

THACKRAY

Crane Safety and Planning

presented by Mark W Thackray





Introduction

Summery

1. What can go wrong sheet
2. Crane Lift Plan Understanding
3. Load Handling Activity Planning Process.
4. Jobsite examples

92 93 94 95 96 97 98 99 2000 01 02 03 04 05 06

What Can go Wrong ?





Sufficient Matting



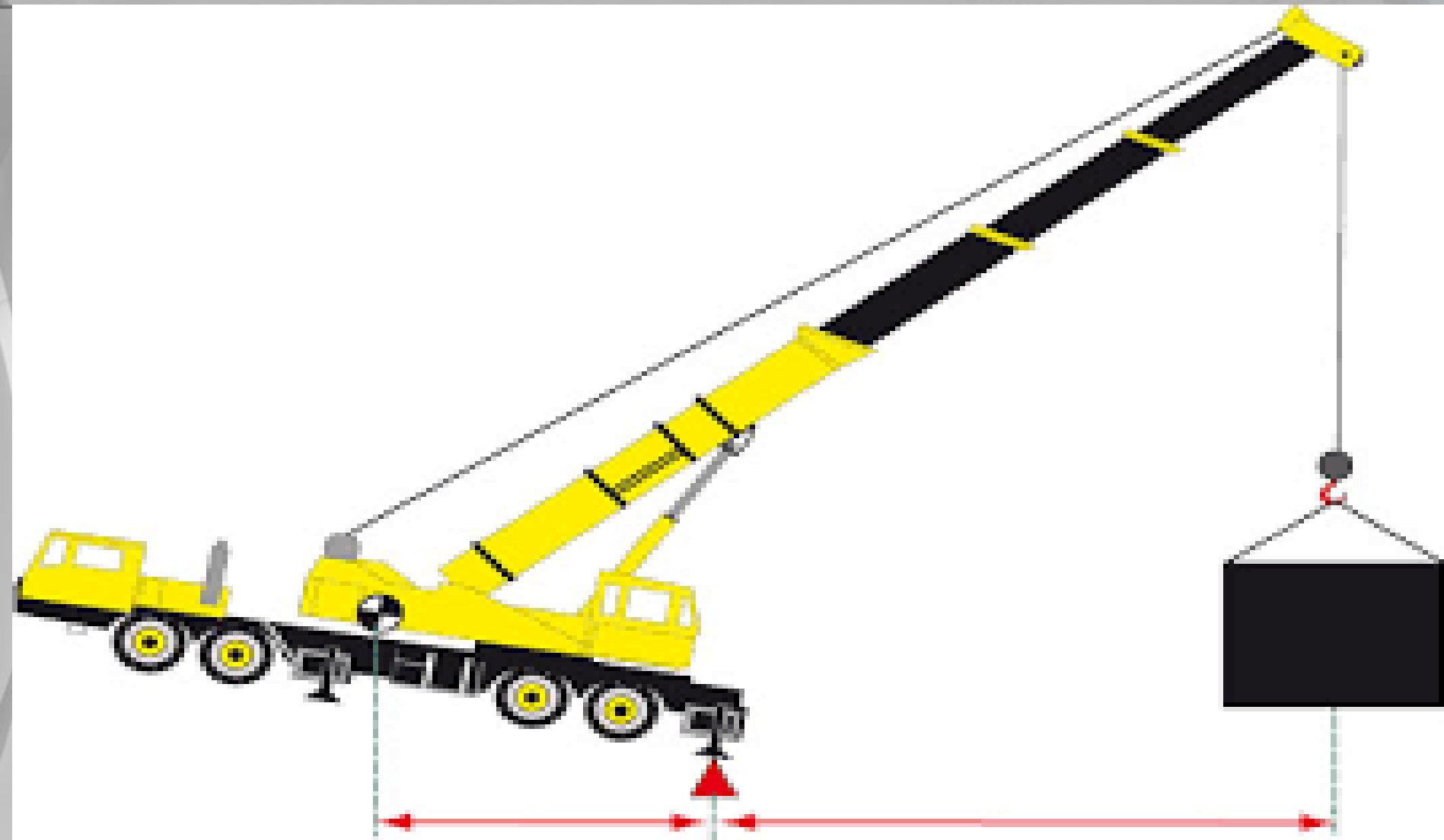
Washington Cathedral



540 Ft of Boom



Physics of Overturning



Luffing Boom (Hinge)



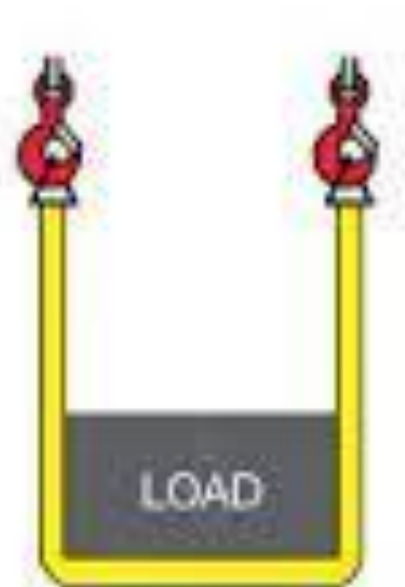




Vertical Hitch



Choker Hitch



Vertical Basket Hitch

Seattle Tower Crane



New York



SAD AND GOD BLESS.



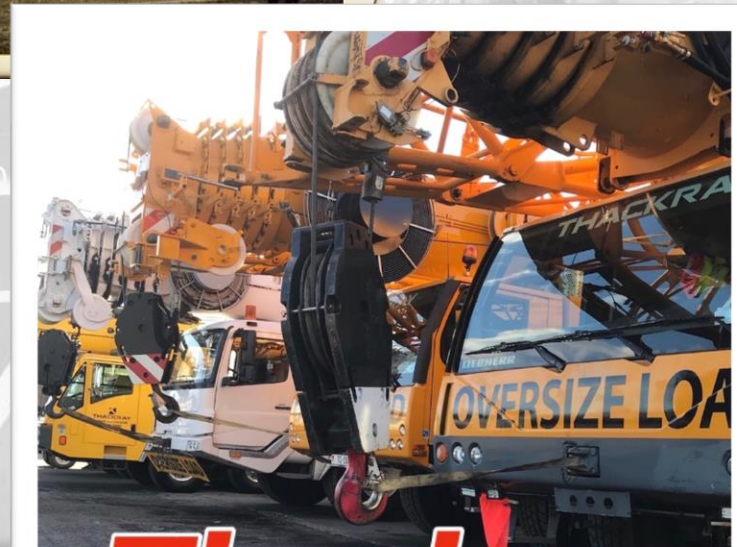
Structure Failure





The Crane Rental Business

- What is Involved
 1. History
 2. The way of thinking
- Types of Industries Worked
 1. Petrochemical
 2. Pharmaceutical
 3. Military / NAVY/ ARMY CORE
 4. Maritime
 5. Residential Construction
 6. General Commercial Construction
- How a Operator Gets Dispatched
 1. Time and scheduling
 2. Directions and Location
 3. Weather
 4. Time Restraint /Traffic
 5. Crane set up time
 6. Customer demand for service



Thackray



The first thirty minutes

Steps to Help these stressful Citations

Yard

Operator being early to Yard (20 Minute Rule)

- Assist With Equipment Preparation (Pre Trip)
- Beat Schedule Traffic delays
- Prepare For Weather (Snow , Rain ,Ice)
- Map Out Your Planed Route
- JOB Review With Dispatcher
- Carry Bag With (PPE , Tools , Etc)

Jobsite

Slow The Job Down with Good One on One Interaction (Break the ice)

- Initiate Walk Through With PIC (Lift Director) Get a good feel for Jobsite
- Review Site Conditions
- Underground Interferences , Above Ground & Overhead
- Load Information , Communication , Dimensions, Rigging etc.
- Radius , Boom length , Load Chart Confirmation & JOB Site Coordination
- Lift Plan Review or Pre Lift Meeting
- Go to WORK



The Pre Planning Origin

A Roof top Unit has to be set on top of Building .

