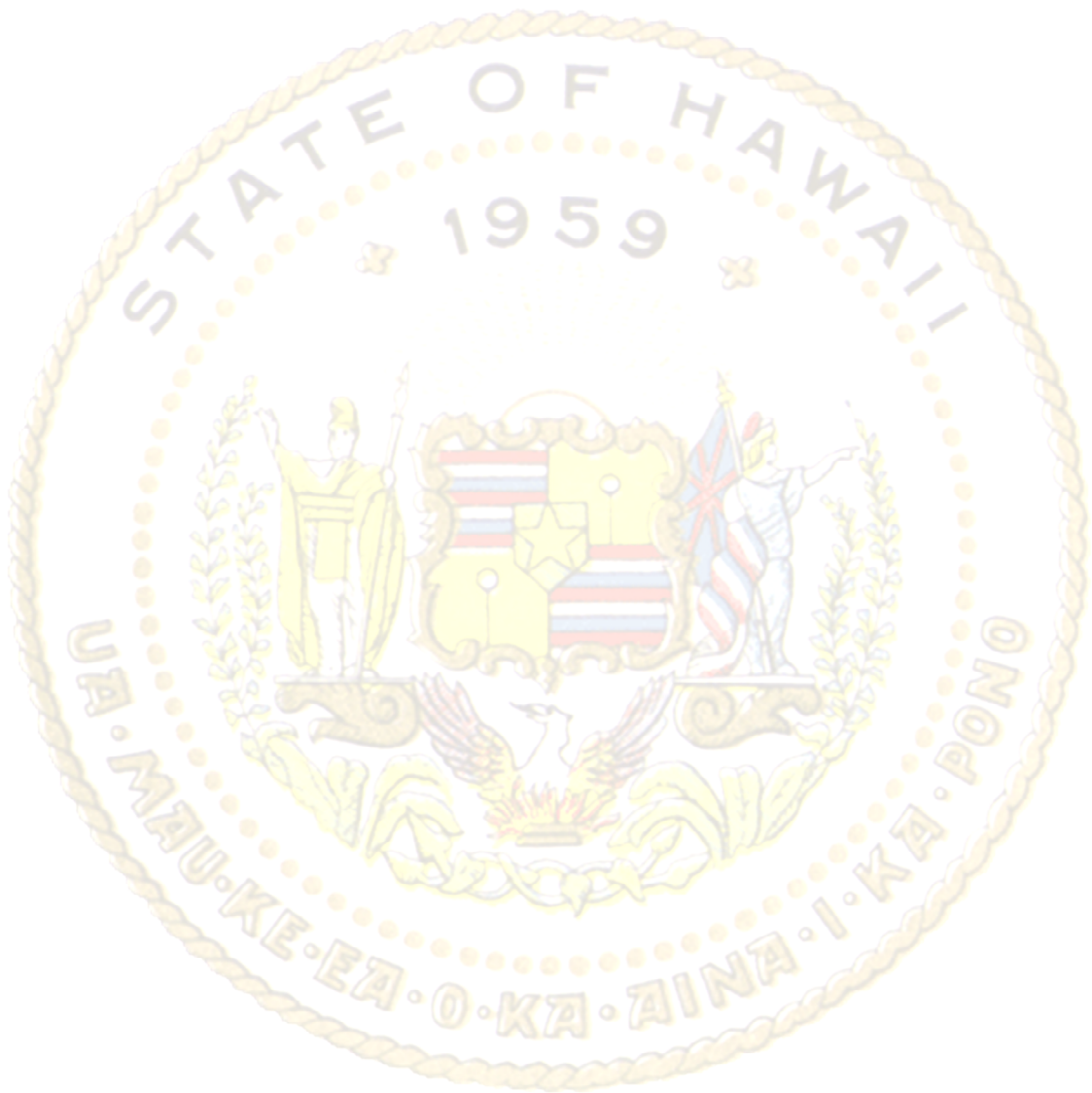


HOISTING MACHINE OPERATORS ADVISORY BOARD REPORT TO THE 2017 LEGISLATURE



State of Hawai'i
Department of Labor and Industrial Relations

December 2016

STATE OF HAWAI'I
DAVID Y. IGE, Governor

DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS
LINDA CHU TAKAYAMA, Director
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HOISTING MACHINE OPERATORS ADVISORY BOARD
Melvin Chang

INTRODUCTION

Act 73, SLH 2016, directed the Hoisting Machine Operators Advisory Board (HMOAB) to submit a report to the Legislature detailing:

- 1) A comprehensive description of current and pending federal Occupational Safety and Health Administration rules and regulations pertaining to hoisting machine operators;
- 2) Similarities and differences between state law and federal Occupational Safety and Health Administration rules and regulations, including federal rules and regulations for state certification of hoisting machine operators;
- 3) Administration of the certification of hoisting machine operators in other states;
- 4) The existing fee structure for certification as a hoisting machine operator in the State; and
- 5) Recommended changes to existing certification procedures for hoisting machine operators in the State, based on the implementation of federal Occupational Safety and Health Administration rules and regulations.

