vifalio

FREE STUDY GUIDE · USA 2026

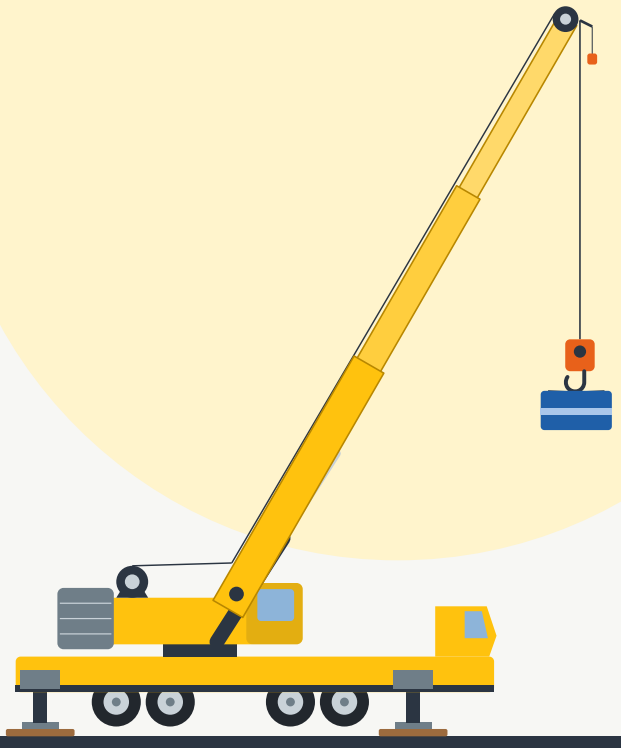
CRANE 2026

OPERATOR STUDY GUIDE

OSHA · LOAD CHARTS · SIGNALS

What it takes to run a crane in the US: OSHA basics, certification paths, crane types and parts, load chart math, outriggers, hand signals, power lines and wind. Plus 40 practice questions.

- What OSHA asks of operators
- Load chart math, step by step
- 12 hand signals with drawings
- Power lines, wind, inspection
- 40 practice questions + answers



HOW TO USE THIS GUIDE

Read it in order once. Then review the study pages until you score 8 of 10 in every practice test.

1 KNOW THE RULES

Pages 3-4: what OSHA asks and the certification paths.

2 KNOW THE JOB

Page 5: what operators do and the BLS median pay.

3 KNOW THE CRANE

Pages 6-8: crane types, parts and the load chart.

4 WORK SAFE

Pages 9-13: setup, signals, rigging, power lines, wind, inspection.

5 TEST YOURSELF

Pages 15-18: 40 original questions. Check page 19 after each section.

6 GET STARTED

Pages 20-21: ways into the trade and an 8-step plan.

WHAT'S INSIDE

3 What OSHA requires
4 Certification paths
5 The job + BLS median pay
6 Types of cranes
7 Parts + operator aids
8 Reading a load chart
9 Outriggers + ground
10 Standard hand signals
11 Rigger, signal person, slings
12 Power lines, wind, weather
13 Inspections
14 Glossary: 30 terms EN / ES
15 Practice: OSHA + certification
16 Practice: cranes + load charts
17 Practice: setup, power, wind
18 Practice: signals, rigging
19 Answer key with explanations
20 First job: ways in
21 Your 8-step plan

THE RULES OSHA basics, certification

SAFETY Load chart, power lines, wind

BILINGUAL EN / ES glossary

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Independent study guide, not affiliated with OSHA, any certification body, union or crane maker. The real load chart from the crane's maker always has the final word. Pay figures are estimates; no job is guaranteed.

WHAT OSHA REQUIRES (IN GENERAL TERMS)

Cranes in construction fall under 29 CFR 1926 Subpart CC. For the operator, it comes down to three things.

1 TRAINED

Trained on the crane type and the tasks. An operator-in-training runs a crane only with a trainer watching, within limits.

2 CERTIFIED

Certified by an accredited testing organization OR qualified through an audited employer program.

3 EVALUATED

The employer checks your skills and knowledge on the equipment and tasks, and keeps a record of it.

A certificate alone is not enough: the employer evaluation is required too (since February 2019).

Option	What it means
Accredited testing org	Certification by crane type from an accredited organization. It goes with you from job to job.
Audited employer program	Exams run by your employer and checked by an auditor. Valid only while you work there.
State or city license	Some states and cities have their own crane license. Where it exists, you need it too.
U.S. military	For operators who are federal employees of the military.

CERTIFICATION EXAMS USUALLY COVER

- Controls and how your crane type behaves.
- Load chart use and capacity math (calculator allowed).
- Power line hazards and what to do in a contact.
- Ground, setup, signals and the Subpart CC rules.
- Practical: inspection, controlled moves, safe shutdown.

CERTIFICATION

5 YEARS

An accredited certification is valid for 5 years. Then you recertify.

CERTIFIED BY TYPE (EXAMPLES)

- Telescopic
- Lattice boom
- Tower
- Articulating

WHERE SUBPART CC FITS

CONSTRUCTION

Mobile, crawler, tower and many other cranes and derricks used in construction work, with some exceptions.

NOT ALWAYS

Overhead cranes in factories follow general industry rules (1910.179). Some small or delivery-only uses have special rules.

Age: federal child labor rules keep workers under 18 off power-driven hoisting equipment, like cranes.

Sources: 29 CFR 1926.1400 (scope), 1926.1427 (operator training, certification and evaluation; final rule of November 2018, evaluation from February 7, 2019), 1926.1430 (training), 29 CFR 570.58 (under 18). Plain-word summary, not legal advice.

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CERTIFICATION PATHS

The usual order. Each program sets its own exams, fees and rules: check them before you pay.

1 TRAIN
Classes, seat time and rigging basics: school, union, employer or rental company.
PREP

2 WRITTEN
A core exam plus an exam for your crane type, with load chart math.
KNOWLEDGE

3 PRACTICAL
On the crane type: inspection and controlled moves around a course.
IN THE SEAT

4 EVALUATED
Your employer evaluates you on the crane you will run.
ON THE JOB

CERTIFICATION DOES

- Show you passed accredited written and practical exams.
- Cover the crane type (or types) you tested on.
- Last 5 years before you recertify.
- Help you get hired and move between employers.