Here is a list of steps for Basic Pre LIFT- Planning

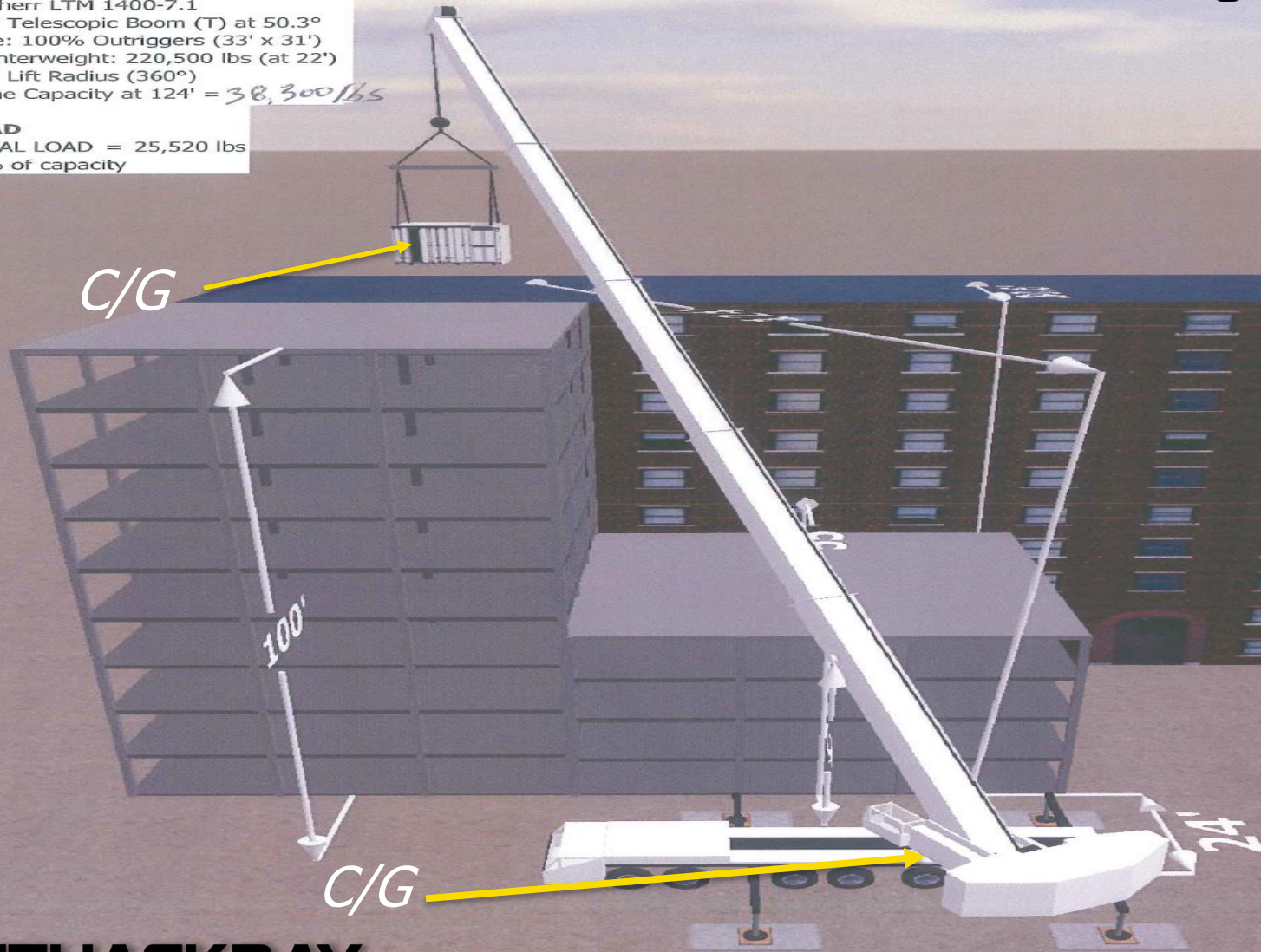
1. Contractor Project Manger Calls and Schedule for Crane Representative to meet up onsite to go over job site- lift logistics
2. Crane Rep sizes crane by measuring Distance , Heights, Areas and Weights with walkthrough with PM .
- 3 .Crane Lift Plan then Submitted by Contractor
4. Crane lift plan reviewed and approved by CM .
5. Crane is scheduled for lift by Projector Manager ,

Load Radius - 3D



CRANE
Liebherr LTM 1400-7.1
197' Telescopic Boom (T) at 50.3°
Base: 100% Outriggers (33' x 31')
Counterweight: 220,500 lbs (at 22')
124' Lift Radius (360°)
Crane Capacity at 124' = 38,300 lbs

LOAD
TOTAL LOAD = 25,520 lbs
70% of capacity



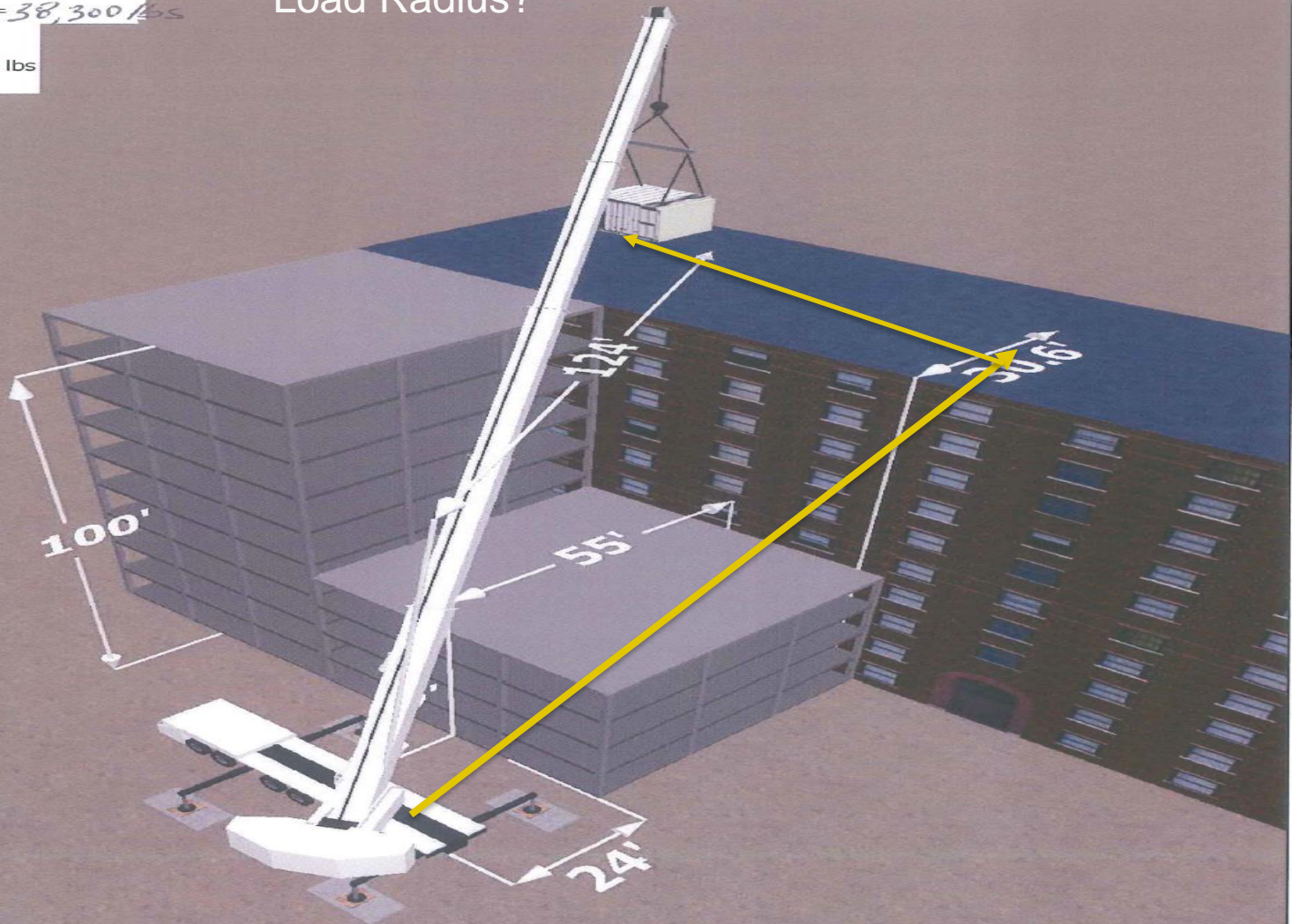
CRANE

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124' Lift Radius (360°)
Crane Capacity at 124' = *38,300 lbs*

LOAD

TOTAL LOAD = 25,520 lbs
70% of capacity

How to Measure Load Radius?



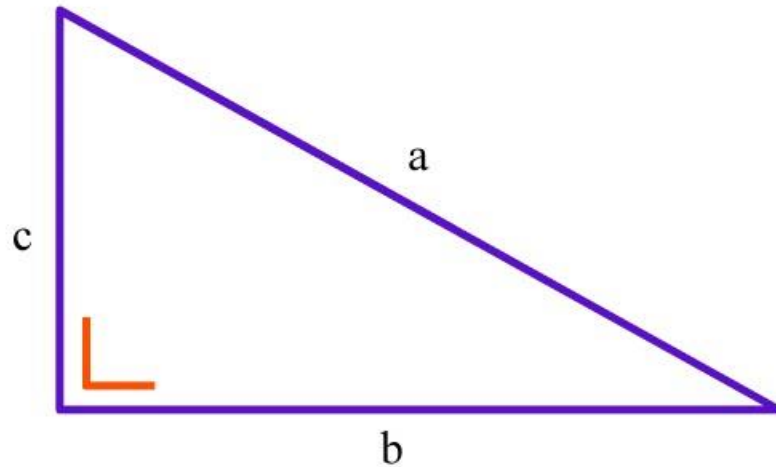
Not issued for construction. For pre-planning only.

Grid: 10' x 10'



Title:	Lift Plan
Project:	1128 Chestnut Street
Customer:	Falasca Mechanical
Description:	Cooling Towers
Drawn By:	Ryan Faherty
	7/10/2015

Calculations



Pythagorean Theroem

$$a^2 = b^2 + c^2$$

CRANE

Liebherr LTM 1400-7.1

197' Telescopic Boom (T) at 50.3°

Base: 100% Outriggers (33' x 31')

Counterweight: 220,500 lbs (at 22')