HMOAB operates as an attached agency for administrative and budgetary purposes within the Hawai'i Department of Labor and Industrial Relations (DLIR). Since 1998, HMOAB's statutory jurisdiction has involved helping assure construction tower and crane operators operate hoisting machines (having a lifting capacity of one ton or more) in a safe and lawful manner to the benefit of the citizens of Hawai'i.

These requirements ensure a minimum competency level of operators, assure employers that potential workers comply with relevant state and federal standards, and provide safeguards for the public in building construction and maintenance by certifying operators. Chapter 48 in Title 12, Subtitle 7 of the Hawai'i Administrative Rules (HAR) regulates these requirements.

EXECUTIVE SUMMARY

HMOAB performs an important and vital role in certifying crane operators in the State of Hawai'i. Certification fees deposited into the Hoisting machine operators' certification revolving fund supports HMOAB's operations.

Although the current rules are working well, the Board is recommending a number of changes to improve safety and administration for certifying crane operators. These recommendations include extending certification requirements to general industry, improving enforcement guidelines, and making other changes in the rules, which are explained in further detail in section V of this report.

I. Current and Pending Federal OSHA Rules and Regulations

As of the time of this report, the federal Occupational Safety and Health Administration (OSHA) has not changed the final rules covering Cranes and Derricks in Construction

published on Aug. 9, 2010. In December 2016, OSHA is expected to issue new proposed rules on crane operator certifications with a deadline of November 2017 for employer compliance.

This report assumes that OSHA is likely to implement the rules contained in their March 31, 2015 ASCCH draft of proposed crane operator qualifications. (See Attachment 1 – Overview of Draft Proposed Regulatory Text for Crane Operator Qualification - February 24, 2015.)

OSHA's proposal for qualifications and certifications is designed to mirror what employers currently do and can be summarized as follows:

1. Rule allows for certification by a third party, government licensing entity, or employer-audited program.
2. Certification is based on type – not capacity.
3. Operators must be trained, certified/licensed, and evaluated by employers.
4. Certification includes written and practical examination.
5. All operators are considered Operator-in-training or certified/evaluated for the type of equipment.
6. Qualification is based on employer evaluation for the equipment they will operate. The skills are size and configuration, load charts, and types of hoisting. Practical knowledge includes signaling, setup, assembly/disassembly, use, and others. Annual evaluation is required.
7. Controlling contractor language regarding the evaluation of operator competency.

II. Comparison of Hawai'i Rules and Federal OSHA Rules and Regulations

1. OSHA covers all industries—construction, general industry, maritime, and military.
 - a) The OSHA crane and derrick regulations apply to *construction only*.
 - b) Hawai'i's HMOAB only covers operators of construction crane and tower machines having a lifting capacity of one ton or more covered by the American Society of Mechanical Engineers (ASME) B30.5 (mobile and locomotive cranes) and B30.3.
2. OSHA rules recognizes the following four methods for certification and qualification:
 - a) Certification by an accredited crane operator testing organization;
 - b) Qualification by an audited employer program;
 - c) Qualification by the US military; and
 - d) Licensing by a government entity.

HMOAB recognizes the OSHA method #1 only, Hawai'i requires operators to show they have an accredited third-party certification. This is a legacy rule designed to improve safety requirements. HMOAB recognizes certificates from the following third party crane operator testing organizations:

- a) The National Commission for the Certification of Crane Operators (NCCCO);
- b) The Crane Institute Certification (CIC);
- c) The National Center for Construction Education and Research (NCCER); and
- d) The Operating Engineers Certification Program (OECF).

3. OSHA rules do not require medical certification.

- a) HMOAB requires a current physical examination meeting either ASME B30.5 Section 5-3.1.2(a) or ASME B30.3 Section 3-3.1.2(b). (See Attachment 2 – Physical Examination Instructions, which is from the NCCCO.)
- b) The operator must have a current physical examination certificate at all times (Hawai'i Administrative Rules §12-48-05). The operator may be denied certification due to a mental or physical defect that causes an inability to safely operate a hoisting machine (HAR section 12-48-9(4)).

4. OSHA rules do not require a criminal background check.

- a) HMOAB obtains a criminal history record check of all operator applications with the Hawai'i Criminal Justice Data Center.
- b) The operator may be denied certification if conviction of a crime is directly related to the safe operation of a hoisting machine and the operator has not been sufficiently rehabilitated (HAR Section 12-48-9(2)).

5. OSHA rules are silent on an age requirement

- a) HMOAB requires operators to be 21 years of age at the time of application.
- b) An operator must submit proof of age by submitting any two of the following: birth certificate; driver's license; passport or Hawai'i State ID.

6. OSHA rules are based on the type of equipment, not capacity.

- a) HMOAB covers construction crane and tower machines having a lifting capacity of one ton or more.
- b) The following crane types are covered by HMOAB: Large Telescopic Boom Cranes; Small Telescopic Boom Cranes; Lattice Boom Crawler

Cranes; Lattice Boom Trucks; Tower Cranes; Overhead Cranes;
Service Truck Cranes; and Boom Truck Fixed Cab.

