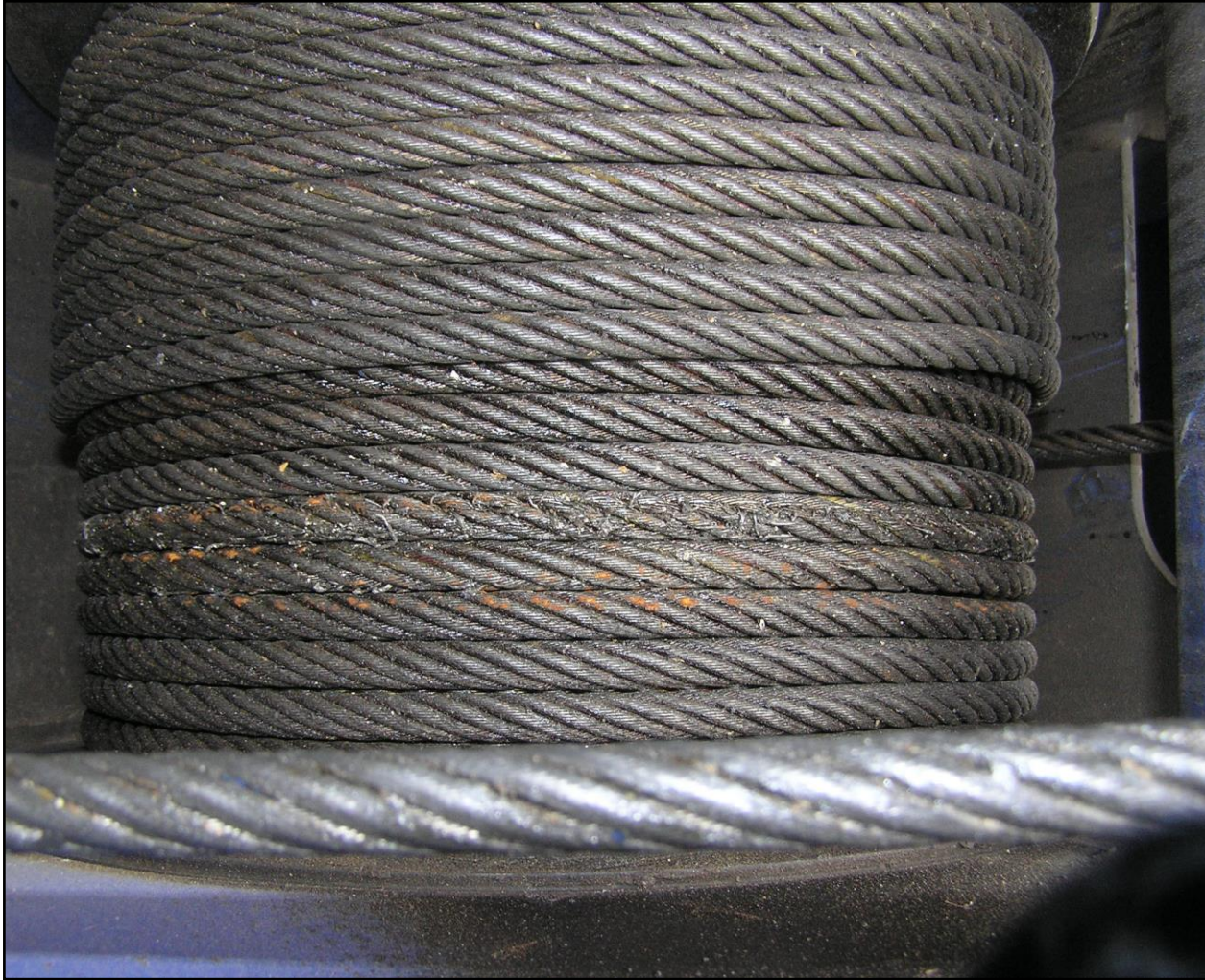
BUILD SAFE
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Cranes Safety Hazards



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CONFERENCE

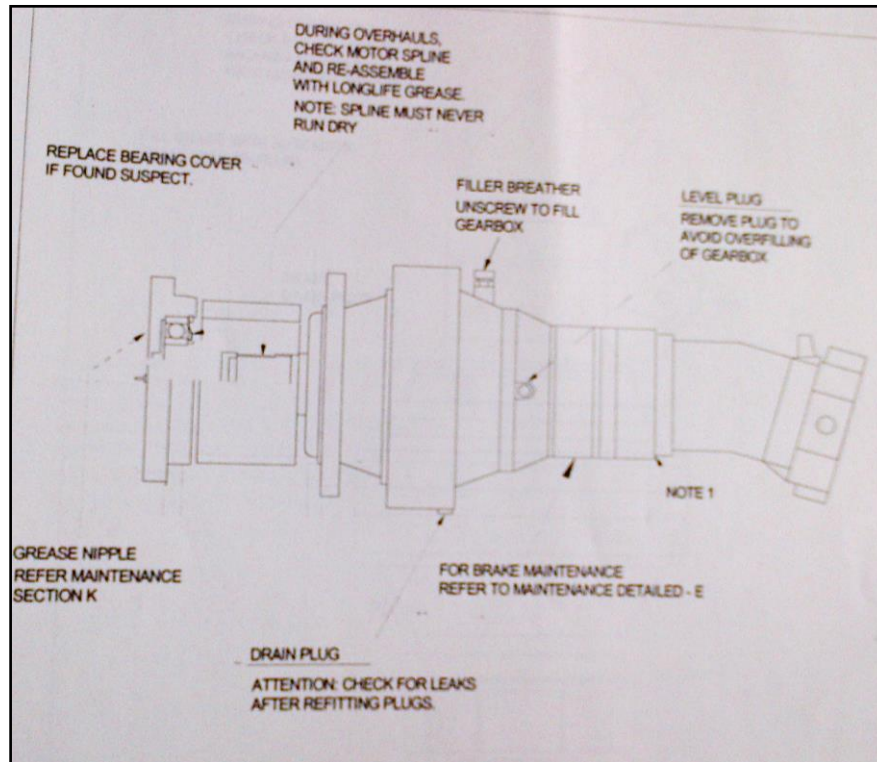
Damaged Wire Rope



Failed Pinion Spline



Pinion Spline Manual



Spline must be greased
Spline is never allowed to run dry

Insufficient Clearance



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CONFERENCE

Cranes Safety Hazards



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Loose Bolt



Improper Set-up



Improper Set-up



Improper Set-up



Cranes Risk Mitigation



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Crane Risk Mitigation

Certificate of On-site Inspection - CN- CD-4

A plan examiner reviews the plans submitted by the applicant for compliance with Code.

- **Technical checks**
 - Scope of work
 - Transit Authority structures
 - Utility vaults reflected on drawings
 - Any existing sheeting or retaining walls
 - Allowable bearing pressure on a road, sidewalk or soils
- **Drawings additionally checked for:**
 - Signed and sealed
 - Site plan gives outline of building, cellars and setbacks
 - Location/width of streets, sidewalks, traffic lanes, sidewalk bridges, designated DOT barriers and flagmen



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Crane Risk Mitigation

Certificate of On-site Inspection - CN- CD-4 (continued)

- Adjacent buildings noted
 - Location of crane and distance from face of building under construction noted
 - Roof protection and swing plan
 - Reeving information (number of parts & cable size)
- **Further details include**
- Maximum pick (weight of load)
 - Maximum radius
 - Maximum wind speeds and securing methods
 - Maximum configuration of crane
 - Boom length and angle
 - Jib length and angle
 - Outrigger spread



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Crane Risk Mitigation

Certificate of On-site Inspection - CN - CD-4 (continued)

Plan Review – Tower Cranes

- Technical Review of
 - Location and method of tie-ins
 - Tie-in calculations
 - Concrete slab of particular floor
 - Column or beam
 - Foundation of the crane



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Certificate of On-Site Inspection

Load Tests

- For a tower crane and for a derrick, the application must be accompanied by procedures for the load test.
- The pick zones for the load test must also be indicated.
- Procedures must be in accordance with the manufacturer's specifications
 - For a tower crane: ASME B30.3 (2012 edition) Section 3-1.7.
 - For a self-erecting tower crane, ASME B30.29 (2012 edition) Section 29-1.1.3.
 - For a derrick, ASME B30.6 (2015 edition) Section 6-2.2.2.



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Certificate of On-Site Inspection