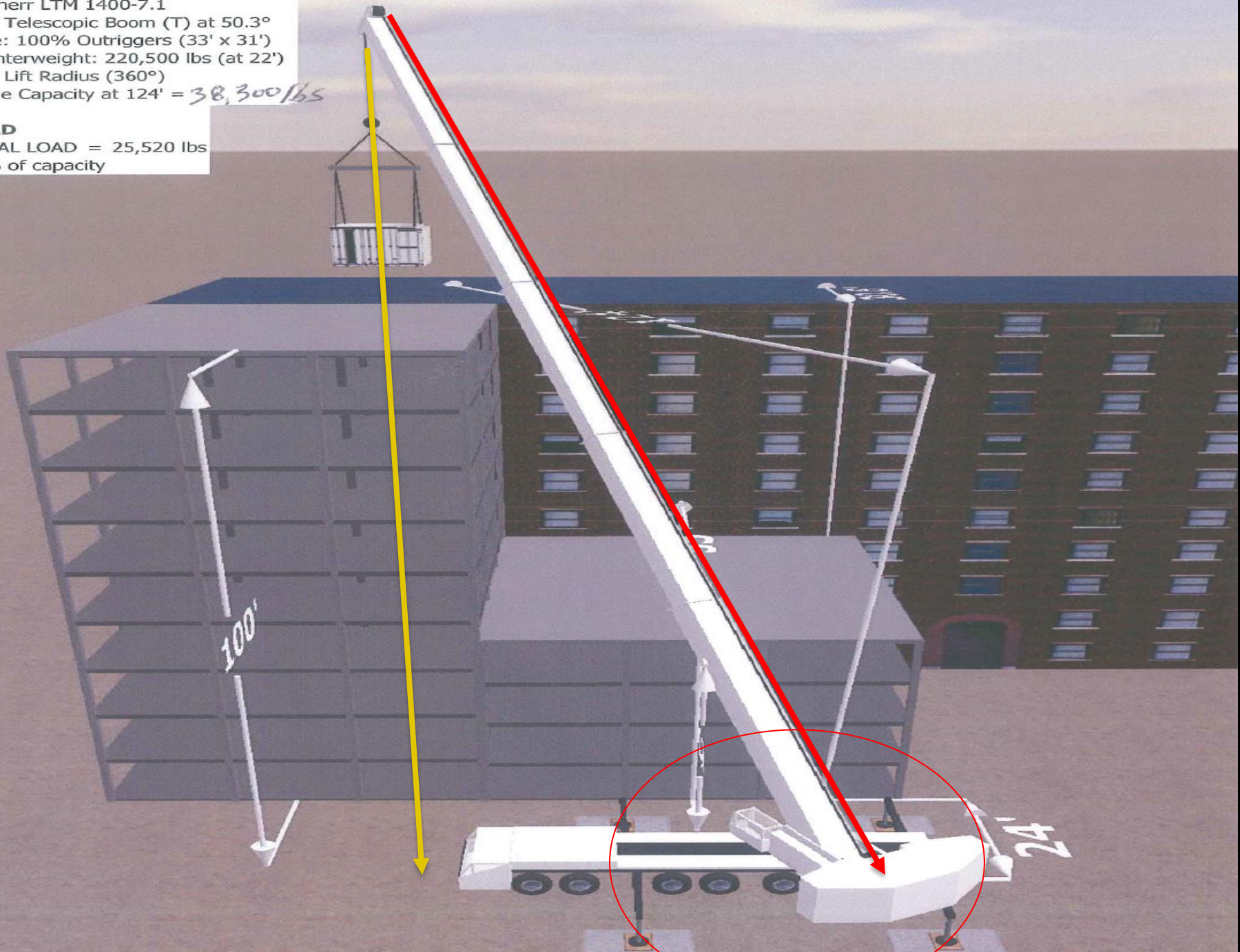
124' Lift Radius (360°)

Crane Capacity at 124' = *38,300 lbs*

LOAD

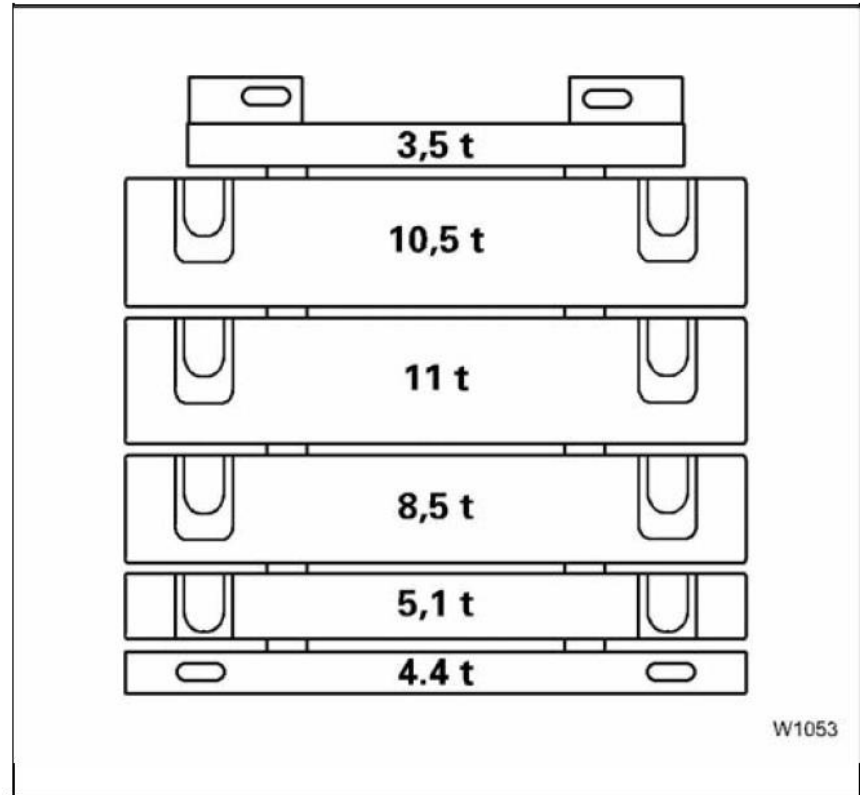
TOTAL LOAD = 25,520 lbs

70% of capacity

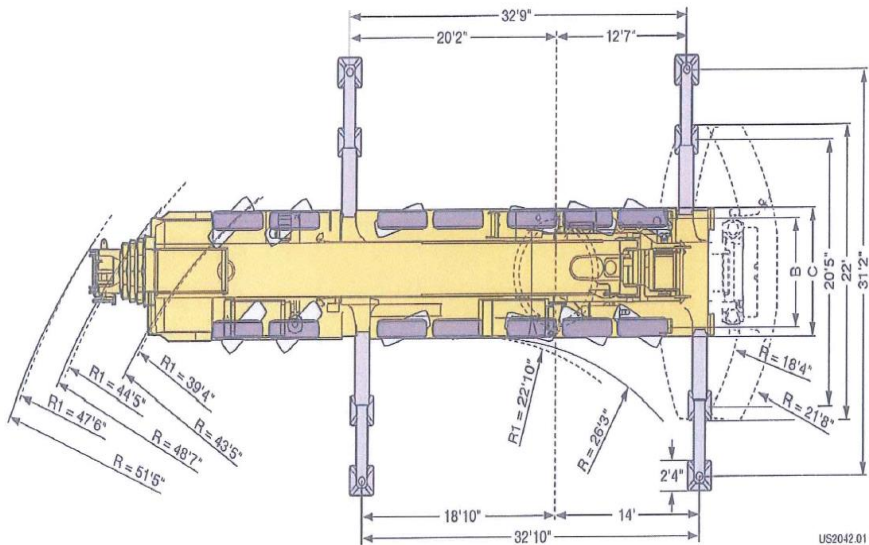
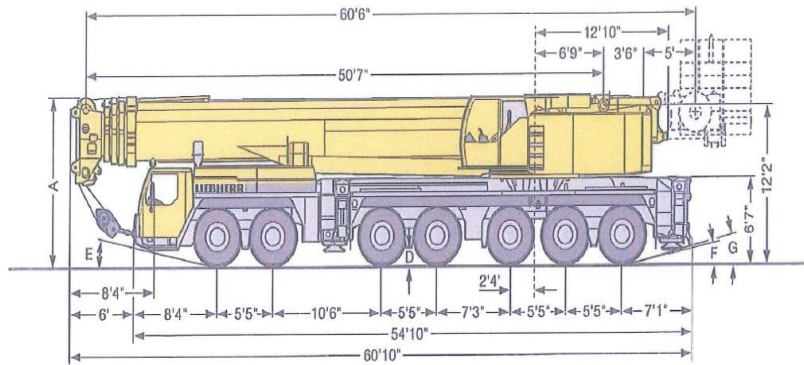


Counterweights

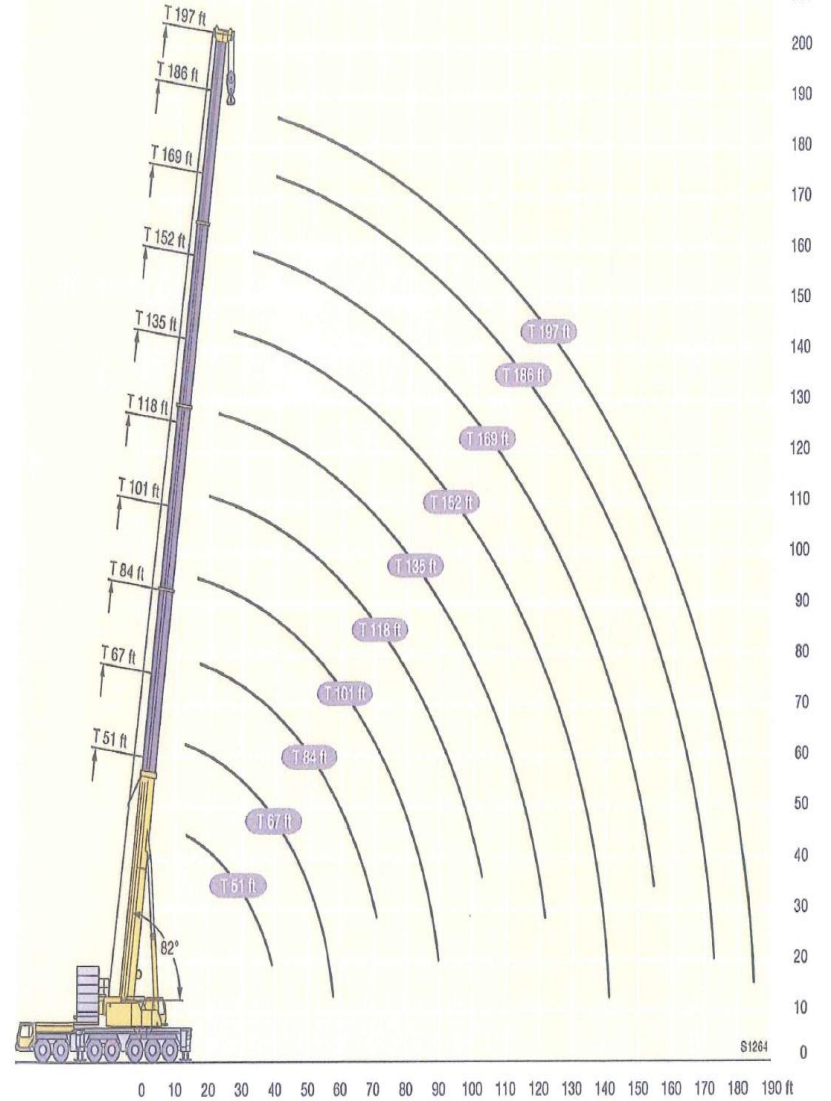
94 700 lbs
43 t counterweight



**Dimensions
Encombremet**



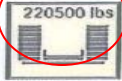
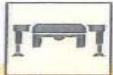
US2042.01