CERTIFICATION DOES NOT

- Replace the employer evaluation.
- Cover crane types you did not test on.
- Replace a state or city license where one exists.
- Make you experienced on every model.

RED FLAGS IN COURSE ADS

- "OSHA card" or "OSHA-certified operator": OSHA does not certify crane operators.
- Online only, with no practical exam on a real crane.
- "Lifetime" certification.
- "Guaranteed pass" or "guaranteed job".

MARKET OPTIONS OFTEN MENTIONED (EXAMPLES, NOT ENDORSEMENTS)

- NCCCO: a widely known national program with written and practical exams by crane type.
- NCCER: offers crane operator assessments and credentials through its network of test sites.
- CIC (Crane Institute Certification): another national option for operators, riggers and signal persons.
- Confirm accreditation and compare fees yourself: they change by program, test site and number of exams.

Sources: 29 CFR 1926.1427 (certification options, 5-year validity, written and practical tests), 1926.1428 (signal persons). Programs are named only as examples; this guide is not affiliated with any of them.

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WHAT A CRANE OPERATOR DOES

You lift and place heavy loads safely: steel, HVAC units, precast, machinery. The crane is big; the job is precise.

$68,080
Median pay per year (BLS)
Crane + tower, May 2025

$32.73/HR
Per hour: our estimate
Yearly / 2,080 hours

42,900
Jobs in the US (2025)
BLS

18+
Age to run a crane
Federal child labor rules

Median: half earn more, half less. Pay changes with state, union scale, crane size and overtime. No pay is guaranteed.

A NORMAL DAY

- Inspect the crane before the shift
- Set up on outriggers and mats
- Read the load chart for each lift
- Hoist, swing and land loads on signals
- Watch wind, power lines and people
- Report defects and secure the crane

WHY THERE IS DEMAND

- Construction, energy, ports and plants need lifts every day.
- BLS projects about 4% growth for crane and tower operators (2025-35).
- Openings also come from operators who retire or change jobs.

WHERE OPERATORS WORK

Construction · Steel erection · Crane rental · Wind energy · Ports · Manufacturing · Utilities · Shipyards · Oil and gas

HOW YOU GROW

Oiler / helper
Setup, mats, rigging, grease

Apprentice
Paid training + seat time

Certified
Smaller cranes first

Bigger cranes
Lattice, tower, more types

Lead / planner
Plans lifts, trains others

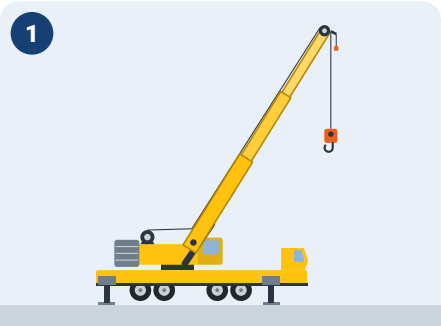
Pay and jobs: U.S. Bureau of Labor Statistics, Occupational Outlook Handbook, Material Moving Machine Operators, crane and tower operators (median pay May 2025: $68,080 per year; 42,900 jobs in 2025; +4% projected 2025-35). The hourly figure is our estimate (yearly / 2,080 h).

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TYPES OF CRANES

Certification goes by crane type, so know the families. Simplified drawings, not to scale.

1

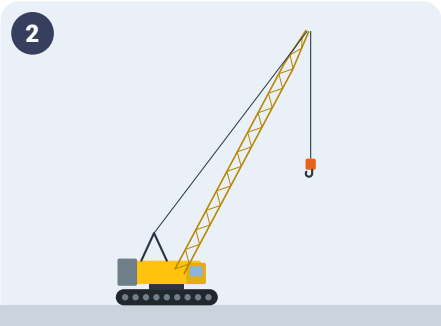


MOBILE TELESCOPIC

A hydraulic boom slides in and out. It drives to the site and sets up on outriggers.

Typical use: Construction, HVAC, steel, rental

2

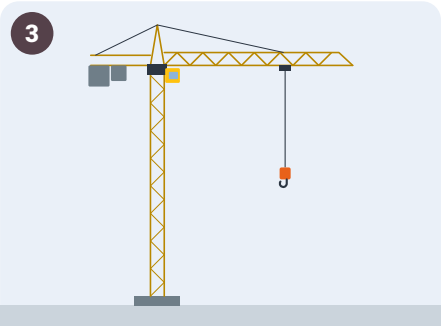


LATTICE BOOM CRAWLER

A steel truss boom on tracks. Very high capacity; assembled on site.

Typical use: Big buildings, bridges, wind farms

3

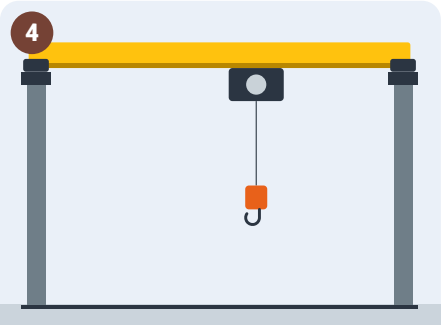


TOWER CRANE

A fixed mast with a horizontal jib and a trolley. It can climb with the building.

Typical use: High-rise construction

4

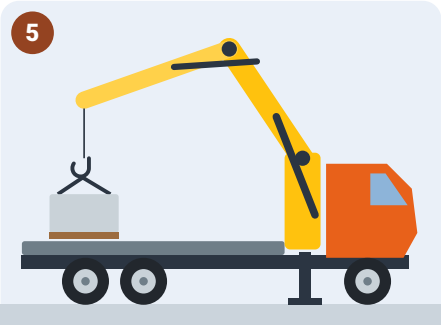


OVERHEAD / BRIDGE

A bridge rolls on runways inside a building; the hoist rides a trolley.

Typical use: Factories, warehouses, steel mills

5

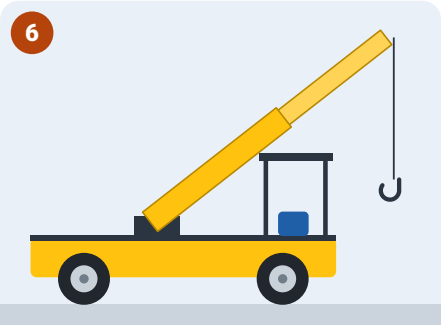


ARTICULATING (KNUCKLE BOOM)

A folding boom on a truck. Precise; often unloads its own truck.