Tower Crane Anchor Stool and First Mast Section

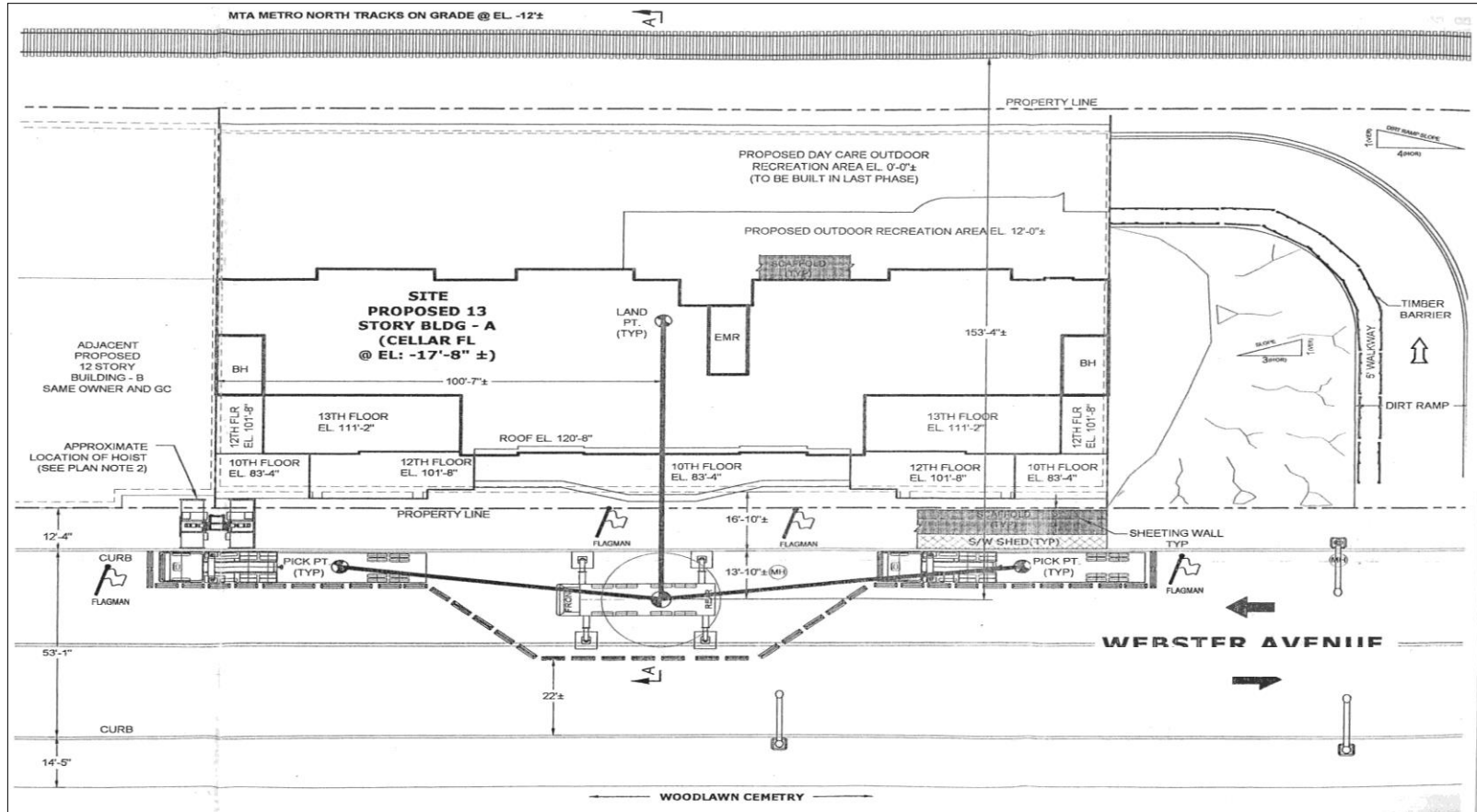
The anchor stool and first mast section of a tower crane, may be installed when foundation application is accepted, provided:

- The anchor stool and first mast section are indicated on the foundation plans filed and accepted.
- An unassembled inspection report for the anchor stool and first mast section is accepted by the department prior to their installation.
- A survey report, attesting that the anchor stool and first mast section, as installed, is plumb, is submitted as part of the crane notice application.



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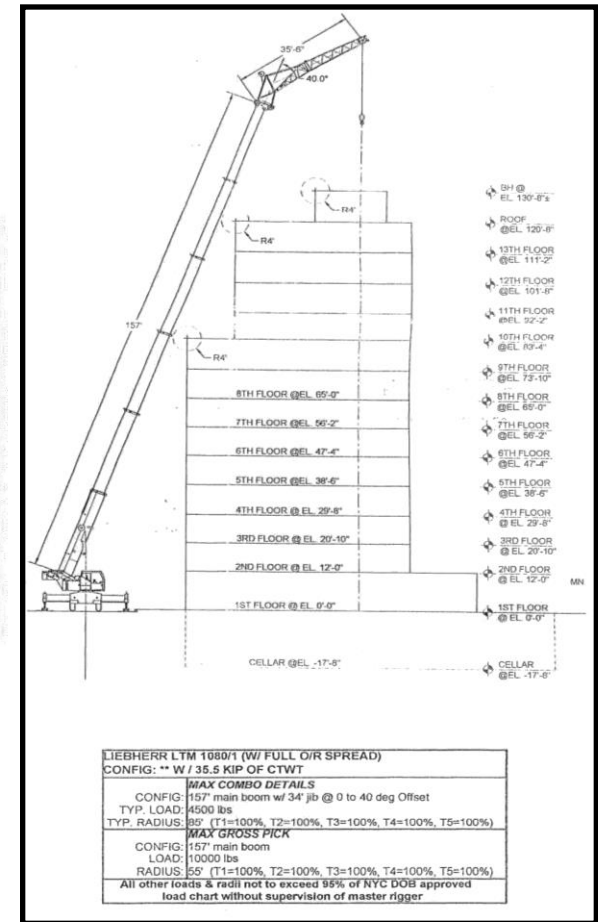
Crane Risk Mitigation



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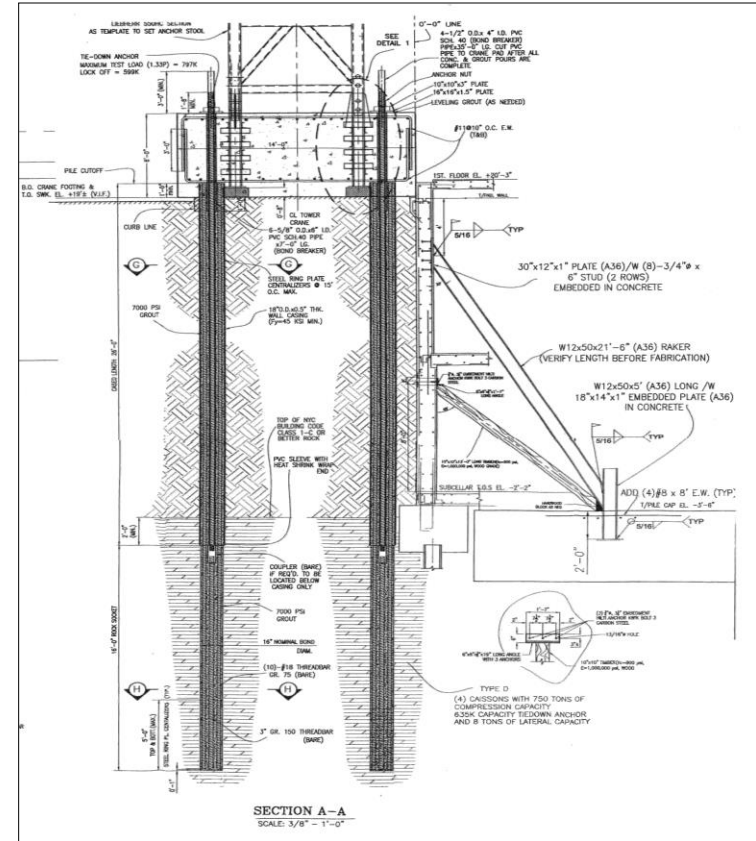
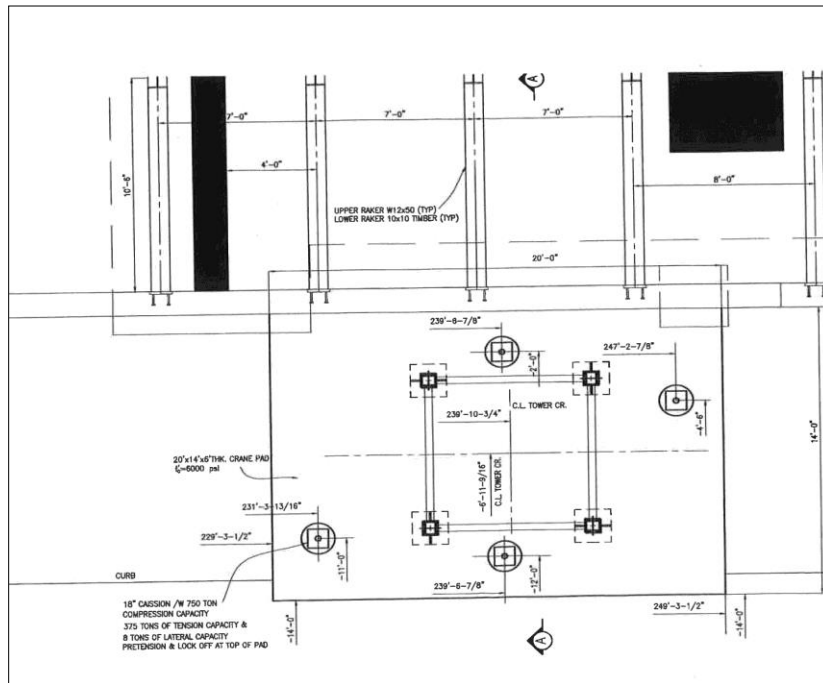
Crane Risk Mitigation

LIEBHERR LTM 1080/1 (W/ FULL O/R SPREAD)	
CONFIG: ** W / 35.5 KIP OF CTWT	
	MAX COMBO DETAILS
CONFIG:	157' main boom w/ 34' jib @ 0 to 40 deg Offset
TYP. LOAD:	4500 lbs
TYP. RADIUS:	85' (T1=100%, T2=100%, T3=100%, T4=100%, T5=100%)
	MAX GROSS PICK
CONFIG:	157' main boom
LOAD:	10000 lbs
RADIUS:	55' (T1=100%, T2=100%, T3=100%, T4=100%, T5=100%)
All other loads & radii not to exceed 95% of NYC DOB approved load chart without supervision of master rigger	



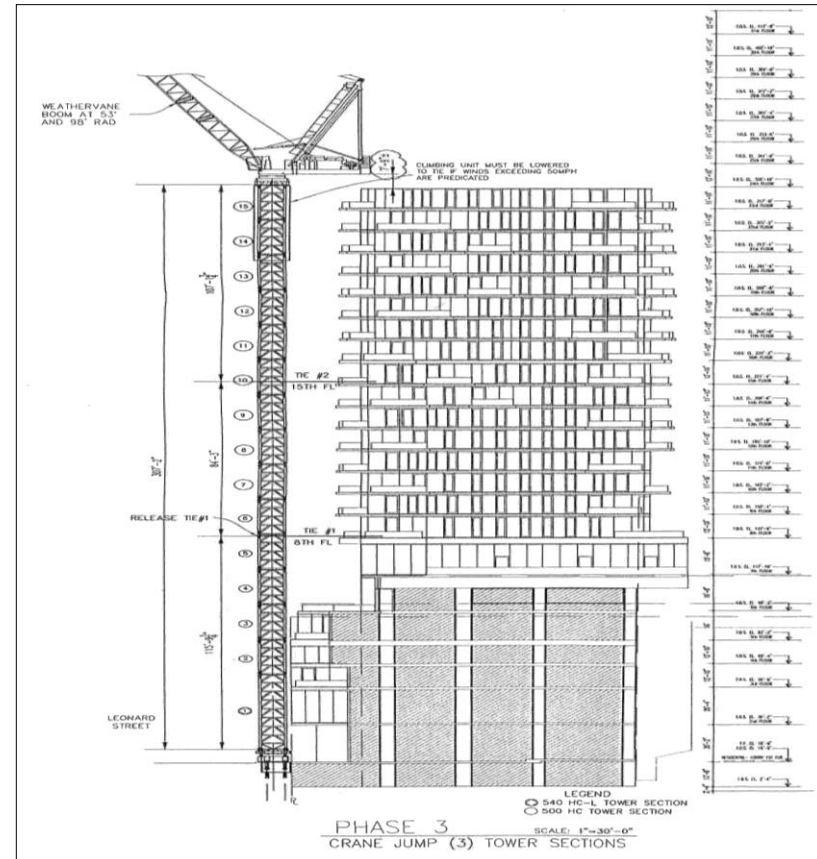
**2016 BUILD SAFE
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CONFERENCE**