S1264

Lifting capacities Forces de levage

T



85%

	51 ft	67 ft	84 ft	101 ft	118 ft	135 ft	152 ft	169 ft	186 ft	197 ft	
9	970										9
10	940	529									10
11	748	529	445								11
12	615	529	445								12
13	539	529	445	445							13
14	529	519	445	445	379						14
15	528	506	445	445	379						15
16	525	489	445	445	379						16
17	514	473	442	440	379						17
18	498	457	437	432	379	318					18
20	466	425	424	415	377	316					20
22	429	397	397	392	365	302	225				22
24	394	372	371	369	351	289	220				24
26	363	348	347	346	334	277	210	177			26
28	337	327	326	325	320	266	202	172	143		28
30	313	307	307	305	305	255	193	166	142		30
32	293	290	289	287	288	245	186	161	137	115	32
34	276	274	274	271	273	236	178	156	134	114	34
36	260	259	260	257	259	227	171	151	130	111	36
38	245	245	246	242	244	219	164	146	126	109	38
40			233	229	231	211	158	141	123	106	40
45			205	204	203	194	144	130	115	100	45
50			183	181	179	179	135	119	107	95	50
55			164	161	159	162	127	110	99.5	90	55
60				145	143	145	120	102	93	84.5	60
65				131	132	131	114	94	86.5	79.5	65
70				122	121	119	108	87.5	81	75	70
75					111	109	103	81.5	76	70.5	75
80					102	99.5	97.5	76.5	71.5	66.5	80
85					94	91.5	93	72.5	67	63	85
90						87.5	87	69.5	63	59.5	90
95						79	81	66.5	59.1	56.4	95
100						74	75.5	63.5	55.6	53.3	100
105							70.5	61	52.6	50.4	105
110							66	58.2	49.8	48	110
115							61.5	56.2	47.4	45.6	115
120							57.8	54.4	45.2	43.3	120
125								52.7	43.2	41.2	125
130								51.1	41.7	39.1	130
135								48.7	40.3	37.1	135
140								45.4	38.9	35.3	140
145									37.6	33.8	145
150									36.3	32.4	150
155									35.1	31.1	155
160										29.8	160
165										28.5	165
170										27.2	170
175										26	175
180											180
185											185
190											190



2071 BYBERRY ROAD PHILADELPHIA, PENNSYLVANIA 19116
 PHONE 215-464-1600 FAX 215-464-2020
 TOLL FREE 1-800-34-CRANE WWW.THACKRAYCRANE.COM

- ▣ Crane Rentals
- ▣ Warehouse
- ▣ Logistics

Pre-Lift Plan

Project: 1128 Chestnut Street (Falasca Mechanical) Date of Lift: To be determined (mm/dd/yyyy)

DESCRIPTION OF LIFT:

Setting Rooftop Cooling Tower & misc. equipment:
 Sitting 24 ft away - Going up 40 ft - Going in 55 ft - Going up 60 ft - Going in 30 ft (offset 58 ft to left)
 Lifting 25,520 lbs @ 124 FT Radius

Submit the following information prior to lift for review:

1. Lift plan submittal with drawings
2. Engineering calculations and spreadbar/lifting beams (when applicable)
3. Crane Maintenance and inspection record (Most recent monthly/daily inspection)
4. Cranes complete load chart for boom length, counterweights and configuration of the planned lift
5. Certificate of insurance for the crane
6. Crane setup/configuration
7. Type and size of cribbing or mats
8. Communication with the operator
9. Type of swing radius protection

Main Boom/Full Outriggers
6" x 8" x 4' Steel Mats
Two Way Radios
Red Danger Tape

PRE-LIFT REQUIREMENTS

(All questions must be answered CHECKED)

- YES 1. Load chart utilized is for the exact crane model: Boom Type, Length and Tip: Counterweight?
- YES 2. Operator certifications/training provided prior to lift?
- YES 3. Competent person in charge of lift? Name: _____
- YES 4. Pre-lift meeting with crew?
- YES 5. Pre-planning for radio or hand signal communication?
- YES 6. Load radius has been measured with a tape measure?
- YES 7. Wind speed does not exceed manufacturer recommendations?
- YES 8. Anti-two block in place?
- YES 9. Non-conductive tag lines must be long enough, tied to the load, and in good condition – loose end controlled by designated person?
- YES 10. Operating locations are far enough away from the shoring, excavations, and trenches to eliminate risk or collapse?

CRANE PRE-LIFT REQUIREMENTS

Rigging data:

Sling construction (diameter inches)	1"
Core type:	Steel Wire Rope Slings
Number of legs:	Four
Sling angle (degrees):	60°
Sling capacity (lbs per leg):	19,600 lbs
Means of fastening sling or hoist to load:	Shackled
Capacity of fastener:	7 Tons

Crane data:

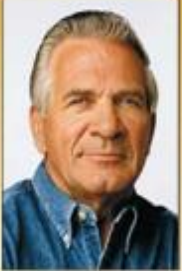
Lattice boom or mobile hydraulic:	Mobile Hydro	
Crane make/model/size:	Liebherr LTM 1400-7.1	
Boom length:	197 ft	feet
Counterweights:	220,500 lbs	lbs
Maximum load radius:	124 ft	feet
Maximum boom length:	197 ft	feet
Load chart capacity @ maximum radius:	38,300 lbs	lbs

Load data:

Gross load weight:	25,520 lbs	lbs
Plus rigging weight:	500 lbs	lbs
Plus weight of the spreader bar:	1,000 lbs	lbs
Plus main block:	3,083 lbs	lbs
Plus headache ball weight:	n/a	lbs

Total weight of load:	30,103 lbs	lbs
% capacity: total weight of load	78.5%	%

Certifications



NCCCO CERTIFIED Operator


Certification #: 0000000000R

Certification Designations:
LBT, LBC, TSS, TLL, TWR, OVR,
ABC, ABW, ABL, DDO

Issued to: **JOSEPH ANDREW OPERATOR**
Issue Date: 01/31/2011 Expiration Date: 01/31/2016

Thom Sickel, President, NCCCO Board of Directors Graham J. Brent, Executive Director, NCCCO

For identification purposes only. Subject to provisions of suspension or revocation.



National Commission for the Certification of Crane Operators

National Commission for the Certification of Crane Operators

National Commission for the Certification of Crane Operators

National Commission for the Certification of Crane Operators

National Commission for the Certification of Crane Operators

Operator

Signalperson/Rigger

Crane Inspector

Practical Examiner

Commonwealth of Pennsylvania Department of State
Bureau of Professional and Occupational Affairs
Crane Operator


License Number
LCO000690

Registration Code
mmjtEg6w


Expiration Date
10/31/2014

License Status
Active

Approved Specialties
Telescopic Boom with Fixed
Telescopic Boom with Rotating



MARK W THACKRAY
1160 MEADOWBROOK ROAD
SOUTHAMPTON PA 18966



Atlantic Crane Inspection Services
P.O. Box 11569
Philadelphia PA 19116
Office: (215) 639-2579
Fax: (215) 639-2316

Certificate Of Unit Test And/Or Examination On Crane,
Derrick Or Other Material Handling Device.

Certificate Number: 15032703R Unit Number: TC170

Company Name: Thackray Crane Rental
Address: 2071 Byberry Rd. Phila PA 19116

Device: Crane Derrick Other

Location: A) Remains at Worksite B) Changes Worksite C) on Barge
(If A or C Describe)

Manufacturer: Liebherr Serial#: 072190 Model#: 1400.7-1

Type of Crane: All Terrain Maximum Rated Capacity: 500Ton

Service Status at time of Survey: Lifting Other

Boom at time of Survey: Length: 186Ft Type: Hydraulic

Test Loads Applied

Radius	Proof Load	Rated Load	Outriggers	Boom Direction

Description of Proof Load: N/A

Basis for Assigned Load Ratings: N/A

Remarks and/or Limitations Assigned: N/A

I certify that on 03/27/15 the above device was (examined & tested) (examined) by the undersigned authorized representative who, in his opinion, said the unit (did) (did not) meet the requirements of 1910.180 & 1926.1400

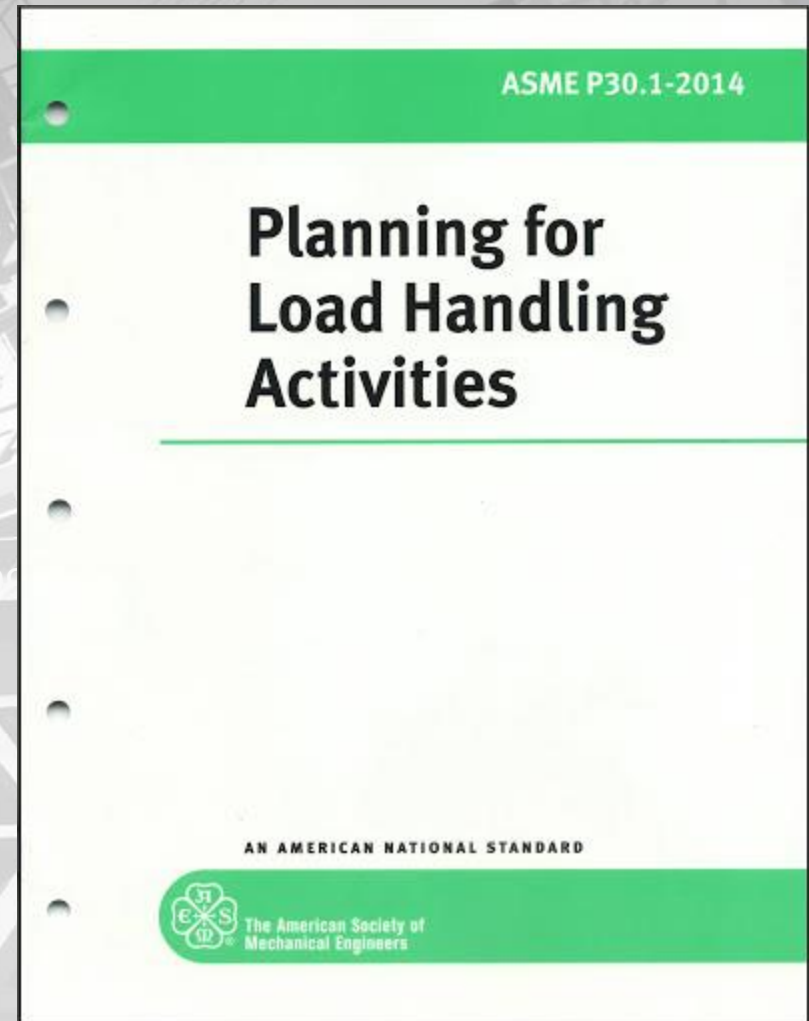
Robert Harman
Authorized Representative
Today's Date: 03/27/15