Typical use: Drywall, block, trusses, delivery

6



CARRY DECK

A small 4-wheel crane that can pick, carry and set loads in tight places.

Typical use: Plants, refineries, shops

CERTIFICATION GOES BY TYPE

Exams in the market are usually split by type: telescopic (swing cab or fixed cab), lattice boom (crawler or truck), tower, articulating, overhead and others.

Pass the type you will run. A new type usually means a new practical exam, and always a new employer evaluation.

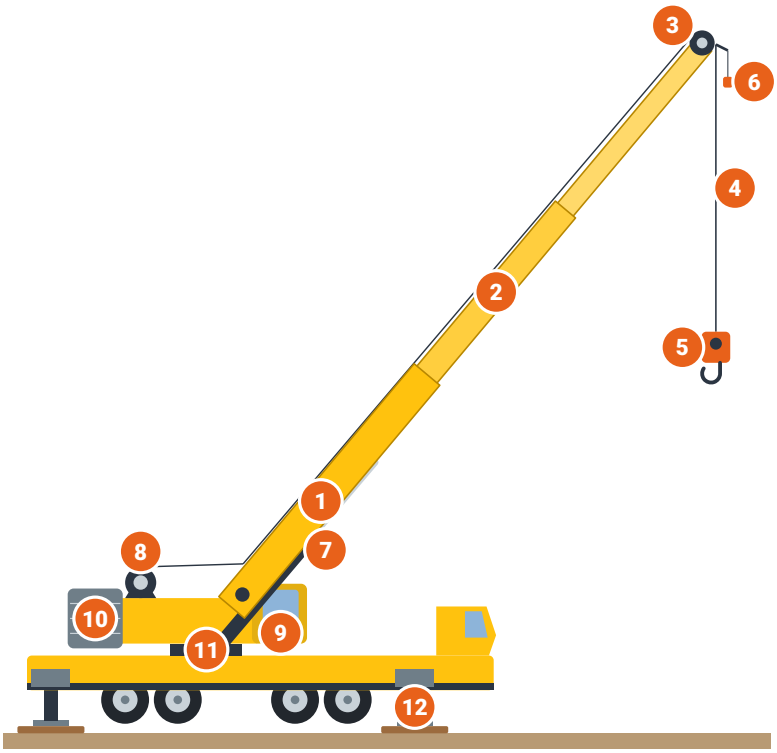
Sources: 29 CFR 1926.1400 (equipment covered by Subpart CC) and 1926.1427 (certification by type); 29 CFR 1910.179 (overhead cranes in general industry). Drawings by Vifalio, simplified.

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PARTS OF A MOBILE TELESCOPIC CRANE

Know the names: the written exam, the inspection and the radio all use them.

SET UP ON OUTRIGGERS (SIMPLIFIED SIDE VIEW)



1. **Boom (base section)**
   Main arm. Its angle and length set the radius.
2. **Telescoping sections**
   Slide out of the base with hydraulics.
3. **Boom tip + sheaves**
   Pulleys at the head guide the hoist rope.
4. **Hoist rope**
   Wire rope from the drum to the hook block.
5. **Hook block**
   Sheaves + hook. Its weight is a deduction.
6. **Anti-two-block**
   Stops the block before it hits the tip.
7. **Boom lift cylinder**
   Raises and lowers the boom.
8. **Hoist drum (winch)**
   Winds the rope in and out.
9. **Operator cab**
   Controls, LMI/RCI screen and the load chart.
10. **Counterweight**
    Balances the load. Never stand in its swing.
11. **Turntable (swing bearing)**
    Lets the upper turn 360 degrees.
12. **Outriggers + floats**
    Lift and level the crane, spread the load.

OPERATOR AIDS (IN GENERAL)

Device	What it does
LMI / RCI	Load moment / rated capacity indicator: compares the load with the chart and warns or stops motion
Anti-two-block	Prevents contact between the hook block and the boom tip
Boom angle or radius indicator	Shows the boom angle or the radius in the cab
Outrigger position sensor	Tells the LMI/RCI how the outriggers are set (newer cranes)

Aids help, but they don't replace the load chart. If one fails, follow the temporary rules and get it fixed.

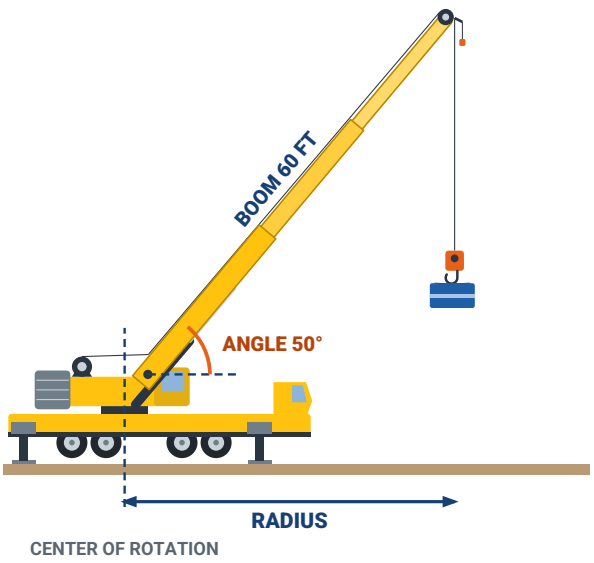
Sources: 29 CFR 1926.1415 (safety devices) and 1926.1416 (operational aids: anti-two-block, boom angle and length indicators, load weighing devices, outrigger sensors by build date). Names vary by maker.

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READING A LOAD CHART

Sample chart for study only: invented numbers, not from any real crane. The chart in the cab of YOUR crane is the only one that counts.

RADIUS = CENTER OF ROTATION TO THE HOOK



SAMPLE CHART · ON OUTRIGGERS · 360° · POUNDS

RADIUS (FT)	BOOM LENGTH (FT)			
	40	60	80	100
10	60,000	52,000	–	–
15	44,000	40,000	34,000	–
20	33,000	31,000	28,000	22,000
25	25,500	24,500	22,500	19,000
30	20,000	19,500	18,500	16,000
40	–	**13,000** 1	12,500	11,200
50	–	9,200	**9,000** 2	8,200
60	–	–	6,800	6,200
70	–	–	5,200	4,800
80	–	–	–	3,700

Above the thick line: strength limits (the crane can break before it tips). Below it: stability limits.