Crane Risk Mitigation

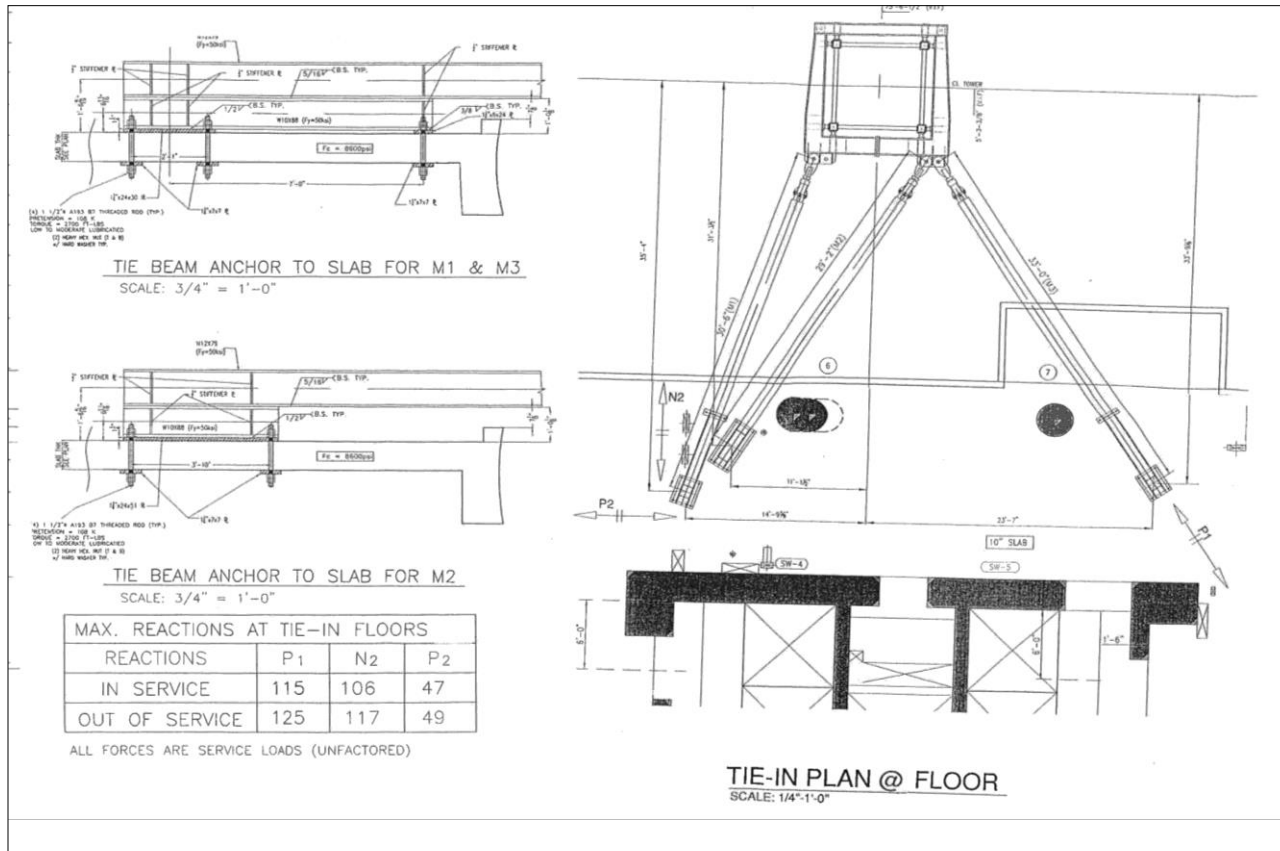


Crane Risk Mitigation

- Tower Crane Design
- Tie-in Phases



Crane Risk Mitigation



Tower Crane Design- Tie-in Connections



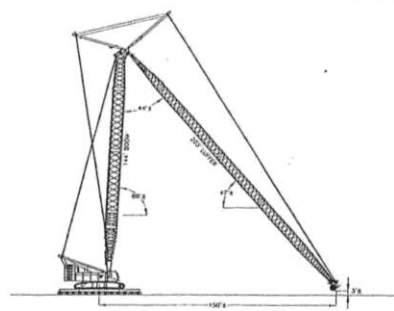
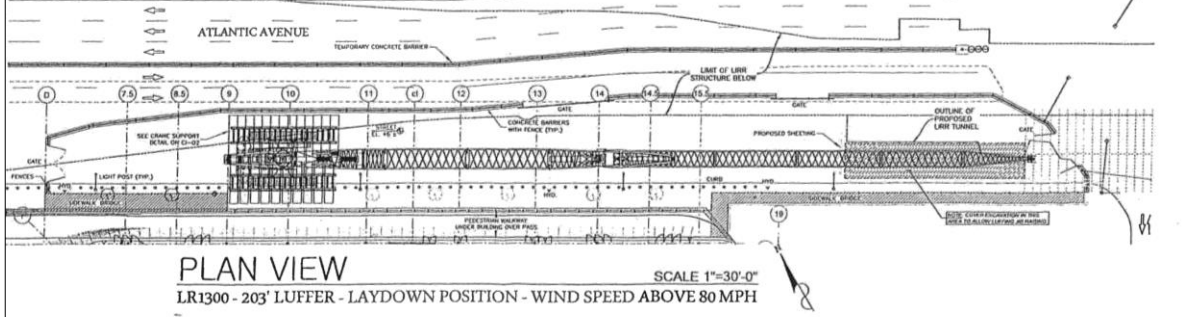
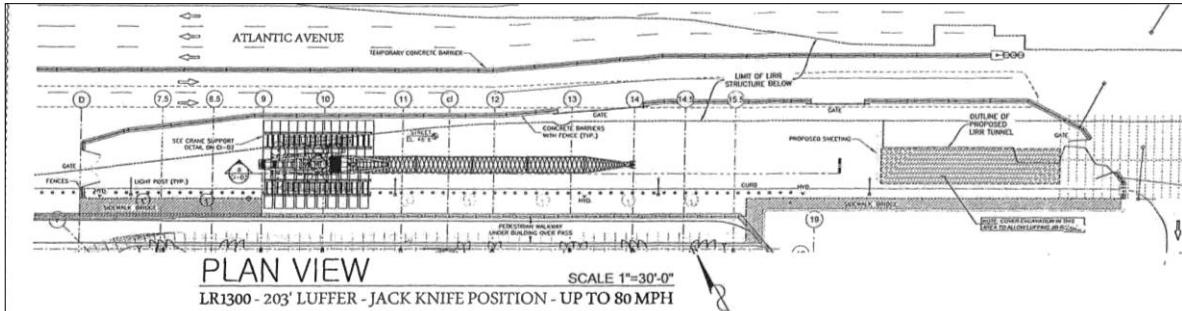
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CONFERENCE

Action Plan



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CONFERENCE

Action Plan



WIND REQUIREMENTS

WIND SPEED (mph)	203' LUFFER REDUCTION BY %	
	15	0
20	10	
25	20	
30	40	
35	70	
Above 35	OPERATION PROHIBITED	

LR1300 - 203' LUFFER
 - Up to 48mph - Park crane (upper in line with crawlers) with load blocks and weight balls on ground or secured and position boom at 80deg and luffing jib at 66 to 70deg.
 - Up to 80mph - Jack knife boom and luffing jib as shown on CI-03.
 - Above 80mph - Lay boom & jib down as shown on CI-03.

NOTE:
 Additional requirements apply, refer to manufacturer data for operation and parking, where manufacturer requirements are more stringent, than those in the above table and notes, manufacturer requirements shall govern.