William Hottenstein
Signatory Authority

SCANNED INTO
NEXGEN

ASME P30.1 2014

- LHA is An evaluation of proposed load handling activity shall be performed .
- Standard Lift Plan
- Critical Lift plan (exceeds)
- Scope : The standard established planning considerations that apply to load handling equipment. (moving a object from to a Vertical and Horizontal)





The Load

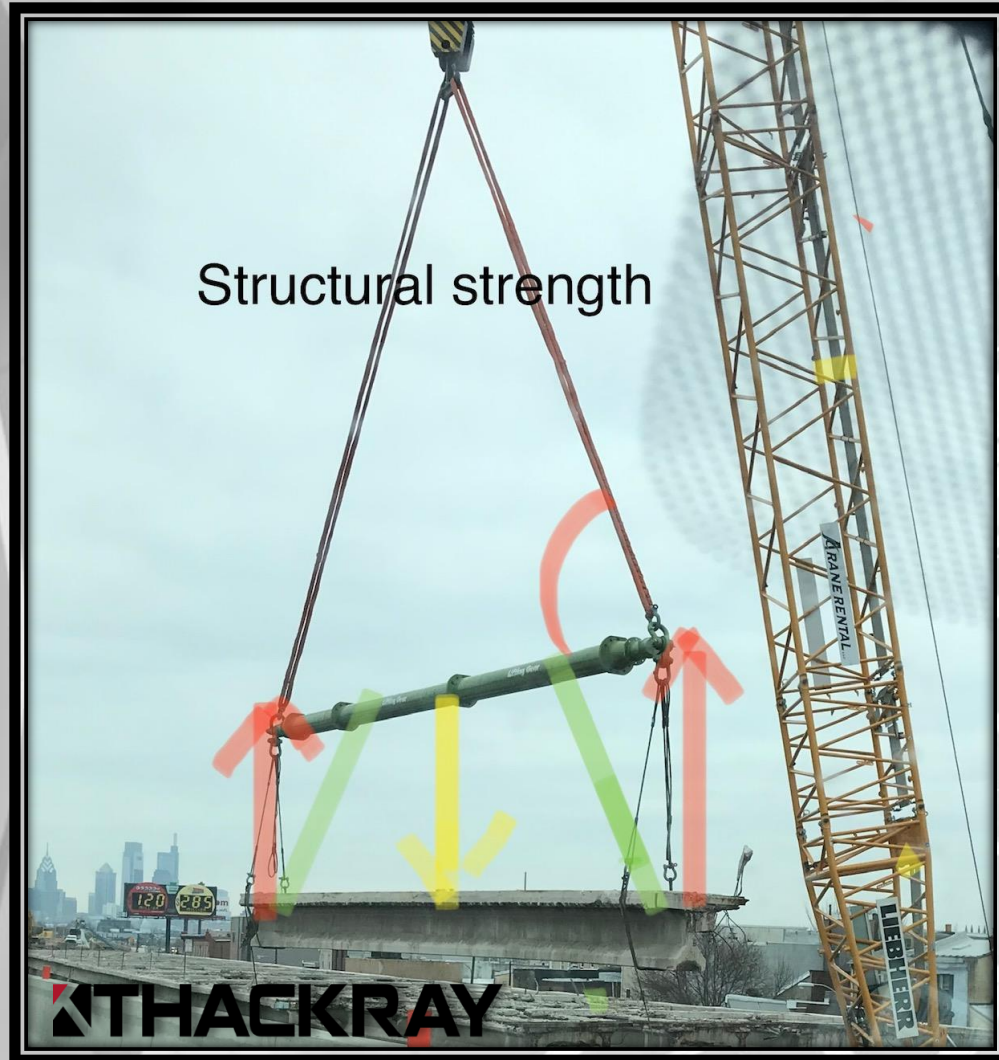
- Identify load weight , center of gravity and dimensions. (see pic)
- Identify components that could shift during LHA and Develop a method of securement (excavator).
- Identify the attachment and contact points suitable for load to be handled (lifting eye).
- Identify the load orientation and securement before release .





Load Structural Strength

Structural strength

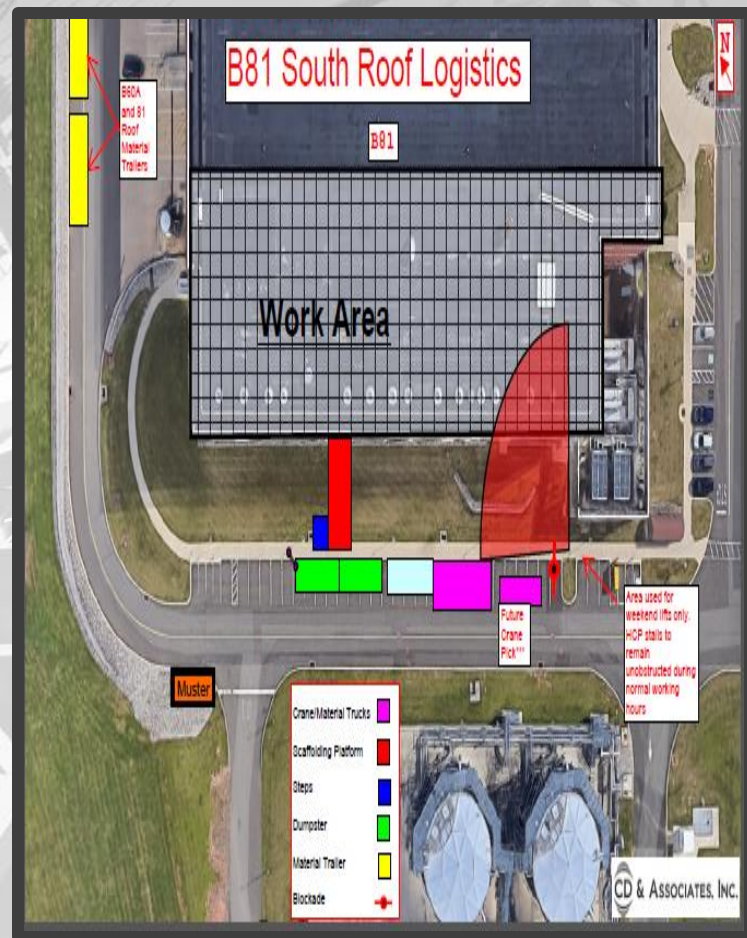


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Site Control

- Identify Pedestrian access (**people sneak In**)
- Traffic controls in and around Jobsites (**Parking garage , Private Driveway**)
- Potential interferences from other site activates and controls in place. (Bob Cat)
- Identify location of barricades or other measures to put in place to restrict interference . (see plan)





Load Handling Equipment

- Identify Load Handling equipment and the anticipated configurations
- Ensure the load handling equipment is capable handling the total anticipated load , including rigging , accessories and attachments in attended configuration
- Establish the process to set up , Erect or install and dismantle by qualified person and manufacture requirements
- Comply by site requirements and Industry standards.



Rigging Accident

Generator falls from crane, killing two at North Jersey construction site





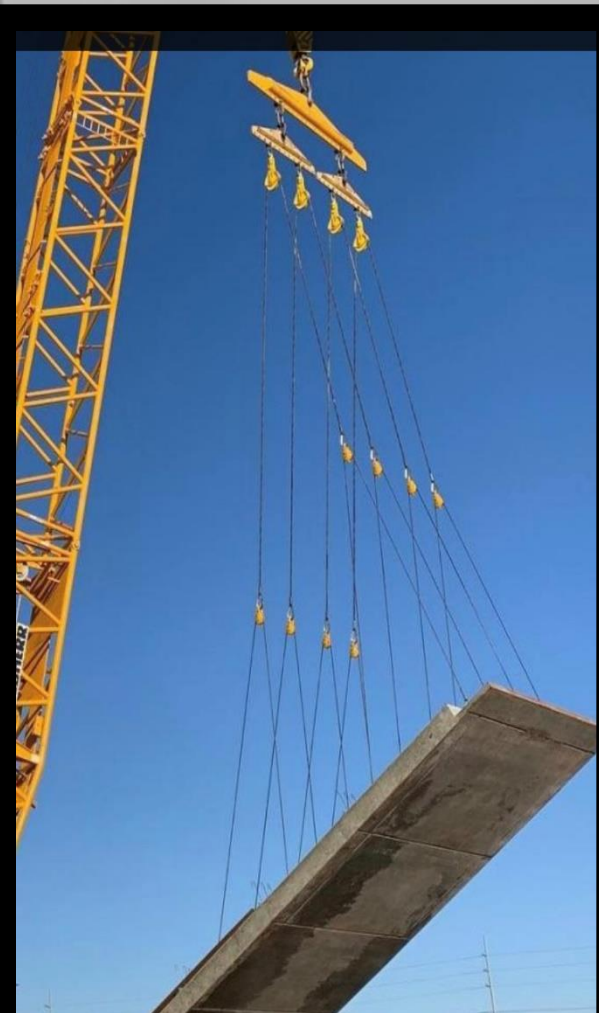
Rigging

- Establishing rigging method (Hitch type- Vertical, basket & Choke)
- Ensure rigging method have capacity to support load and configuration and geometry Dynamic Effects (load angle) such as D/d ratio , environmental .
- Identify the weight of rigging accessories and attachments .
- Rigging meets manufactures requirements. ASME B30.9 B.20 B.26 (No China Shackles)
- Identify all necessary inspections and tests for rigging equipment . (LIFTING BEAM)(OSHA)
- Insure rigging will be protected from damage such as cutting , abrasion , friction ,shifting & turning
- Picture Observation : Center of Gravity pumps