EXAMPLE 1: READ, DEDUCT, CHECK THE %

1. Boom 60 ft, radius 40 ft: chart = 13,000 lb
2. Hook block 900 lb + rigging 150 lb = 1,050 lb
3. Max load: 13,000 - 1,050 = 11,950 lb
4. Your load 8,000 lb: on the hook = 9,050 lb
5. **9,050 / 13,000 = 69.6% of chart capacity**

EXAMPLE 2: RADIUS FROM THE BOOM ANGLE

1. Boom 80 ft at 55°: 80 x cos 55° = 45.9 ft
2. + 3 ft (boom pin to center of rotation) = 48.9 ft
3. Not on the chart: use the next longer radius, 50 ft
4. Chart (80 ft boom, 50 ft) = 9,000 lb
5. **Minus 1,100 lb (block + rigging) = 7,900 lb max load**

BETWEEN TWO ROWS?

Use the next longer radius and the next longer boom: the lower number.

EVERYTHING COUNTS

Hook block, slings, shackles, spreader bars and a stowed jib (if the chart says) come off the capacity.

OVER 75%? PLAN IT

Many companies treat lifts over 75% of chart, or with two cranes, as critical lifts with a written plan.

Sources: 29 CFR 1926.1417 (follow the maker's procedures and load chart) and 1926.1427 (exams include load chart calculations). Every number on this page is invented for practice; the maker's chart for your crane and setup has the final word.

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SETUP: OUTRIGGERS + GROUND

Many crane accidents start under the crane. Good ground and the right outrigger setup come before any lift.

Step	What to do
1. Walk the site	Look for soft soil, fresh fill, trenches, buried tanks, utilities, slopes and overhead lines
2. Ground info	Ask the controlling entity (often the general contractor) about the ground and hidden voids
3. Outriggers	Extend them to the setting the load chart uses; pins in, a float under every jack
4. Mats	Put a mat under each float when the ground needs more area: solid, flat, centered
5. Level + recheck	Level the crane as the maker says; check floats and level again after the first lifts and after rain

PAD MATH (EXAMPLE)

- Outrigger load 36,000 lb; ground rated 3,000 psf.
- Area needed: 36,000 / 3,000 = 12 sq ft.
- A 4 x 4 ft mat = 16 sq ft: 36,000 / 16 = 2,250 psf. OK.

THE FLOAT ALONE? (EXAMPLE)

- A 2 ft round float = about 3.14 sq ft.
- 36,000 / 3.14 = about 11,460 psf, far over 3,000.
- That is why mats matter.

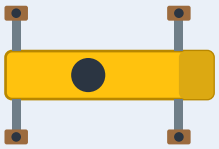
WHO DOES WHAT

- Controlling entity: ground firm, drained and graded enough.
- Operator / lift supervisor: set up by the maker's manual.
- Ground ratings come from a qualified person.

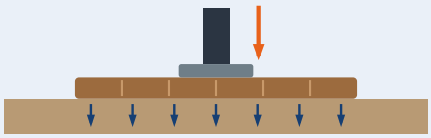
WARNING SIGNS

- A float sinking or a mat cracking.
- The level bubble moving during a lift.
- Water pooling next to an outrigger.

OUTRIGGERS, MATS AND LEVEL (SIMPLIFIED)



SET AS THE CHART SAYS



MAT SPREADS THE LOAD



LEVEL BEFORE YOU LIFT

MEMORIZE

- **Ground first, then the lift**
- **A mat under every float**
- **Chart = outrigger setting**

Sources: 29 CFR 1926.1402 (ground conditions), 1926.1404 (assembly) and 1926.1417 (follow the maker's procedures). Example numbers only: the ground rating comes from a qualified person and the crane data from its maker.

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STANDARD HAND SIGNALS (THE MAIN ONES)

Simple drawings to help you remember. Learn them from the official chart posted at your site and on the crane.

1



HOIST

Forearm up, index finger up; make small level circles.

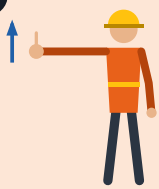
2



LOWER

Arm down, index finger down; make small level circles.

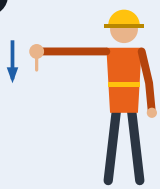
3



BOOM UP

Arm straight out, fist closed, thumb up.

4



BOOM DOWN

Arm straight out, fist closed, thumb down.

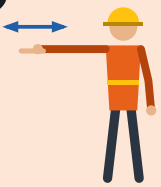
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SWING

Arm straight out; point a finger the way the boom goes.

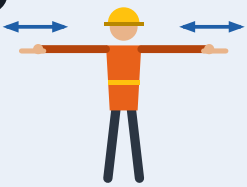
6



STOP

Arm straight out, palm down; move it back and forth, level.

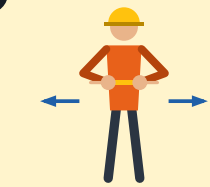
7



EMERGENCY STOP

Both arms out, palms down; move both back and forth, level.

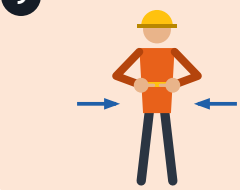
8



EXTEND BOOM

Both fists in front of you, thumbs pointing out.

9



RETRACT BOOM

Both fists in front of you, thumbs pointing at each other.

10



TRAVEL

Arm forward, open hand a little up; push toward the travel side.

11



MOVE SLOWLY

One hand gives the signal; the other stays still in front of it.

12



DOG EVERYTHING

Hands clasped in front of the body: pause all motion.

SIGNAL RULES

- Only one signal person talks to the operator at a time.
- ANYONE can give an emergency stop, and the operator must obey it.
- Radio signals: a dedicated channel, clear words, tested before the lift.

Sources: 29 CFR 1926.1419-1422 and Appendix A to Subpart CC (standard hand signals). Drawings simplified by Vifalio; always use the official chart.