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Action Plan

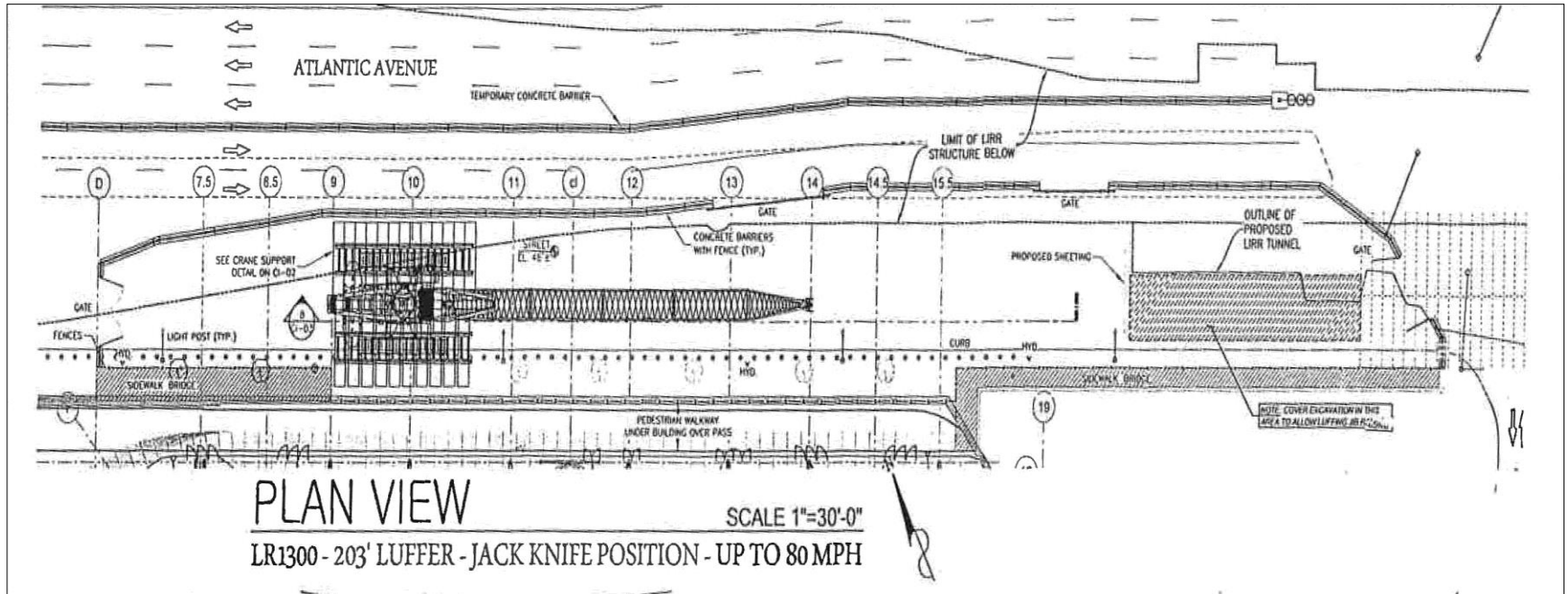
WIND REQUIREMENTS		
WIND SPEED (mph)	203' LUFFER REDUCTION BY %	
	15	0
20	10	
25	20	
30	40	
35	70	
Above 35	OPERATION PROHIBITED	

LR1300 - 203' LUFFER

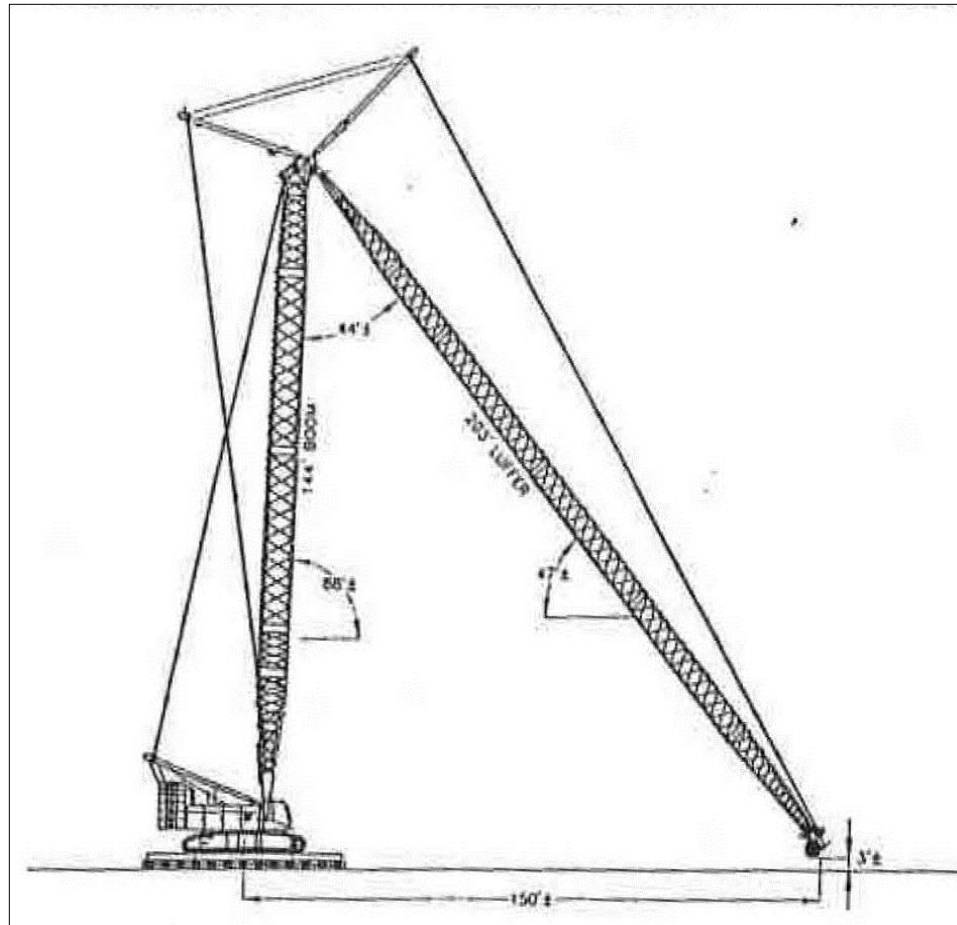
- Up to 49mph - Park crane (upper in line with crawlers) with load blocks and weight balls on ground or secured and position boom at 80deg and luffing jib at 66 to 70deg.
- Up to 80mph - Jack knife boom and luffing jib as shown on CI-03.
- Above 80mph - Lay boom & jib down as shown on CI-03.

NOTE:
Additional requirements apply, refer to manufacturer data for operations and parking, where manufacturer requirements are more stringent, than those in the above table and notes, manufacturer requirements shall govern.