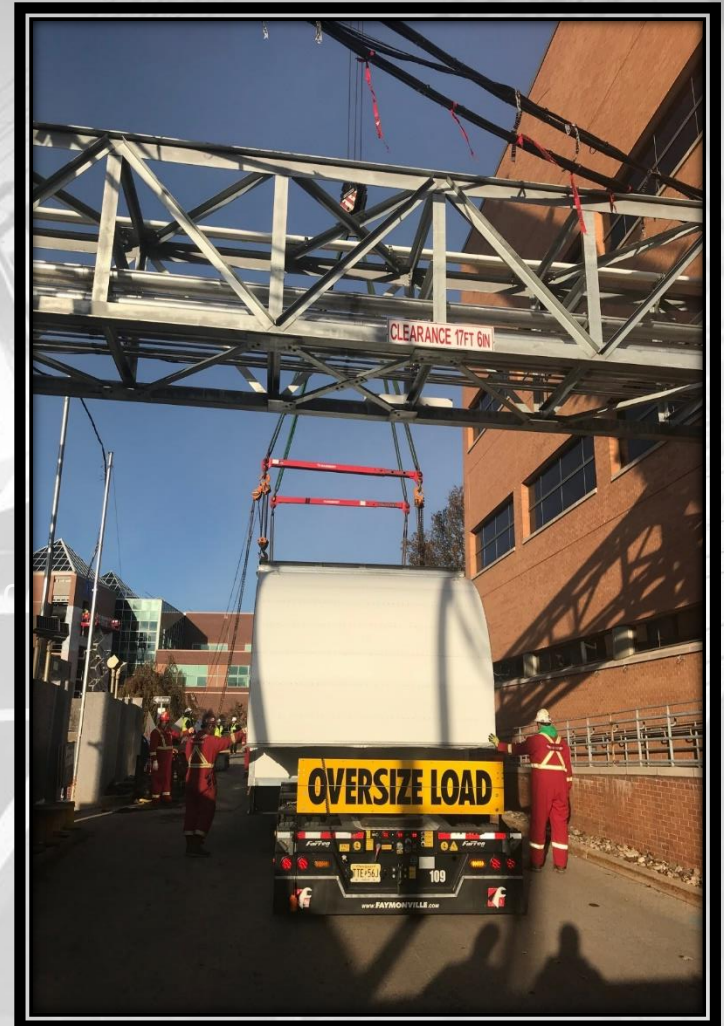
Rigging Example





Load Path & Travel

- Identify travel path
- Insure load as adequate clearance to prevent contact to specific hazards or obstructions .
- Consider Dynamic Movement (temp , wind water and Ice .(Wind Sail Effect) (Tunnel Effect)
- Identify need for Load Control (tag line or push pull sticks)
- Identify Positioning of Personal required to support LHA.





LEE HENRY

BAY CRANE

THACKRAY
1-800-34 CRANE

Thackray
CRANE RENTAL
1-800-34 CRANE
PHILADELPHIA, PA



Site Services and Support Equipment

- The following parameters / conditions services to be perform LHA
- Work area (set up and lay down)
- Support service Utility (water, electrical, power line)
- Assist/Tail crane or High Reach positioning
- Unobstructed access / for LHA travel path
- Suitable structure integrity foundation and support (slabs . Bridges , Decks) **Center City Basement**
- Soil Conditions (allowable Ground barring pressure) consideration of erosion , frost , water saturation and slope
- Site specific Hazards such as volts , pipe lines, tunnels and previous excavation
- presence of additional Loads by surrounding structure such as excavation or back fills .
- Ensure that all adjustments , soil mitigation and reinforcements are completed prior to performing work.

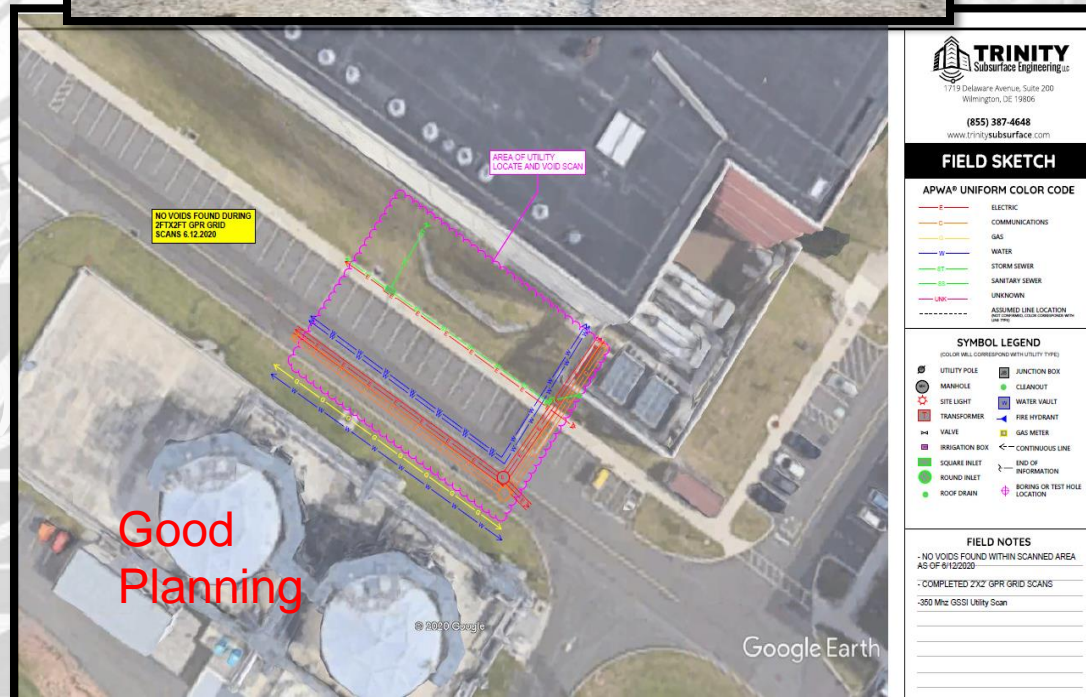


UNIFORM COLOR CODE FOR MARKING UNDERGROUND UTILITY LINES

	PROPOSED EXCAVATION
	TEMPORARY SURVEY MARKINGS
	ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES
	GAS, OIL, STEAM, PETROLEUM OR GASEOUS MATERIALS
	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT
	POTABLE WATER
	RECLAIMED WATER, IRRIGATION AND SLURRY LINES
	SEWERS AND DRAIN LINES

Site Control

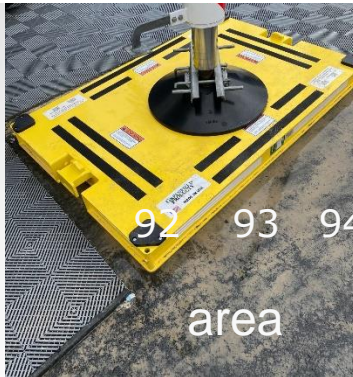
Controlling Entity
must Inform
equipment user &
operator of
known
underground
hazards
(voids, utilities, etc)



Ground Bearing Pressure

TABLE 5.2 Typical bearing capacities (subject to actual load test)

Material	Weight
Massive Rock	100 Tons PSF
Laminated Rock	35 Tons PSF
Hardpan	10 Tons PSF
Compact Sands-Gravel (Mixtures)	5 Tons PSF
Loose Sands (Mixtures)	4 Tons PSF
Sand Coarse Loose	3 Tons PSF
Sand Fine Loose	1 Ton PSF
Hard Clay	6 Tons PSF
Medium Clay	4 Tons PSF
Soft Clay	1 Ton PSF



Recommended Calculated formula
 can be used to size crane mats .
 Dave Duerr P.E : Max GBP/ 5,500 Soil

Link-Belt Cranes, Lexington, Kentucky - HTC / HTT-86100 (N3)

Model HTC / HTT-86100 (N3) Telescopic Boom with 39,500# CTWT

EM3 Boom on Fully Ext. O/R

93800 lb load @ 20 ft radius

66.0° boom angle

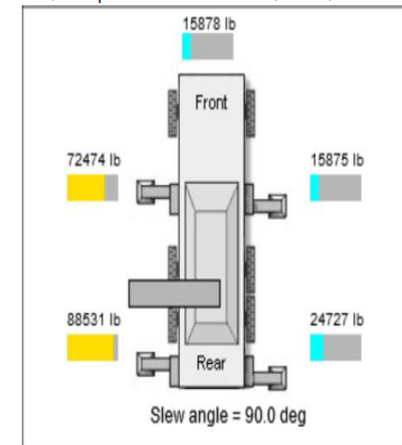
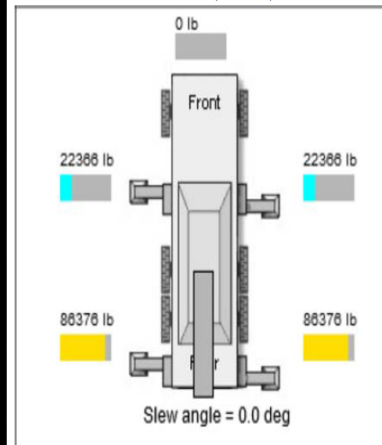
217,484 lb gross vehicle weight (GVW)