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RIGGER, SIGNAL PERSON + SLINGS

The operator is not alone. Qualified people rig the load and talk to the cab.

Role	What is expected (in general)
Operator	Runs the crane, knows the load chart and can refuse an unsafe lift
Signal person	Needed when the operator can't see the load or its path, or the site calls for one; must be qualified
Qualified rigger	Hooks and unhooks when workers are in the fall zone; rigs for assembly and disassembly
Competent person	Inspects each shift and can stop work for a hazard

SIGNAL PERSON: QUALIFIED MEANS

- Knows the standard signals for the method used.
- Understands crane motions, swing and boom deflection.
- Passed an oral or written test and a practical test.

FALL ZONE + SWING

- Nobody under a suspended load.
- Only workers who hook, unhook or guide stay close.
- Barricade the counterweight's swing area.

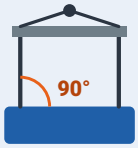
SLING MATH (EXAMPLE)

- 2-leg sling at 60° lifts 4,000 lb.
- Each leg: 4,000 / 2 x 1.155 = about 2,310 lb.
- At 30° it would be 4,000 lb on each leg.

BEFORE THE LIFT

- Know the weight: paperwork, scale or calculation.
- Inspect slings and hardware: tag readable, no cuts or kinks.
- Tag lines guide the load; hands off.

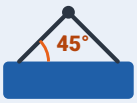
SLING ANGLE FACTOR: THE FLATTER THE SLING, THE HIGHER THE TENSION



90°: x 1.000



60°: x 1.155



45°: x 1.414

MEMORIZE

- **One signal person at a time**
- **Flatter sling = more tension**
- **Nobody under the load**

Sources: 29 CFR 1926.1419-1422 (signals), 1926.1428 (signal person qualification), 1926.1425 (keeping clear of the load, qualified rigger), 1926.1424 (swing radius). Sling factor = 1 / sin(angle from horizontal). Always check the sling tag.

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POWER LINES, WIND + WEATHER

Power line contact is one of the deadliest crane hazards. Plan the distance before the crane arrives.

Voltage (Table A)	Clearance	Voltage (Table A)	Clearance
Up to 50 kV	10 ft	Over 350 to 500 kV	25 ft
Over 50 to 200 kV	15 ft	Over 500 to 750 kV	35 ft
Over 200 to 350 kV	20 ft	Over 750 to 1,000 kV	45 ft

THE 20-FT RULE

- Could any part, load or line get within 20 ft of a line up to 350 kV? Then plan first.
- Or have the utility de-energize and ground it (Option 1).
- Table A needs the voltage from the utility.

IF CONTACT HAPPENS

- Stay in the cab if you can; warn everyone to stay back.
- If fire forces you out: jump clear, feet together, shuffle away.
- Nobody touches the crane or the load.

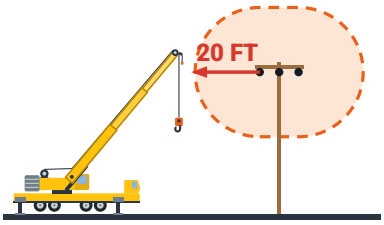
CLOSER THAN 20 FT?

- Planning meeting, warning line or signs, non-conductive tag lines.
- Plus a dedicated spotter, proximity alarm or range limiter, among others.

WIND + WEATHER

- Max wind comes from the maker's chart or manual.
- Big, flat loads catch wind: the limit goes down.
- Stop for lightning, gusts, ice or poor visibility.

THE GENERAL 20-FT RULE (OPTION 2)



20 FT LINES UP TO 350 KV

Over 350 kV up to 1,000 kV: 50 ft

MEMORIZE

- 20 ft for lines up to 350 kV
- Treat every line as live
- Wind limit = maker's chart

Sources: 29 CFR 1926.1407-1408 (power lines up to 350 kV: Options 1-3, Table A, encroachment prevention), 1926.1409 (over 350 kV: 50 ft up to 1,000 kV), 1926.1417 (weather). General summary; follow the utility and your lift plan.

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INSPECTIONS: SHIFT, MONTHLY, YEARLY

A competent person looks the crane over before every shift. A safety defect means fix it or tag the crane out.

When	Who	What
Each shift	Competent person	Visual: controls, leaks, hoses, hooks and latches, wire rope, tires, ground, level, safety devices
Monthly	Competent person	Same items as the shift check, with a written record kept at least 3 months
Every 12 months	Qualified person	Full inspection, parts taken apart if needed; record kept at least 12 months
After repairs	Qualified person	Inspect and test before the crane goes back to work

SHIFT CHECK: EXAMPLES

- Controls and brakes work.
- No air or hydraulic leaks; hoses not cracked.
- Aids work: LMI/RCI, anti-two-block, level.

WIRE ROPE: REMOVE IF

- Kinks, crushing, birdcaging or core sticking out.
- Heat or electric arc damage.
- Too many broken wires (OSHA lists limits per rope lay).

HOOKS: REMOVE IF

- The throat opening has grown (often over 5%).
- Twisted (often over 10°) or cracked.
- The latch is missing or won't close, where one is used.

DEFECT FOUND?

- Safety hazard: tag the crane out of service.
- Tell the employer; fix it before use.
- Write it down: the record protects you.

WHAT TO LOOK FOR (SIMPLIFIED)



HOOK: THROAT + LATCH



HOOK: TWIST



WIRE ROPE: DAMAGE

MEMORIZE

- **Each shift: competent person**
- **Every 12 months: qualified**
- **Defect = tag it out**

Sources: 29 CFR 1926.1412 (shift, monthly and annual inspections), 1926.1413 (wire rope), 1926.1415-1416 (devices and aids), 1926.1417 (tag out). Hook values: common industry practice; the maker's manual has the final word.

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WORK ENGLISH: 30 TERMS

The words you will hear on the radio, in the yard and at the exam. Useful for mixed English and Spanish crews.