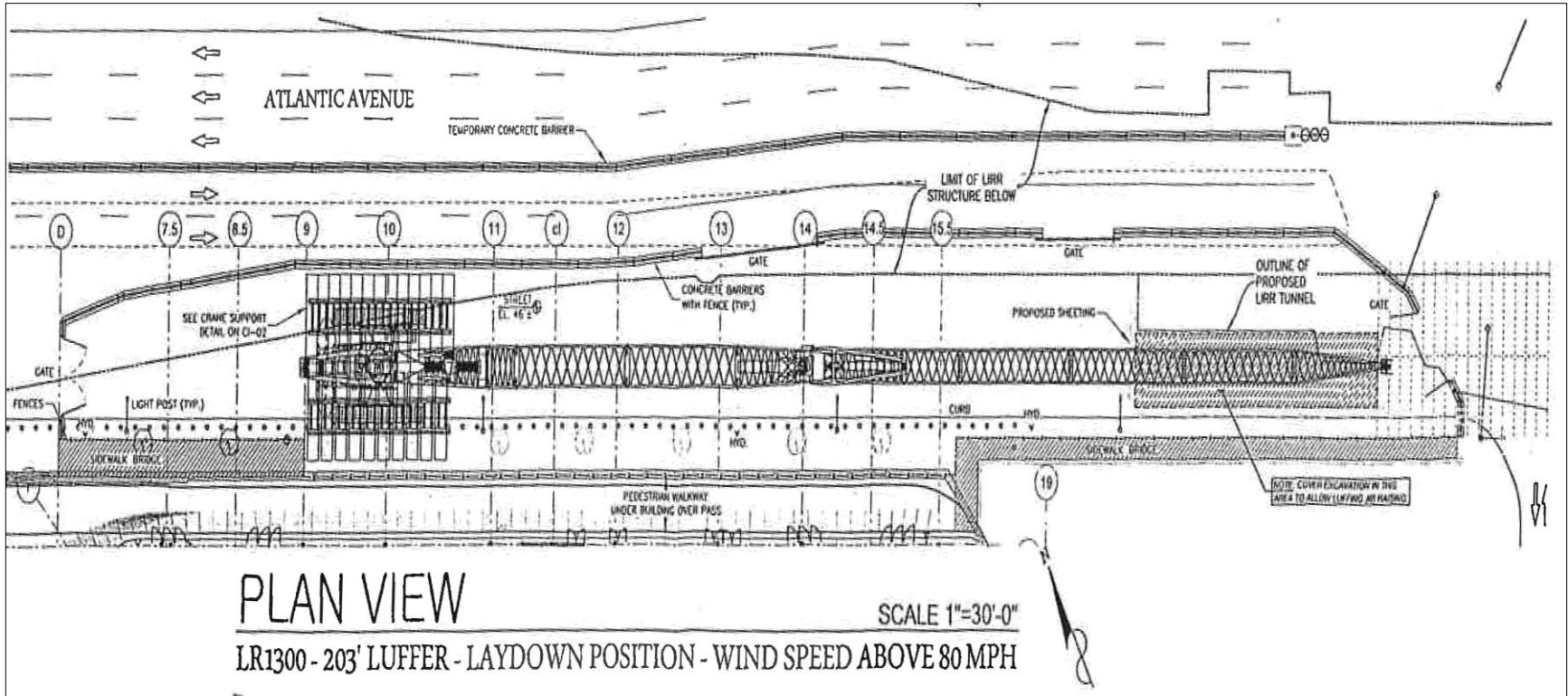
Action Plan



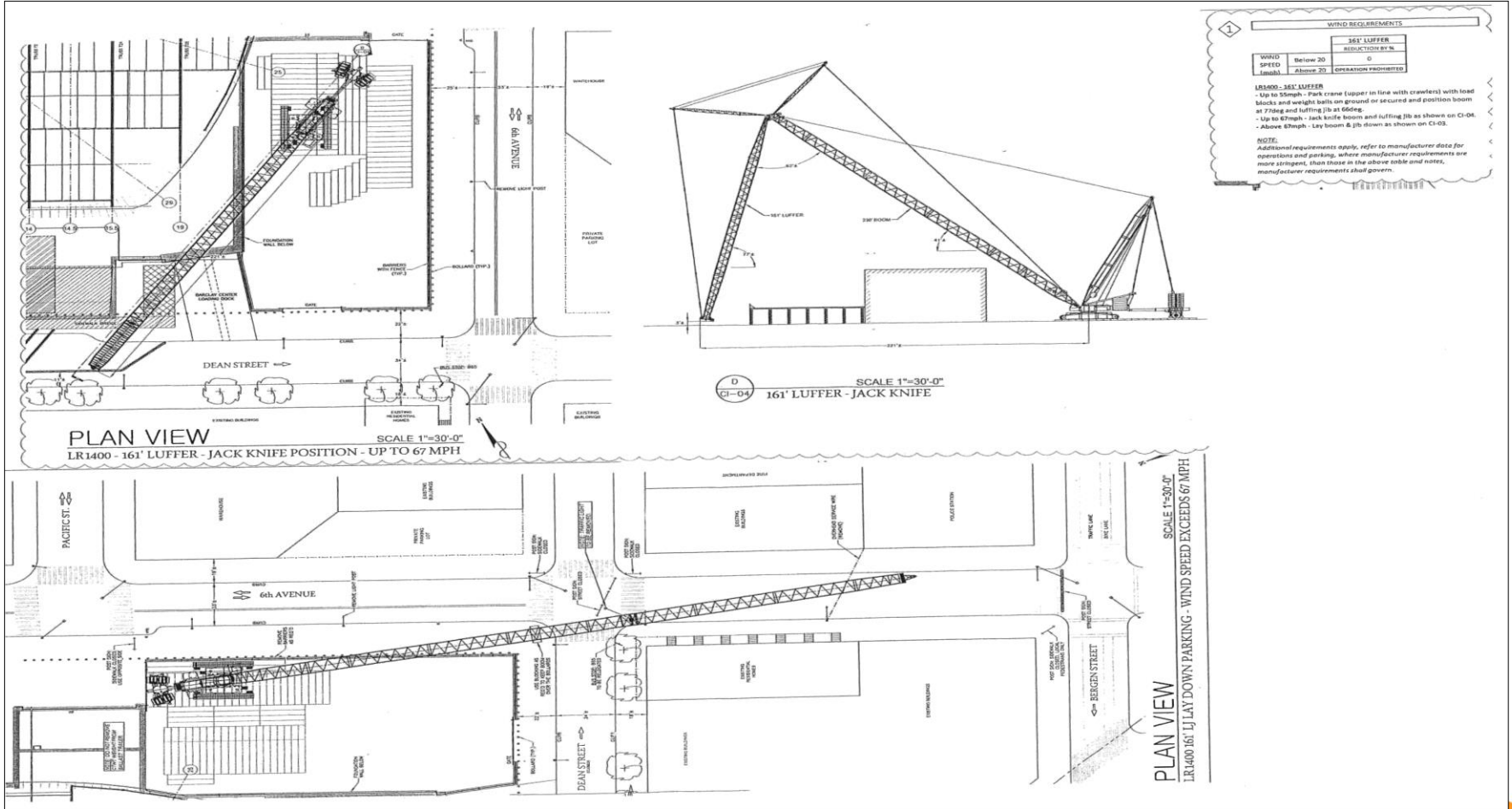
Action Plan



Action Plan



Action Plan



**2016 BUILD SAFE
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Action Plan

1

WIND REQUIREMENTS

		161' LUFFER	
		REDUCTION BY %	
WIND SPEED (mph)	Below 20	0	
	Above 20	OPERATION PROHIBITED	

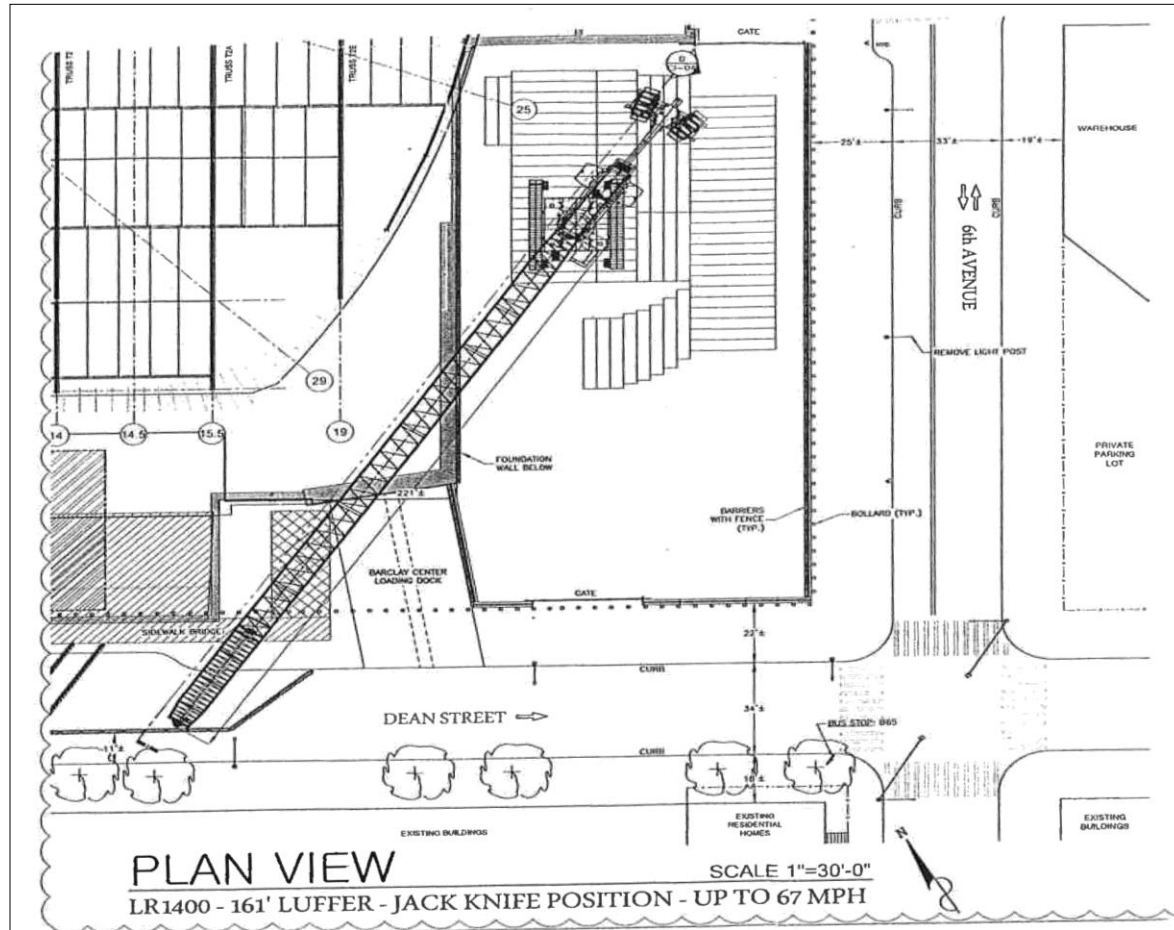
LR1400 - 161' LUFFER

- Up to 55mph - Park crane (upper in line with crawlers) with load blocks and weight balls on ground or secured and position boom at 77deg and luffing jib at 66deg.
- Up to 67mph - Jack knife boom and luffing jib as shown on CI-04.
- Above 67mph - Lay boom & jib down as shown on CI-03.

NOTE:
Additional requirements apply, refer to manufacturer data for operations and parking, where manufacturer requirements are more stringent, than those in the above table and notes, manufacturer requirements shall govern.