Rear O/R Max Load: 106,000 lb; Front O/R Max Load: 97,400 lb; Bumper O/R Max Load: 51,000 lb;

60 ft boom + 0 FT fly, w / 2 DEG fly offset

Main pontoon: 489 in²; Bumper pontoon: 201 in²

Date: 6/12/2020 - v1.0





Communication System

- Identify suitable Communication for use during LHA such as the following :
 1. Hand signals
 2. Voice signals
 3. Video
 4. Horns and audible signals
 5. Signal or warning lights .
 6. Identify a back up communication system
 7. Communication for different equipment onsite such as (radio Channel) **Houston Accident**



Contingency Plan & Emergency Action Plan

Potential Events

- Equipment Malfunction , Power Failure , Communication Failure
- Deviation From Lift plan
- Adverse changes in weather conditions (Wind , Visibility)
- Adverse changes in Site Conditions
- Identify EAP directly related to Lift



Pre JOB-HUDDLE

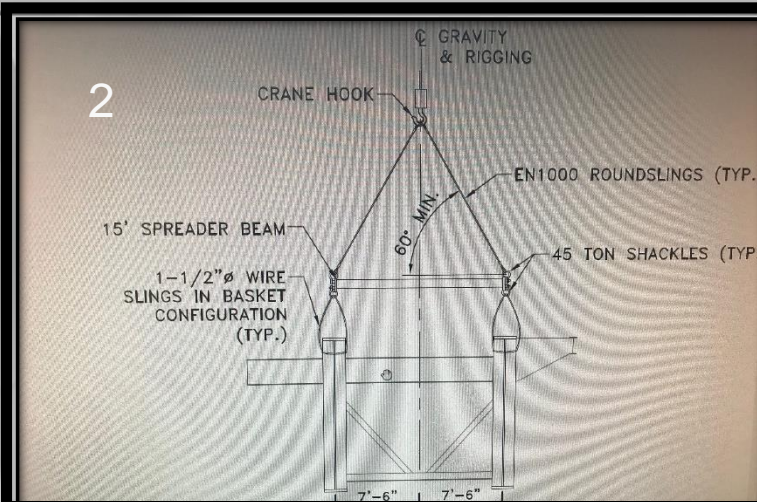
Final

- Have that Pre lift Meeting before lift .
- During Lift ensure lift LHA
Continues to Comply with PLAN.
- Post Lift Review .



JOB Planing (Example)

I 95 Bridge Beam Removal 180,000 lbs



JOB Planning Example

Modular house lift Phila , Pa





ASME B30.5 Responsibilities

Participants of a Crane lift

- Crane Operator
- Crane Owner
- Site supervisor
- Lift Director
- Crane User



Chapter 5.3 of the ASME B30.5 standards for all stakeholders involved in crane lifting operations

1. Crane Owner

The crane owner is responsible for ensuring that the crane is in safe working condition and that it meets all applicable safety standards. They must also ensure that the crane is operated by qualified personnel and that all necessary inspections and maintenance are performed.



2. Crane Operator

The crane operator is responsible for the safe operation of the crane. They must be properly trained and qualified to operate the specific type of crane being used. The operator must also be familiar with the crane's load chart and other technical specifications.



3. Signal Person

The signal person is responsible for communicating with the crane operator to ensure that the crane is positioned correctly and that loads are lifted, moved, and placed safely. They must be trained in the proper hand signals and communication protocols used in crane operations.



4. Rigger

The rigger is responsible for preparing the load for lifting and ensuring that it is properly secured to the crane's hook. They must also be trained in the use of rigging equipment and techniques, including the safe working load of the rigging equipment being used.

•



5. Site Supervisor

The site supervisor is responsible for overseeing the entire crane operation and ensuring that all personnel involved are properly trained and qualified. They must also ensure that the crane is being used in a safe and efficient manner, and that all safety protocols are being followed.



6. Maintenance Personnel

Maintenance personnel are responsible for performing regular inspections and maintenance on the crane to ensure that it is in safe working condition. They must be trained in the specific maintenance requirements of the crane being used.

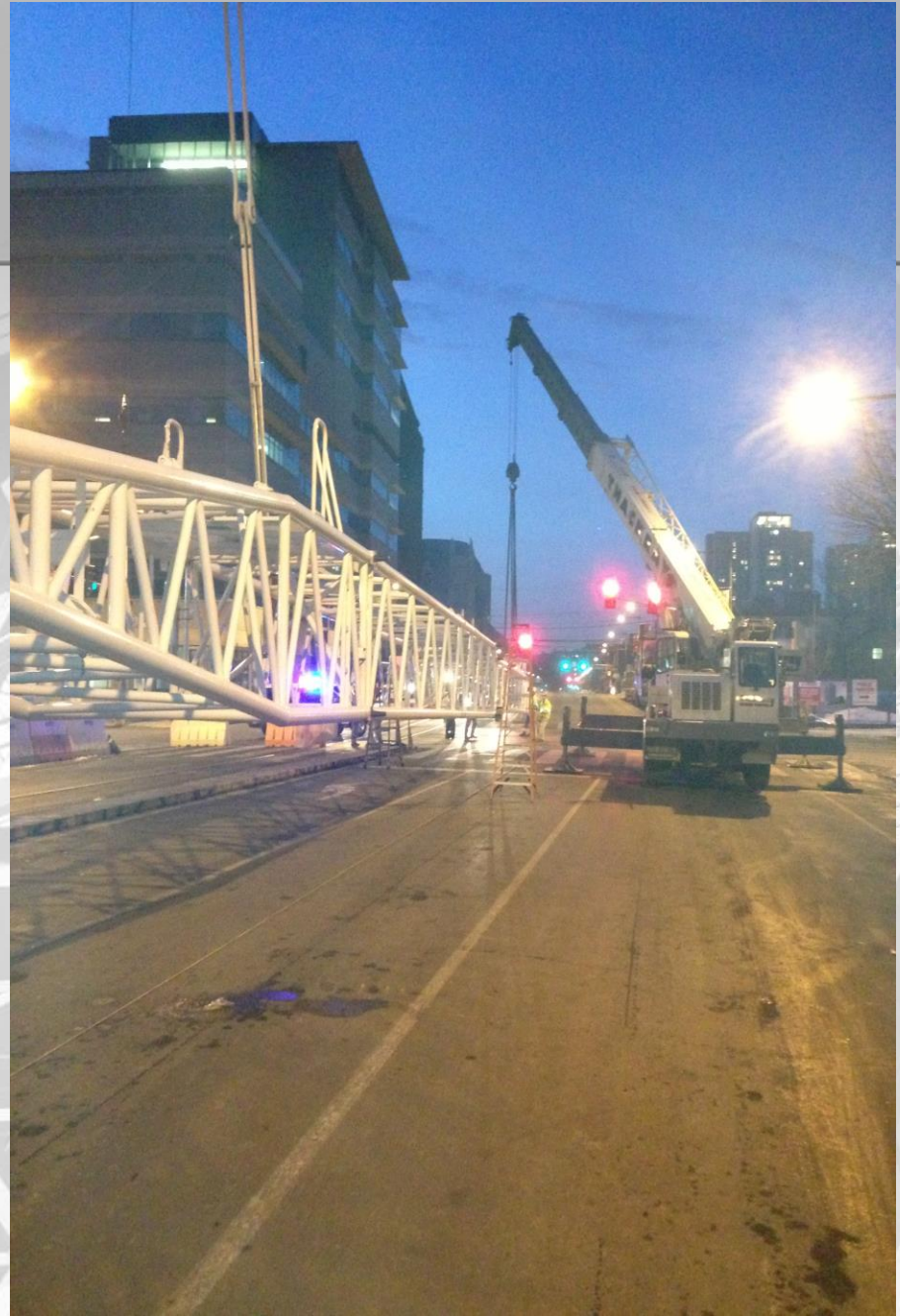
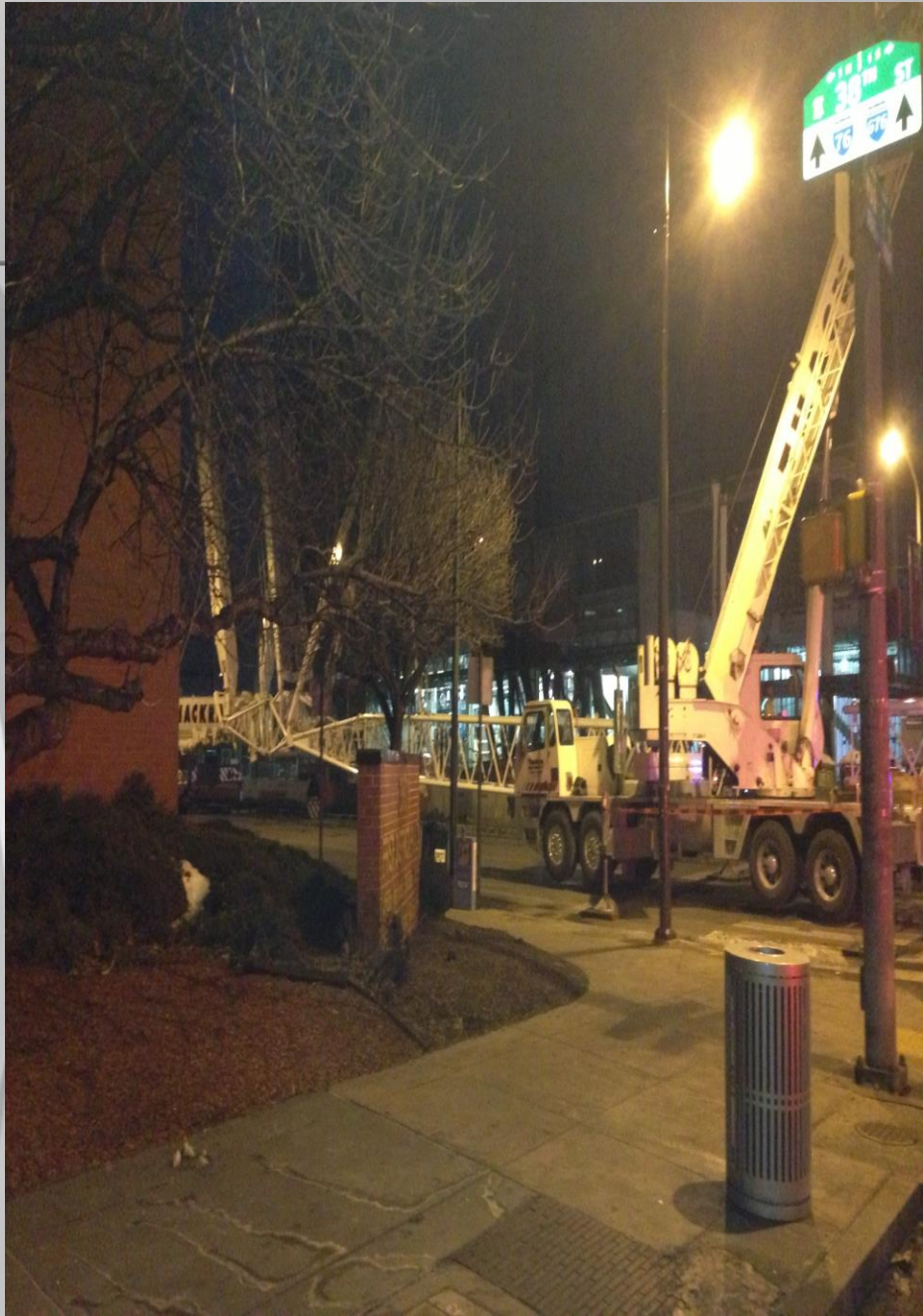
7. Lift Director