English	Español
1. Crane	Grúa
2. Mobile crane	Grúa móvil
3. Tower crane	Grúa torre
4. Overhead crane	Grúa puente
5. Boom	Pluma
6. Jib	Plumín (extensión)
7. Hoist	Izar / malacate
8. Hook block	Bloque del gancho
9. Wire rope	Cable de acero
10. Sheave	Polea (roldana)
11. Counterweight	Contrapeso
12. Outrigger	Estabilizador
13. Float / pad	Zapata
14. Crane mat	Tapete de apoyo
15. Load chart	Tabla de carga

English	Español
16. Radius	Radio
17. Boom angle	Ángulo de la pluma
18. Rated capacity	Capacidad nominal
19. Deduction	Deducción
20. Rigging	Aparejo
21. Sling	Eslinga
22. Shackle	Grillete
23. Tag line	Cuerda guía
24. Signal person	Señalero
25. Two-blocking	Choque de bloques
26. Swing	Giro
27. LMI / RCI	Indicador de carga
28. Power line	Línea eléctrica
29. Fall zone	Zona de caída
30. Competent person	Persona competente

5 PHRASES FOR THE JOB SITE

Stop! Everybody out of the swing area. ▶ ¡Alto! Todos fuera del área de giro.

What does the load weigh? ▶ ¿Cuánto pesa la carga?

Where is the load chart for this setup? ▶ ¿Dónde está la tabla de carga de este montaje?

Use the tag line, not your hands. ▶ Usa la cuerda guía, no las manos.

The wind is too strong. We stop. ▶ El viento está muy fuerte. Paramos.

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PRACTICE · OSHA + CERTIFICATION

10 original questions. Pick one answer for each. Answers and explanations on page 19.

1 **Under 29 CFR 1926 Subpart CC, a construction crane operator must be:**

(A) Just 18 years old
(B) Certified or qualified, and evaluated by the employer
(C) Licensed as a truck driver
(D) Approved by the crane maker

2 **A certification from an accredited testing organization is valid for:**

(A) 1 year
(B) Life
(C) 6 months
(D) 5 years

3 **Who certifies crane operators?**

(A) Accredited organizations or audited employer programs, not OSHA
(B) OSHA, with a wallet card
(C) The crane maker
(D) The local police

4 **The employer evaluation checks the operator's:**

(A) Credit score
(B) Truck license class
(C) Skills and knowledge on the equipment and tasks
(D) Gym fitness test

5 **A qualification from an audited employer program is valid:**

(A) At every company in the US
(B) For life
(C) Only while you work for that employer
(D) Only on overhead cranes

6 **Operator certification is issued by crane:**

(A) Type (capacity is optional)
(B) Color
(C) Brand only
(D) Engine size

7 **An operator-in-training may run a crane:**

(A) Alone at night
(B) Close to power lines
(C) To lift workers in a basket
(D) With a trainer watching, within limits

8 **Federal child labor rules keep workers off cranes until age:**

(A) 14
(B) 18
(C) 16
(D) 21

9 **An overhead crane in a factory usually falls under:**

(A) Subpart CC only
(B) No rules at all
(C) Truck rules (FMCSA)
(D) General industry rules (29 CFR 1910.179)

10 **An ad offers an "OSHA crane card in 1 hour, online only". This is:**

(A) A red flag
(B) The official path
(C) Valid in all states
(D) Valid for life

Original practice questions written from public rules and common exam topics. This is not an official test.

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PRACTICE · CRANES + LOAD CHARTS

10 original questions. Pick one answer for each. Answers and explanations on page 19.

11 **Load radius is measured from:**

(A) The boom tip to the ground
(B) The cab to the load
(C) The center of rotation to the center of the hook
(D) The outrigger float to the load

12 **Same boom length, longer radius. Capacity:**

(A) Goes up
(B) Goes down
(C) Stays the same
(D) Doubles

13 **Sample chart (page 8): 60 ft boom at 25 ft radius. Capacity?**

(A) 25,500 lb
(B) 22,500 lb
(C) 19,500 lb
(D) 24,500 lb

14 **Sample chart, 60 ft boom, radius 33 ft (rows 30 and 40 ft). Use:**

(A) The 40 ft row: 13,000 lb
(B) The 30 ft row: 19,500 lb
(C) The average of both rows
(D) The 25 ft row: 24,500 lb

15 **Chart: 13,000 lb. Hook block 900 lb, slings and shackles 150 lb. Max load:**

(A) 13,000 lb
(B) 14,050 lb
(C) 11,950 lb
(D) 12,100 lb

16 **Load 8,000 lb + block 900 + rigging 150, chart 13,000 lb. Percent used:**

(A) About 50%
(B) About 70%
(C) About 62%
(D) About 95%

17 **80 ft boom at 60°; boom pin 3 ft ahead of the center of rotation. Radius:**

(A) 43 ft
(B) 40 ft
(C) 69 ft
(D) 83 ft

18 **A fixed mast with a horizontal jib, used on high-rises, is a:**

(A) Carry deck crane
(B) Knuckle boom crane
(C) Overhead crane
(D) Tower crane

19 **The anti-two-block device prevents:**

(A) Flat tires
(B) The hook block from hitting the boom tip
(C) The cab door from opening
(D) Wind on the boom

20 **At short radius, many chart numbers are limited by:**

(A) Fuel level
(B) Tire pressure
(C) Structural strength
(D) The operator's weight

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PRACTICE · SETUP, POWER LINES, WIND

10 original questions. Pick one answer for each. Answers and explanations on page 19.

21 **Who must make sure the ground is firm, drained and graded enough?**

(A) The controlling entity
(B) The crane maker
(C) The truck driver
(D) Nobody

22 **Outrigger load 36,000 lb; ground rated 3,000 psf. Minimum area:**

(A) 3 sq ft
(B) 36 sq ft
(C) 108 sq ft
(D) 12 sq ft

23 **"On outriggers" capacities assume:**

(A) Tires carry the load
(B) Outriggers set as the chart says, crane level
(C) Any slope up to 10°
(D) Floats on bare mud

24 **OSHA's general rule (Option 2) for power lines up to 350 kV keeps the crane at least:**

(A) 6 ft away
(B) 10 ft away
(C) 20 ft away
(D) 100 ft away

25 **Power lines over 350 kV, up to 1,000 kV, change the 20 ft to:**

(A) 20 ft
(B) 25 ft
(C) 10 ft
(D) 50 ft

26 **Unless the utility de-energizes and visibly grounds it, treat a line as:**

(A) Energized
(B) Dead
(C) Insulated
(D) A phone line

27 **If the crane contacts a power line, the operator should usually:**

(A) Climb down fast
(B) Touch the frame to check
(C) Stay in the cab and warn others away
(D) Ask a worker to pull the load

28 **Using Table A, the utility confirms 69 kV. Minimum clearance:**

(A) 10 ft
(B) 15 ft
(C) 20 ft
(D) 4 ft

29 **The wind limit for a lift comes from:**

(A) The maker's chart or manual and the lift plan
(B) The radio station
(C) The operator's mood
(D) One OSHA number for all cranes

30 **A big, flat load (like a wall panel) on a windy day:**

(A) Is safer in wind
(B) Is not affected by wind
(C) Needs no tag line
(D) Catches more wind: lower the limit

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PRACTICE · SIGNALS, RIGGING, INSPECTION

10 original questions. Pick one answer for each. Answers and explanations on page 19.