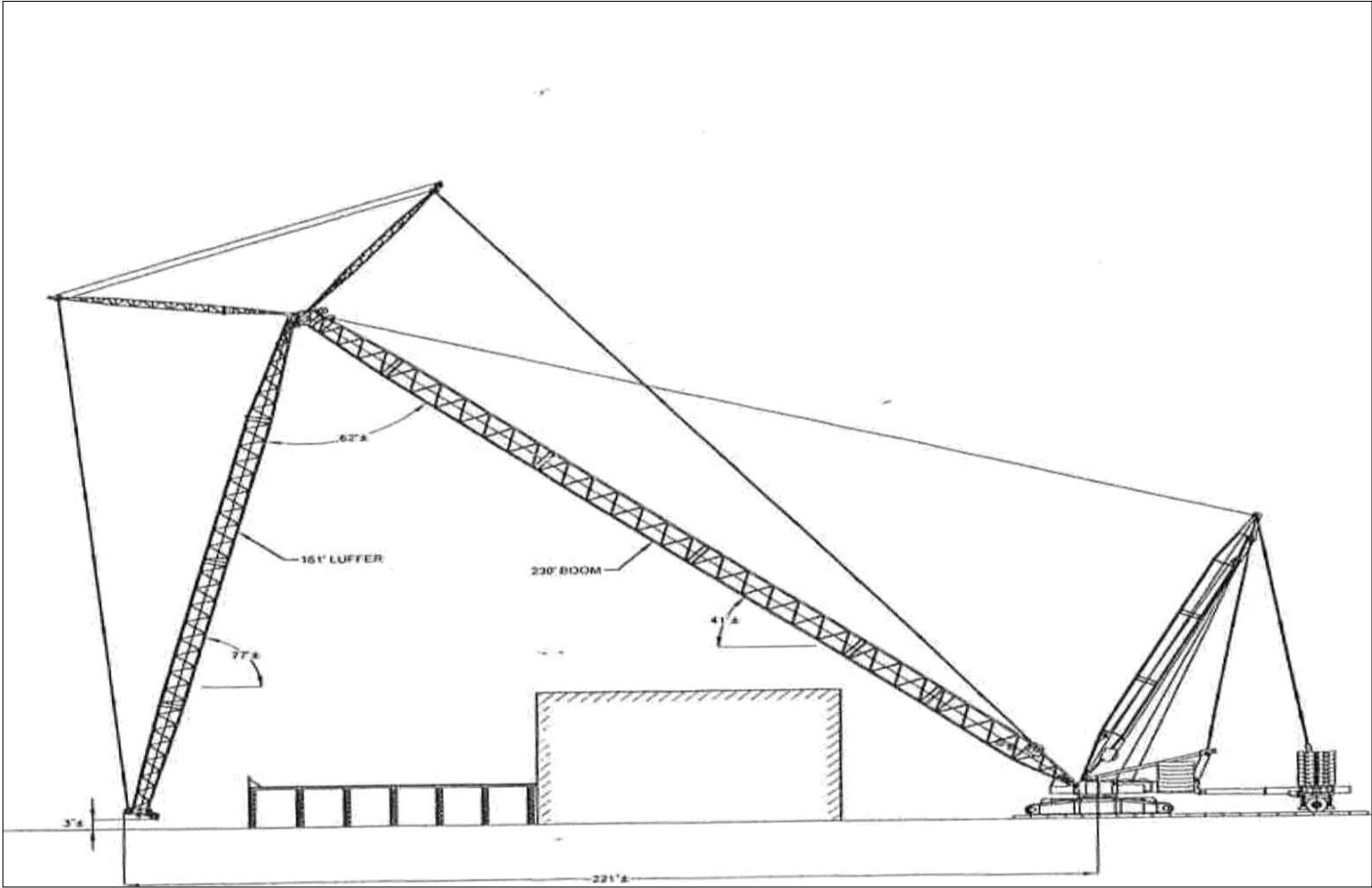


Action Plan



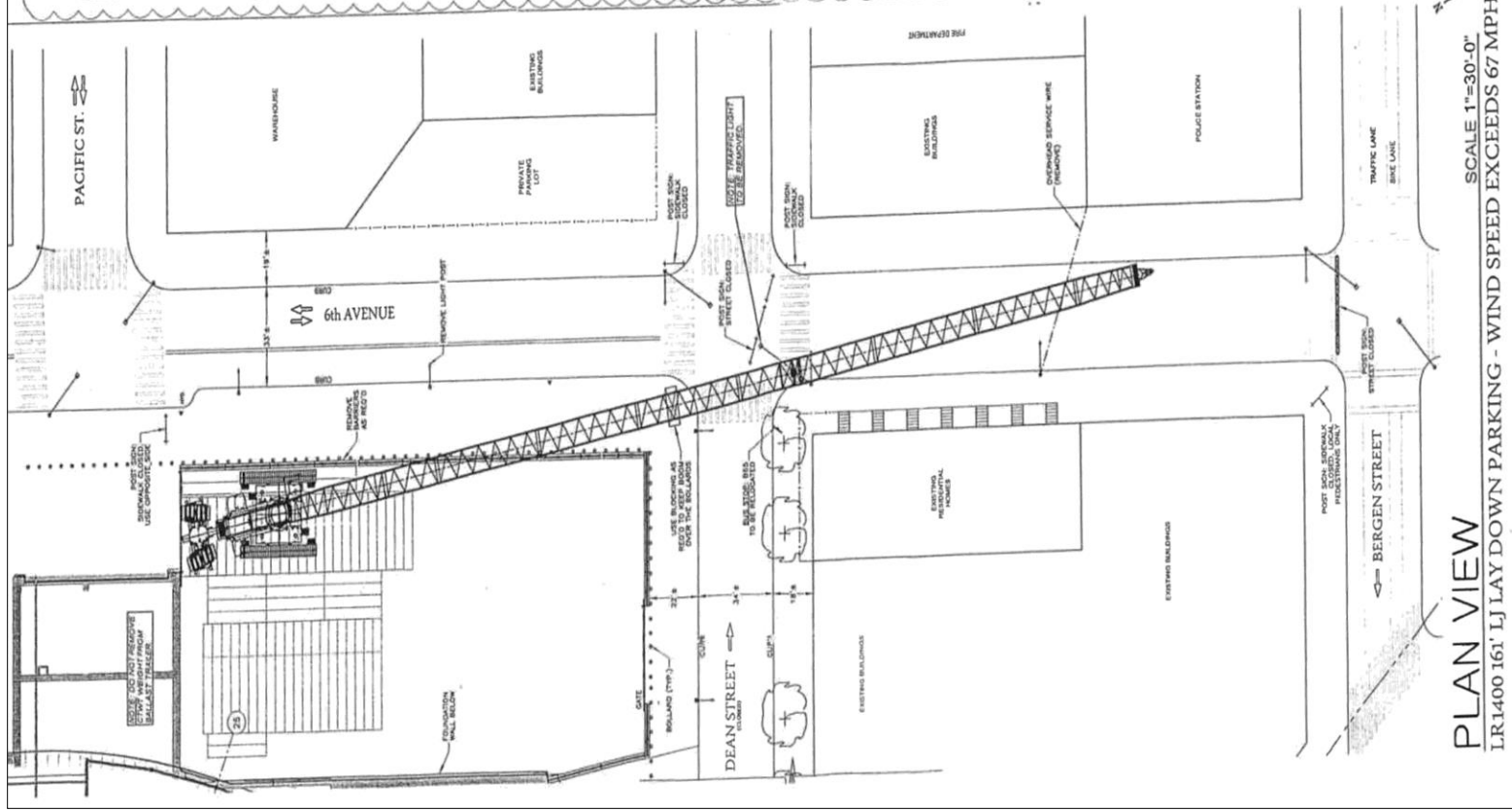
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Action Plan



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Action Plan



PLAN VIEW
 LR1400 161' LJ LAY DOWN PARKING - WIND SPEED EXCEEDS 67 MPH
 SCALE 1"=30'-0"



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Crane Risk Mitigation

Rope Inspection

- **Frequent Inspection**

- All ropes in continuous service shall be visually inspected once every working day

- **Periodic Inspection**

- The inspection frequency shall be determined by a qualified person



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CONFERENCE

Articulating Boom Crane

Permitting and Licensing Requirements

Prior approval of the Department of Buildings is not required as per New York City Building Code 3319.3 to use an articulating boom crane at a jobsite, provided all of the followings are met:

- The articulating boom crane is used exclusively to load or unload a truck or trailer;
- The length of the boom does not exceed 135 feet; and
- The material is not raised vertically more than 100 feet during the unloading process.



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Articulating Boom Crane

Permitting and Licensing Requirements

A prototype, CN, CD and HMO licensee are required If an articulating boom crane is used for any other type of work at a jobsite including but not limited to:

- Deliveries at a jobsite beyond the maximums specified in 3319.3.
- Holding steel, HVAC equipment, hoist towers, scaffolding, sidewalk shed components, or any other loads in place while they are bolted or otherwise affixed.
- Assisting in the demolition of a building.



2016 BUILD SAFE
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CONFERENCE

Mission: Elevator Unit

The Elevator Unit supports operational safety, reliable service and lawful use of elevators, escalators, amusement rides and other related devices throughout the City of New York by performing inspections and testing.

The unit advances compliant development and safety awareness through the Department's various outreach programs. The unit supports development by permitting new technologies under pilot programs.



2016 BUILD SAFE
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CONFERENCE

Elevator Reference Codes

Code	Description
IBC 2009 as modified by NYC Building Code 2014 - Elevators and Conveying Systems Chapter 30	
ICC/ANSI A117.1 – 2009	Accessible and usable buildings and facilities
ASME A17.1/2000 with supplements A17.1a – 02 and A17.1b – 03	Safety code for Elevators and Escalators as modified by NYC Building Code Appendix K; Chapter K1
ASME A17.1s – 2005	Supplement to Safety Code for Elevator and Escalator for Machine Room Less (MRL) elevators as modified by Appendix K; Chapter K4
ASME A17.2 - 2002	Guide for Inspection of Elevators, Escalators and Moving Walk
ASME A17.3 - 2002	Safety Code For Existing Elevators and Escalators as modified by Appendix K; Chapter K3
ASME A17.5 – 2004	Elevator and Escalator Electrical Equipment
ASME A17.6 – 2010	Standard for Elevator Suspension, Compensation, and Governor Systems as modified by Appendix K; Chapter K4
ANSI A10.4 - 1981	Personnel Hoists and Employee Elevators on Construction and Demolition Sites
ANSI A10.4 - 2007*	*Device Operator requirements only



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Purpose of Codes and Standards

- Standards are communication vehicle for manufacturers and users.
- They serve as common language defining quality and establishing safety criteria.
- Developed to protect the health and welfare of the public.
- Costs are lower if procedures are standardized.
- Training is simplified.



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Purpose of Codes and Standards

- Allow new development and technical advances.
- Consumers accept products more readily when the products can be judged on merit of codes and standards.
- Harmonization of standards enhance industry innovation, improve safety, reduce costs and can be used in all markets.
- The Code is a standard that has been adopted by governmental bodies or regulators and has the force of law.



2016 BUILD SAFE
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CONFERENCE

Code Committees

- The NYC Elevator Code Committee consist of elevator stakeholder groups, organizations, associations and government agencies.
- The committee reviews each section of the Code and Standards and makes decisions to enhance the safe and reliable service for our riders.
- The committee uses consensus-based process.