The lift director is responsible for planning and coordinating all aspects of the crane operation, including determining the appropriate crane, selecting the appropriate rigging, and coordinating the activities of all personnel involved. They must be familiar with all applicable safety standards and regulations and must have the necessary training and experience to perform this role.





















YARDS
BREWING COMPANY



GO Phillies!!!



Questions?



Crane Operator Responsibilities

- Review requirements with lift director before job
- Know what types of conditions that effect crane and notify LD concerning the possible presence of these conditions.
- Understanding and applying Crane Operator Manual
- Understanding crane functions and limitations
- Using crane load chart and diagrams. Applying all note and warnings
- Refusing to operate crane when working in the prohibited area of Power lines.
- Ensuring all functions are in the neutral positions .
- Not operating crane when physically or mental unfit .
- Not divert his or her attention when operating controls
- Observing outriggers of crane
- Calculating or determining load capacities
- Consider all known factors that may effect crane capacity.
- Know standard hand signal and basic rigging
- Leaving crane unattended.

Operator NCCCO OSHA Time Line

Got rolling from a Tower Crane Collapse back in 1989 in San Francisco . 5 Workers died . SCRA got he the ball rolling with Industry leaders and State regulators .

1. National Commission of Crane Operators kick started back in 1995
2. 1999 OSHA recognizes NCCCO to meet ASME operator qualification.
3. 2002 Recognized by OSHA
4. 2004 NEW JERSEY Crane Operator License CCO
5. 2007 Accredited by ANSI
6. 2008 OSHA Publishes it final Rule
7. 2008 PA Crane Operator License
8. 2010 New OSHA Crane Standard
9. 2014 OSHA announces delay
10. 2017 One Year extension
11. 2018 December Operator Qualification

NCCCO Formula

**Training
+
Certification
+
Evaluation
=
QUALIFICATION**

Operator Evaluations

What am I required to do under OSHA's new Evaluation requirement? The Rule states that, effective February 7, 2019, you must conduct an evaluation of each operator to ensure he/she is qualified by a demonstration of (i) the skills and knowledge necessary to operate the equipment safely, and (ii) the ability to recognize and avert risks associated with the operation.

The skills and knowledge OSHA has identified include those specific to the safety devices, operational aids, and software the crane is equipped with. Most importantly, the evaluation must take into account the size and configuration of the crane he/she plans to operate including (but not limited to) the crane's lifting capacity, boom length, any attachments (such as a luffing jib), and counterweight set-up

What else must the Evaluation consist of? The Evaluation must also cover the operator's ability to perform the hoisting activities required for the work he/she is assigned, including, if applicable, blind lifts, personnel hoisting, and multi-crane lifts

Operator Evaluations

Who can conduct the Evaluations? They must be conducted by someone who has the “knowledge, training, and experience necessary” to assess equipment operators.

Can I delegate these Evaluations to someone else? The evaluator must be an employee of yours or be acting as your agent. If you do delegate the evaluations to an agent you are still responsible for ensuring they are done correctly

How specific do the Evaluations have to be? Once you have successfully evaluated an operator for the necessary skills and knowledge for the size and configuration of crane he/she plans to operate, you may allow that operator to operate other equipment that you can demonstrate does not require substantially different skills, knowledge, or ability to recognize and avert risk to operate.

Do the evaluations I have already done count? Yes, for operators employed prior to December 10, 2018, you may rely on your previous assessments in lieu of conducting a new evaluation of that operator’s existing knowledge and skills. The documentation must note the date of the assessment and the make, model, and configuration of the crane on which it was done

Operator Evaluations

How often do I have to do these Evaluations? Re-evaluations are required whenever you provide retraining to an operator. And you must retrain an operator whenever you believe it's necessary based on an operator's performance or an evaluation of the operator's knowledge. The re-evaluation need only focus on the area(s) which the retraining covered

Do I have to document the Evaluation? Yes. The documentation must be available at the worksite and must include: the name of the operator and the evaluator; the date of the evaluation; and the make, model, and configuration of the crane used in the evaluation. The evaluator also has to sign it.

Operator Evaluation

- Goal is for operator “through formal and practical instruction” to
 - Develop skills, knowledge and ability
 - Recognize and avert risk
 - Operate safely for assigned work
- OSHA very specific on training content
 - Areas listed in 1926.1427 (j)(1) and (2) and Appendix C
- Retraining required (not a one-time event)
 - Whenever there is an indication that it’s necessary
 - Based on operator’s performance *or* an evaluation of operator’s knowledge



Operator Evaluation

Evaluation Documentation



- Evaluations must be documented, and include:
 - Operator's name
 - Date of evaluation
 - Make, model, configuration of equipment used in evaluation
 - Evaluator's name and signature
- Documentation required to be available at worksite
 - Electronic documentation OK



Operator Evaluation

Evaluation Provisions



- Employer may rely on **previous assessments** of operators employed prior to 12/10/2018 in lieu of conducting new evaluations
- **BUT**, assessments by previous employers do **NOT** count
- Employer may allow operator to operate other equipment that employer can demonstrate does not require **substantially different** skills, knowledge, or ability to recognize and avert risk to operate



Operator Evaluation

- Must be an **employee or agent** of the employer of the operator-in-training
- Must have the **knowledge, training, and experience** necessary to direct operators-in-training on the equipment in use (*Note: OSHA's definition of a "qualified person" [1926.32] does **NOT** apply here*)
- Must have **no other tasks** that might distract
- Must be in **direct line of sight** with the operator
- Must be able to **communicate** with operator
- Monitoring must be **continuous** (short breaks permitted)



Operator Evaluation

*“ An individual may be a **fully certified and evaluated operator** with respect to one piece of equipment . . . but simultaneously be an **operator-in-training** . . . with respect to different equipment or tasks that require significantly different skills or knowledge to ensure safety.”*

[Preamble to the Final Rule, Federal Register, Vol. 83, No. 218, p. 56211.]



Operator Evaluation

“ . . . the employer’s duty to train remains an ongoing responsibility that must be met as the operator’s experiences expand . . . [and it] extends beyond when the individual is certified and evaluated.”

[Preamble to the Final Rule, Federal Register, Vol. 83, No. 218, p. 56210.]

Mini-Crawler Crane



MOST SIMILAR

Telescopic Boom —
Fixed Cab
TSS

Fig. A-1-1 Lift Data Sheet (Cont'd)

EXAMPLE PRE-LIFT SAFETY CHECKLIST

Pre-Lift Check	Yes	N/A	Rigging Check	Yes	N/A	Crane Setup Check	Yes	N/A	Personnel Check	Yes	N/A
Payload weight / CG verified?			Correct rigging?			Annual inspection?			Lift director in place?		
Lift correctly categorized?			Rigging inspections current?			Daily checks conducted OK?			Qualified rigger in place?		
Plan in place?			Inspected before use?			Adequately supported?			Qualified signalperson(s)?		
Plan is viable?			Rigging correctly assembled?			Mats where required?			Communication (hand/radio)?		
Required approvals / permits?			Protection used as req'd?			Setup checked/level?			Operator certified/qualified?		
Weather / wind OK?			Rigging properly tagged?			Adequate parts of line?			Nonessential persons out?		
Power lines/undergrounds?			Sling angles acceptable?			Obstructions/clearance?			Rigger roles identified?		
Site control / area barricaded?			Lift points inspected?			Configuration correct?			Other craft roles identified?		
Contingency considerations?			D/d ratio adequate?			Controls / functions OK?			Rigging engineer present?		
Emergency plan needed?			Tag lines?			Services / ancillary eqpt.?			Pre-lift meeting held?		

PRE-LIFT BRIEFING

I confirm that the lift plan has been explained to me, that we have discussed it, and that I understand the operation and my role and responsibilities.

NAME (PRINT)

SIGNATURE

CRAFT/TRADE

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NAME (PRINT)

SIGNATURE

LIFT DIRECTOR

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Takeaways

1. The understanding the view of a Operator Perspective
2. Basic Lift Plan understanding (Radius) (Boom length) (measure)
3. Basic Rigging Practices (Identify the Center of Gravity)
4. Operator Evaluation – Training + Certification + Evaluation= Qualified

Mark Thackray Watch LIST

- * **ANY type of DEMO Job . Removing a Structure .**
- * **Synthetic Sling Sharp edges .**
- * **Big Crawler Boom Configurations**
- * **WIND / Weather**
- * **Cargo Securmenet**



Thank you ! Questions?