31 **The HOIST signal is:**

(A) Arm out, thumb down
(B) Fists in front, thumbs out
(C) Hands clasped
(D) Forearm up, finger up, small circles

32 **Arm straight out, palm down, moved back and forth, level, means:**

(A) Swing
(B) Hoist
(C) Stop
(D) Travel

33 **Both arms out, palms down, moving back and forth, means:**

(A) Emergency stop
(B) Extend boom
(C) Lower
(D) Dog everything

34 **Who may give an emergency stop signal?**

(A) Only the signal person
(B) Anyone, and the operator must obey
(C) Only the foreman
(D) Only certified riggers

35 **Arm straight out, fist closed, thumb pointing up means:**

(A) Boom down
(B) Boom up
(C) Hoist
(D) Retract boom

36 **2-leg sling at 60° from horizontal lifts 4,000 lb. Each leg carries about:**

(A) 2,000 lb
(B) 4,000 lb
(C) 1,155 lb
(D) 2,310 lb

37 **As the sling angle from horizontal gets smaller (flatter), leg tension:**

(A) Goes down
(B) Stays the same
(C) Goes up
(D) Drops to zero

38 **A signal person is qualified by:**

(A) A third-party evaluator or the employer's qualified evaluator
(B) Any coworker
(C) A rental website
(D) The weather service

39 **The shift inspection is done:**

(A) Before each shift, by a competent person
(B) Once a year only
(C) Only after accidents
(D) Every 5 years

40 **A hook's throat opening has grown and the hook is twisted. You:**

(A) Paint it
(B) Keep it for lighter loads
(C) Remove it from service
(D) Heat it and bend it back

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ANSWER KEY WITH EXPLANATIONS

Score each section. 8 of 10 or more: you know the theory. Real exams may ask it in other words.

OSHA + CERTIFICATION

1 · B Certification (or an audited program) plus the employer's evaluation.

2 · D 5 years. Then the operator recertifies.

3 · A OSHA writes the rule; it does not certify operators.

4 · C Required and documented since February 2019.

5 · C It is not portable: it stays with that employer.

6 · A Type is required; some programs also list capacity.

7 · D Continuous supervision; no power lines, people lifts or multi-crane lifts.

8 · B Power-driven hoisting work is barred under 18.

9 · D Subpart CC is for construction; factories use 1910.179.

10 · A OSHA issues no crane cards; real certification has a practical exam.

CRANES + LOAD CHARTS

11 · C Center of rotation to the hook (the load's center of gravity).

12 · B More radius = more leverage on the crane = less capacity.

13 · D Row 25 ft, column 60 ft: 24,500 lb.

14 · A Not listed: take the next longer radius (40 ft), the lower number.

15 · C 13,000 - 900 - 150 = 11,950 lb.

16 · B 9,050 / 13,000 = 69.6% of chart capacity.

17 · A 80 x cos 60° = 40, + 3 = 43 ft. Use the 50 ft row.

18 · D Tower crane: mast, jib and trolley; it can climb with the building.

19 · B Two-blocking can break the rope and drop the load.

20 · C Above the line the crane can break before it tips: no warning.

SETUP, POWER LINES, WIND

21 · A The controlling entity, often the general contractor.

22 · D 36,000 / 3,000 = 12 sq ft (a 4 x 4 ft mat = 16).

23 · B Wrong outrigger setting or out of level = the chart doesn't apply.

24 · C No part, line or load closer than 20 ft unless other rules apply.

25 · D Over 350 kV: 50 ft replaces 20 ft (up to 1,000 kV).

26 · A Always assume a power line is energized.

27 · C Only leave if fire forces you: jump clear, feet together, shuffle.

28 · B Over 50 to 200 kV = 15 ft.

29 · A Each crane and setup has its own wind limits.

30 · D More surface = more sail area = more side force.

SIGNALS, RIGGING, INSPECTION

31 · D Finger up and small level circles.

32 · C One arm = STOP. Both arms = EMERGENCY STOP.

33 · A Both arms, palms down, back and forth.

34 · B Stop from anyone; other signals from one signal person.

35 · B Thumb up = raise the boom. Thumb down = lower it.

36 · D 4,000 / 2 x 1.155 = about 2,310 lb.

37 · C Factor = 1 / sin(angle): 60° = 1.155, 30° = 2.000.

38 · A Plus oral or written and practical tests.

39 · A Each shift by a competent person; yearly by a qualified one.

40 · C Never heat or bend a hook: take it out of service.

Missed a question? Go back to the matching study page (3-13) and read that topic again.

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FIRST JOB: WAYS INTO THE TRADE

Most operators work next to the crane before they sit in it. These are common ways in.

COMMON WAYS IN

OILER / CRANE HELPER
Helps the operator: setup, mats, rigging, grease, the support truck. You learn the crane up close.

IUOE APPRENTICESHIP
Local unions of operating engineers run paid apprenticeships with classes and field hours. Rules vary by local.

CRANE RENTAL COMPANIES
They hire yard hands, riggers, drivers and oilers, and many train good workers toward certification.

PLANT JOBS
Factories and warehouses train people on overhead cranes under general industry rules.

CRANE SCHOOLS
They prepare you for written and practical exams. Compare cost, seat time and retest rules.

A CDL HELPS
Many mobile cranes drive on public roads: a CDL makes you more useful to a rental company.

No job is guaranteed. Check every school and program yourself before you pay or sign.