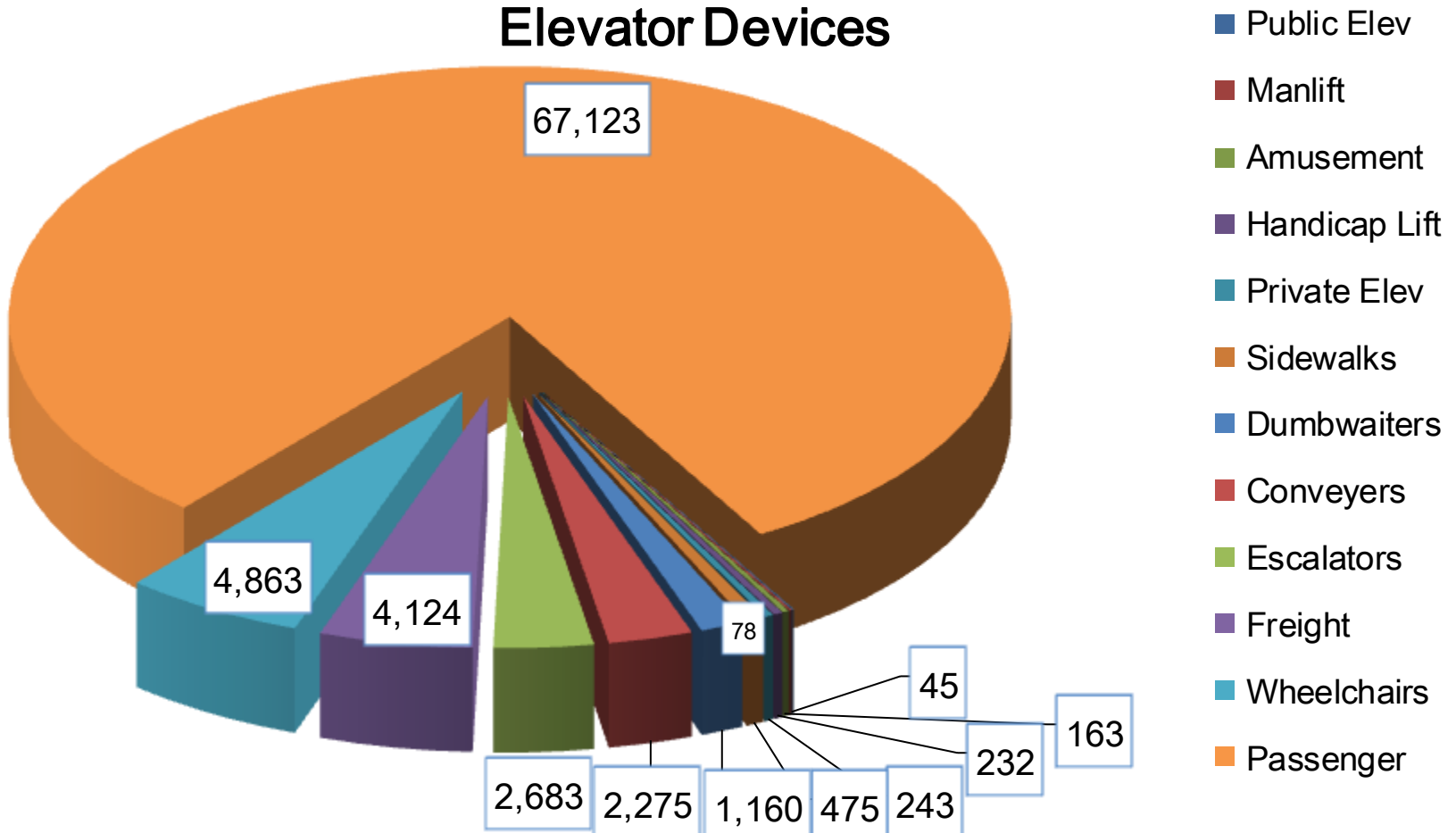
AFFILIATION/REPRESENTATION
NEII - National Elevator Industry, Inc.
NYCHA – New York City Housing Authority
REBNY - Real Estate Board of New York
ECNY – Elevator Conference of NY
Port Authority of NY & NJ
EMANY – Elevator Manufacturers Association of NY
FDNY - New York City Fire Department
ASME - Code Committee Member
BOMA – Buildings Owners and Managers Association of NY
Local Union – 1, 3
NYC - DOB – New York City Department of Buildings
NAEC - National Association of Elevator Contractors
DCAS - Department of Citywide Administrative Services



2016 BUILD SAFE
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CONFERENCE

Type of Devices

Elevator Devices



What's New

- Two new types for elevators for emergencies
 - Fire Service Access Elevator (FSAE)
 - Occupant Evacuation Elevator (OEE)
- Multi compartment elevator
- Brake maintenance requirement
- Local Law 101-15 (Intro 462A)
- Door monitoring system
- Single plunger brakes
- Stretcher size requirements
- Revised ELV1 Form



Fire Service Access Elevator

Fire Service Access Elevator - FSAE
(BC 403.6.1 and BC 3007)



Fire Service Access Elevator

- **When required**

At least one FSAE must be provided in new buildings with occupied floors above 120 feet.

- **Effective Date**

Projects filed on or after December 31, 2014.



2016 BUILD SAFE
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CONFERENCE

Fire Service Access Elevator

- Every floor of the building shall be served by FSAE.
- Automatic sprinklers shall not be installed in elevator machine room, machinery spaces, control room, control spaces and elevator hoistways of FSAE.
- Sprinkler system shall be monitored by the building's fire alarm system.
- An approved method to prevent water from infiltrating into the hoistway enclosure shall be provided.
- When fire fighting emergency is active, the entire height of the hoistway shall be illuminated not less than 1 foot-candle.



Fire Service Access Elevator

- A pictorial symbol of standardized design for Fire Service Access Elevator shall be installed on each side of the hoist way door frame.
- Fire Service Access Elevator lobby shall be not less than 120 square feet with 6 feet minimum dimension in an area.
- Fire Service Access Elevator shall be required normal and standby power.
- Protection of wiring or cables requires fire resisting rating of not less than two (2) hours.



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Occupant Evacuation Elevators (OEE)

Occupant Evacuation Elevators (BC 403.5.2 and BC 3008)

In buildings more than 420 feet in height, designated elevators permitted to be used in case of fire. These special occupant self evacuation elevators must comply with sections 3008.1 through 3008.11.



Occupant Evacuation Elevators

- Self Evacuation of occupants using elevators is possible provided the elevators meet strict design requirements.
- Design requirements create suitable environment for occupant self evacuation using elevators.
- Building still has to meet the means of egress requirements however OEE may be used as an alternative to the additional stairway requirement in high rise buildings.



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CONFERENCE

Occupant Evacuation Elevators



- **When required**

Not required - option in lieu of providing an additional exit stair for new, non-residential buildings taller than 420 feet per BC 403.5.2.

- **Effective**

Projects filed on or after July 01, 2015.



2016 BUILD SAFE
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CONFERENCE

Occupant Evacuation Elevators

Design Requirements

- Building shall be protected by an electrically supervised automatic sprinkler system.
- Automatic sprinkler shall not be installed in elevator machine rooms, machinery spaces, control rooms, control spaces and elevator hoistways of OEE.
- Hoistway enclosure shall be protected from water infiltration.



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Occupant Evacuation Elevators

Design Requirements

- Signage requirements for each floor
- 2 way communication system
- Elevator system monitoring
- Power requirements
- Lobby requirements
 - Size
 - Smoke barrier
 - Vision panels
 - Automatic door closing



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Occupant Evacuation Elevators

After input from committees & FDNY, the following rules were developed and approved:

- Rules for OEE operation (ASME A17/2013) - 1 RCNY 3610-03
 - Effective date: August 24, 2015
- Modifies emergency operation and signaling devices for occupant evacuation elevators.



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Occupant Evacuation Elevators

- Rules for Fire Alarm interface requirements for OEEs (NFPA 72/2013) - 1 RCNY 3616-04.
 - Effective date: October 08, 2015
- Modifies Appendix Q of the NYC Building Code.



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Occupant Evacuation Elevators

Operation Requirements

- Sign *In Case Of Fire-Elevators Are Out Of Service* shall not be installed.
- Variable message sign must be installed.
- Upon activation of an automatic fire alarm, the fire alarm shall provide signal to the elevator system.
- The floors must be contiguous block of floors consisting of at least the floor with an active alarm, one floor above and one floor below.
- If active alarm is on the elevator designated level, automatic initiation of OEE not permitted.



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Occupant Evacuation Elevators

Operation Requirements (cont.)

- Real-time signage on all floors to inform building occupants whether or not to use the elevators on a given floor.
- Landing calls outside of evacuation floors cancelled and disabled.
- Signage at the designated landing advising people to use or not to use elevator.
- Real-time voice announcements to elevator lobbies and cars.



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Occupant Evacuation Elevators

Operation Requirements (cont.)

- Landing calls within the affected floors will call in elevator.
- Floors with active alarm given priority.
- At other floors, evacuation priority assigned in sequence received.
- Car call disabled except for elevator discharge level.



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Occupant Evacuation Elevators

Operation Requirements (cont.)

- Unoccupied cars move to a floor being evacuated and park with doors closed until a landing call is registered.
- Occupied cars proceed directly to elevator discharge level, then proceed directly to a floor being evacuated.
- Cars exceeding capacity load will not leave the floor, doors will open and remain open with voice and visual signal notification.
- New landing calls are registered immediately and assigned to another car.
- New landing calls shall not prevent a loaded car from leaving.



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Occupant Evacuation Elevators

Operation Requirements (cont.)

- Initiation by authorized or emergency personnel shall be provided through manual operation of the fire alarm system.
- If activation of an automatic FAID occurs on additional floors at any time while OEO is in effect, evacuation zone is expanded - adding all contiguous floors plus one floor above the highest floor with an active alarm and one floor below the lowest floor with an active alarm.
- OEO terminated by Fire key switch initiation for phase 1 or reset of fire alarm system.
- Fire fighters can manually recall one or more cars and leave other cars on OEO - group fire recall or one car fire recall.



Multi-Compartment Elevators

- New rule for Multi Compartment Elevators - 1 RCNY 3610-04
- Changes to Section 2.27.3.5 - Emergency Operation and Signaling Devices
- Effective date: **October 26, 2015**
- Established uniformity and standardized process for fire service emergency operation



Multi-Compartment Elevators

Some Highlights of changes to 2.27.3.5

- Fire Recall switch shall be located at the designated level served by the upper compartment.
- The Phase II Emergency In-Car switch shall be located in the upper compartment.
- Visual and audio signals shall be provided in both the upper and lower compartments.



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Multi-Compartment Elevators

Highlights (cont.)

- Phase II Operation locks out the lower compartment.
- Video and Audio communication to be provided for the lower compartment.
- In case of fire alarm, initiating at designated level or the level below shall cause the elevator to travel to the alternate level.
- In case of fire alarm, initiating at the sky lobby or the level above shall cause the elevator to travel to the sky lobby alternate level.



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Brake Maintenance

Brake Maintenance Requirement



Brake Maintenance

- **8.6.4.6: Brakes**
- **8.6.4.6.1** The driving-machine brake shall be maintained annually to ensure proper operations, including, but not limited to the following:
 - Residual pads (anti-magnetic pads);
 - Lining and running clearances;
 - Pins and levers;
 - Springs;
 - Sleeves and guide bushings;
 - Discs and drums; and
 - Brake coil and plunger.
- **8.6.4.1.1:** Brake maintenance shall be entered in the maintenance records.
- **8.6.4.1.2:** A metal tag indicating the elevator maintenance company and date of service shall be attached to the elevator controller.



New Legislation

- Local Law 101-15 (Intro No 462-A).
- Amended by adding new section 28-219.
- 28-219.4 - Notice to the HPD for certain elevator related violations.
- Upon re-inspection of hazardous violation for MD buildings, determines owner failed to correct condition, such violation will be referred to HPD within one week of the date of inspection.
- DOB continues its enforcement actions and HPD may proceed to correct violating conditions if progress is not made by the owner to correct hazardous violation condition and restore elevator service.
- Effective date July 1, 2016.



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Door Monitoring System

K3 - 3.10.12 Means shall be provided on all automatic passenger and freight elevators to monitor the position of power operated car doors while the car is in the landing zone to prevent the operation of the car if the door is not closed except under certain conditions.

Compliance deadline: January 1, 2020.



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Single Plunger Brakes

K3 - 3.8.4.1 All existing traction elevators with single plunger brakes must comply with either of the following:

- Alteration of single plunger assemblies to dual-plunger type

or

- Compliance with Unintended Car Movement Protection as specified by Section 2.19.2 of ASME A17.1.

Compliance deadline: January 1, 2027.



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Stretchers: Buildings Five Stories or More

- Must have at least one elevator accessible to all floors.
- Must have an elevator that can accommodate a stretcher
 - 24-inch x 84-inch with not less than 5-inch radius corners.
 - Standby power required.
 - Exceptions
 - Private-residence elevators
 - LULA.



Revised ELV1 Form



ELV1: Elevator Application

*Please file three (3) copies
Application must be typewritten*

Application Number:
Filing Rep. Name:
Filing Rep. Lic.
Filing Rep. Email:

1 Filing Status

<input type="checkbox"/> New Installation	<input type="checkbox"/> Alteration / Replacement
<input type="checkbox"/> Dismantle	<input type="checkbox"/> Remove
<input type="checkbox"/> Permit Renewal	<input type="checkbox"/> Permit Reinstatement
<input type="checkbox"/> Permit Withdrawal	Permit Number: _____
Building Code _____	Electrical Num: _____

2 Location Information

Borough:	Block	Lot
BIN: _____		
Address _____		
City	State:	Zip
Occupancy Group _____		



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Revised ELV1 Form

Is this:

The only elevator in the building?

Elevator part of Destination Dispatch System?

An Occupant Evacuation Elevator (OEE)?

A Fire Service Access Elevator (FSA)?

Building meets the stretcher car requirement?

Yes

No



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Revised ELV1 Form

9	Cars and Counterweight	<input type="checkbox"/> NA
----------	-------------------------------	-----------------------------

Car Inside Dimensions feet in by feet in

Car Inside Area: Sq. feet

Multi Compartment Elevator Yes No *(if Yes, complete below)*

Compartment 1:

Car Inside Dimensions: feet in by feet in

Car Inside Area: Sq. feet

Compartment 2:

Car Inside Dimensions: feet in by feet in

Car Inside Area: Sq. feet



Revised ELV1 Form

10	Hoist way Opening	<input type="checkbox"/>	NA					
<input type="checkbox"/>	Door	<input type="checkbox"/>	Gate	Door Monitoring Circuits:	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
<input type="checkbox"/>	1 1/2 Hr Fire Rated Construction Type							



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Revised ELV1 Form

12 Personnel Hoist Information

NA

Hoist car manufacturer

Model #

Hoist Mast manufacturer

Hoist Safety manufacturer

Hoist car dimensions

Hoist capacity (lbs.) Car Safety

Hoist Safety Expiration Date:

Hoist Counterweighted Yes No

Speed(FPM) Rise

13 Escalator Information

NA

Escalator manufacturer

Model #

Speed Rise

Step Width Angle

Capacity

Number of flat steps

Brake Torque

Flame/Heat/Smoke protection provided? Yes No



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Revised ELV1 Form

6	Machine and Machine Room <i>Choose one</i>	<input type="checkbox"/> N/A
----------	---	------------------------------

- Machine Type: OH Worm Gear Traction Basement Worm Gear Traction Gearless Drum
 Oil Hydraulic Roped Hydraulic MRL Other



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Reminders

- Machine Room Less(MRL) elevator requirements.
- Material Handling Plan
- Elevator/Escalator Safety



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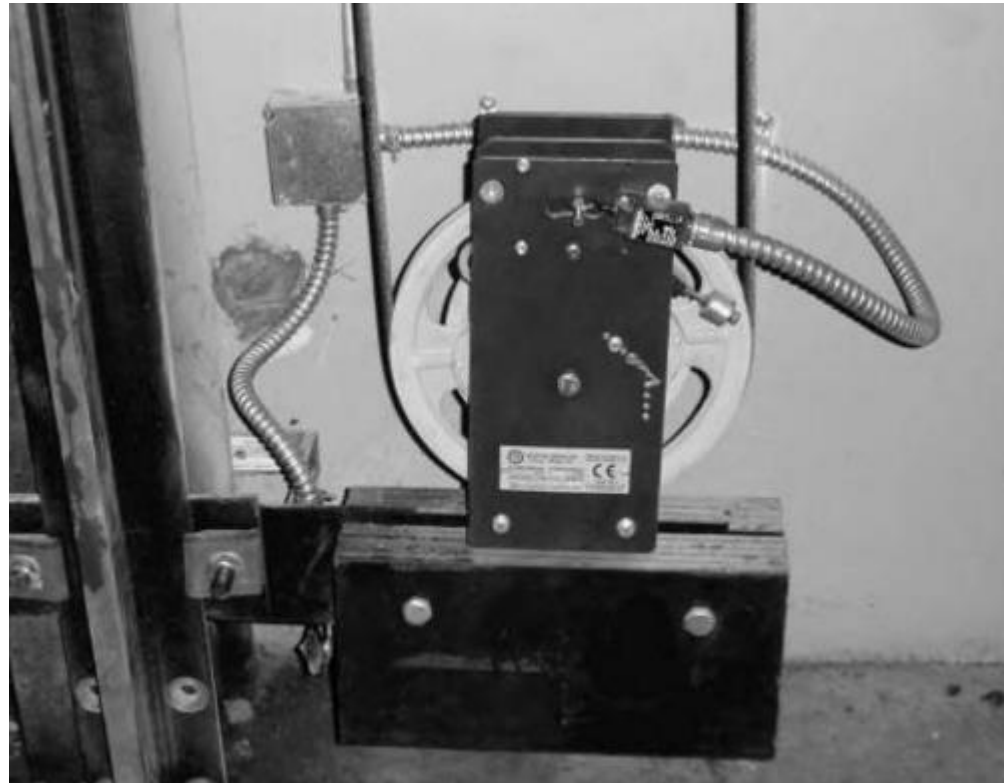
MRL (Machine Room Less) Elevators

An access door is required when the governor is installed at the top of the hoistway for access to reset switches by elevator personnel.



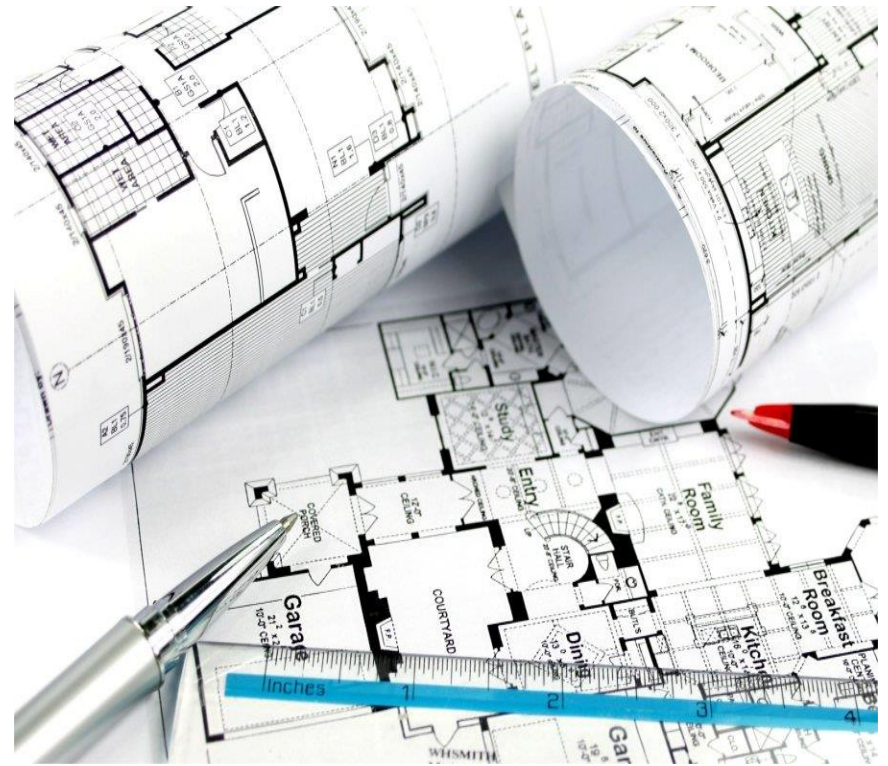
MRL (Machine Room Less) Elevators

If you can not provide an access panel for a governor then the only alternate acceptable solution is a pit mounted governor.



Material Handling Plan

A material handling plan is required to be kept on site and strictly followed.



Material Handling Plan



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Material Handling Plan



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Elevator Safety



- Look down and make sure the elevator is level with the floor while entering and exiting.
- Press the **door open** button to hold closing elevator doors.
- Keep clothing items like ties and scarves clear of closing elevator doors.



- Do not exit the elevator if it stops more than 9 inches from the landing.
- Never lean on elevator doors.
- Don't use any part of your body to keep the doors open.
- Don't crowd the elevator. Too many people crowded into elevators can cause it to get stuck.
- Don't jump inside an elevator which can make an elevator uneven with the floor. You can also get stuck.



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In an Emergency

If elevator gets stuck:



- Remain calm and wait for help.
- Use the emergency call button.
- Follow the instructions from the building management.



- Never attempt to pry the elevator doors open.
- Never attempt to exit a stalled elevator without the help of the building management or emergency responder (e.g. Police, Fire Rescue).

Escalator Safety



- Step on and off carefully
- Hold the handrail
- Help young children and seniors
- Always face forward
- Make sure your shoelaces are tied



- Don't touch the sides below the handrail
- Never ride with an open stroller



Thank you!



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This concludes the
**American Institute of Architects
Continuing Education Systems Course.**

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