WHERE TO LOOK

- Local unions of operating engineers (apprenticeship pages).
- Crane rental and rigging companies in your area.
- Job sites: "oiler", "crane helper", "rigger trainee", "yard hand".
- Your local American Job Center: ask about training funds (WIOA).
- Contractors in steel, concrete, HVAC and wind energy.

ASK BEFORE YOU START

- Will you help me get certified? Who pays the exams?
- How much seat time will I get each week?
- Which crane types and sizes?
- Is there overtime or travel?
- What PPE and training do you give?
- Who does my employer evaluation?

READY-TO-SEND MESSAGES

To a rental company

Hi, I'm looking for a yard hand or oiler job. I'm reliable, I have a driver's license and I want to grow toward crane certification. Are you hiring?

To a union hall

Hi, I'd like information about your operating engineer apprenticeship: requirements, application dates and how to apply.

After the interview

Thank you for your time today, [Name]. I'm ready to start on [date] and to learn rigging and setup the right way.

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YOUR 8-STEP PLAN

An example path from zero to the cab. Go at your own pace and check each step with the program and your state.

STEP 1

LEARN THE BASICS

- [ ] Read this guide once
- [ ] Crane types (page 6)
- [ ] Pick a first crane type

STEP 2

CHECK THE RULES

- [ ] OSHA basics (page 3)
- [ ] State or city license?
- [ ] Age 18+ to run a crane

STEP 3

GET CLOSE TO CRANES

- [ ] Oiler, helper or yard hand
- [ ] Rental company or contractor
- [ ] Or a union apprenticeship

STEP 4

RIGGING + SIGNALS

- [ ] Hand signals (page 10)
- [ ] Sling angles and hitches
- [ ] Rigger / signal person cert

STEP 5

MASTER THE CHART

- [ ] Radius, angle, deductions
- [ ] Examples on page 8
- [ ] Calculator, show your work

STEP 6

PRACTICE QUESTIONS

- [ ] 40 questions (pages 15-18)
- [ ] 8 of 10 in each section
- [ ] Review weak topics

STEP 7

CERTIFY BY TYPE

- [ ] Written + practical exams
- [ ] Accredited program
- [ ] Valid for 5 years

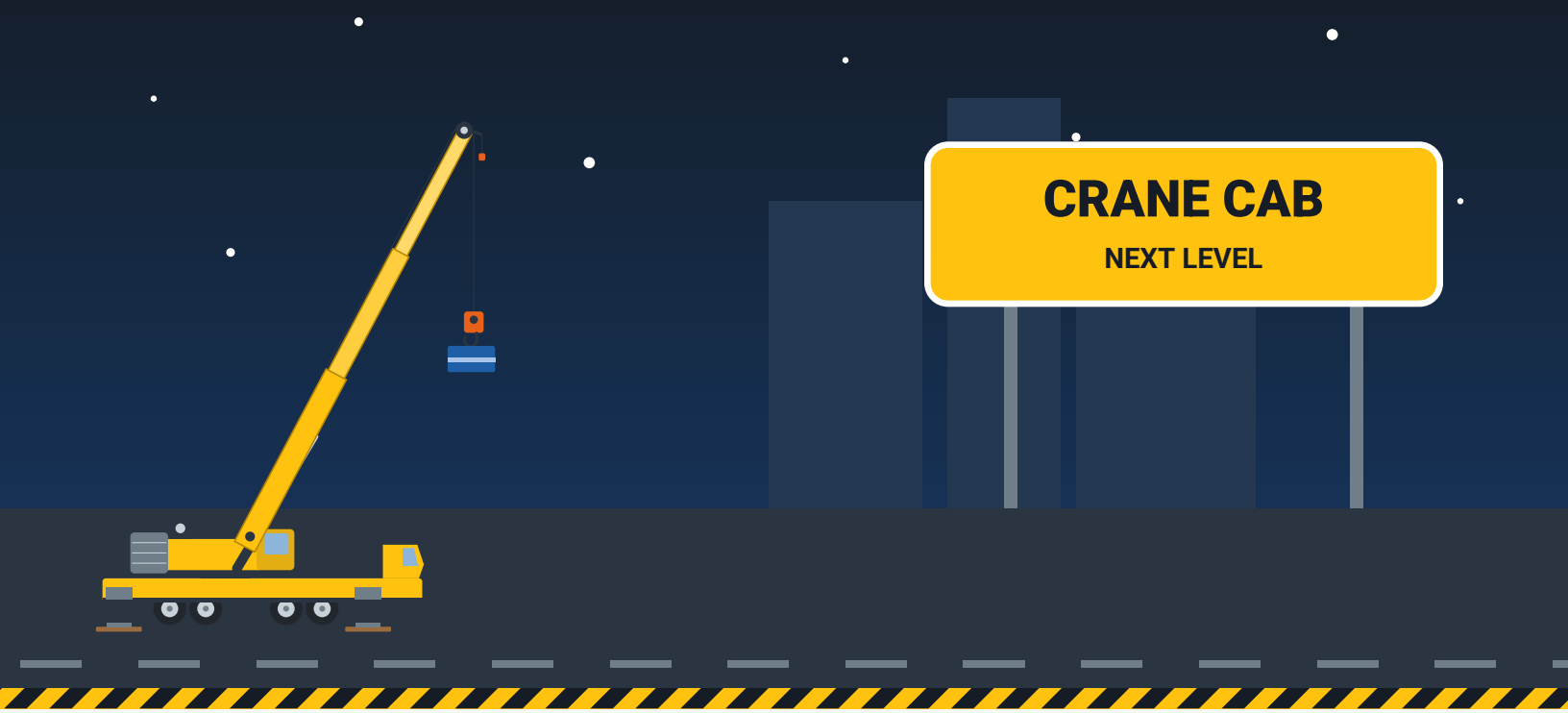
STEP 8

EMPLOYER EVALUATION

- [ ] On the crane you will run
- [ ] Keep the record
- [ ] Keep learning, stay safe

Example only. Rules, fees and exams vary by state, city and program. No job or pay is guaranteed.

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FROM THE GROUND TO THE CAB

Learn the rules, read the chart, respect power lines and wind, and get certified for your crane type. More free guides at vifalio.com.

Oiler → Rigging → Exams → Certified → Operator

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