III. Administration of Certification of Hoisting Machine Operators in Other States

Eighteen states in the U.S. have individual certification or licensing requirements for crane operators: 1) Connecticut; 2) Hawai'i; 3) Massachusetts; 4) Minnesota; 5) Montana; 6) Nevada; 7) New Hampshire; 8) New Jersey; 9) New Mexico; 10) New York; 11) North Carolina; 12) Oregon; 13) Pennsylvania; 14) Rhode Island; 15) Utah; 16) Vermont; and 17) Washington; and 18) West Virginia. (See Attachment 3 and the excel worksheet HMOAB Crane License Spreadsheet for more details about these state certifications.)

- Maryland and California have crane regulations but no individual certification.
- Five currently have requirements that span all industries including general industry companies: 1) Pennsylvania; 2) California; 3) Rhode Island; 4) Montana; and 5) Nevada.

While the Legislature did not request cities, the following cities have licensing requirements: 1) Chicago; 2) New Orleans; 3) New York City; 4) Omaha; 5) Philadelphia; and 6) Washington, DC.

IV. Existing Fee Structure for Certification of Hoisting Machine Operators

New applications must submit a \$50 application fee and \$100 for each year of certification up to a maximum of five years or the balance of one of the four Board-accepted certifications.

Applications for renewal of a certificate are \$100 per year up to a maximum of five years, but no longer than the balance of their national certification. However, if an application for renewal is submitted more than ninety days after a current certificate expires, the applicant shall be considered a new applicant and must submit the \$50 application fee. Replacement or updated cards are issued at no cost.

The cost of licensing hoisting machine operators does not appear to be excessive. As a way of comparison, annual fees for plumbers and electricians are \$275 for three years. Currently, professions that have an effect on the public safety are regulated, monitored and licensed by the Professional and Vocational Licensing Division (PVL) of the Department of Commerce and Consumer Affairs (DCCA).

Compared to other states, Hawai'i application fees are equal to or lower than most other states. However, Hawai'i's annual fees for crane operator certification at \$100 per year are higher as most of the other states charge between \$50 and \$75.

The operations of HMOAB are supported by user fees through the hoisting machine operators' certification revolving fund. In Fiscal Year 2014-15 (FY2014-15), 408 operators were certified, including 114 new and renewed applicants. In FY2015-16, 369 operators were certified, including 104 new and renewed operators. This provides an

estimated income of about \$39,000 each year, based on 100 plus new and renewed operators and fees paid in the past and by 269 plus continuing operators. This income is sufficient to fund the office operating expenses and wages, with any surplus going into the revolving fund.

The balance of the revolving fund at the end of FY2015-16 totaled \$342,529. HMOAB is using this money to expand member outreach and education work. This resulted in a budget deficit of \$18,369 in FY2015-16 and a projected budget deficit of \$20,000 in FY2016-17. (See Attachment 4 for past and estimated budgets and number of certified operators.)

V. Recommended Changes to Existing Certification Procedures

The Hoisting Machine Operators Advisory Board has a number of recommended changes to the existing certification procedures and rules:

1. **Expand HMOAB's scope to include general industry.** We propose that crane operator certification and qualification be required for the general industry in addition to the construction industry in the State of Hawai'i, thereby increasing the potential for a safe workforce regardless of the industry in which a crane operates. It is common to have both general industry and construction industry crane operations taking place within the same construction site simultaneously.

OSHA and HIOSH define construction activities by the handling of construction materials. Operations not handling construction materials or conducting excavation and demolition work, such as maintenance and repair processes, do not currently require the crane operator to be certified in the same manner. There are no reported federal plans to include these industries in the crane operator certification requirements.

The most comprehensive crane accident data available comes via Haag Engineering, which has been compiling crane accident data since 1987. According to the Haag data, the cumulative total for construction crane accidents is approximately 49% of crane accidents. General industry and manufacturing stand out as the second largest group accounting for 37% of crane accidents. Most crane accidents occur in smaller crane capacities at approximately 60% of the time. The licensing of crane operators in all industries has the potential of addressing this gap since many general industry cranes fall within this crane capacity. (See Attachment 5 for more details on the Haag data.)

2. **Amend §396-19(a), HRS, to permit the Board members to receive reimbursement for expenses.** §396-20(b)(2), HRS, allows the revolving fund to be used for all necessary Board costs and reimbursements. However, §396-19(a), HRS, prescribes that members of the Board are to serve without compensation and without reimbursement for expenses. This language is restrictive for the Board's outreach and training efforts, especially Neighbor Island outreach. Therefore, HMOAB recommends that Board members receive reimbursement for expenses.

3. Other recommended changes:

Possible future expansion to include certification for rigging and signaling.

Under current Hawai'i law, rigging and signaling are regulated by HMOAB. These are critical parts of hoisting operations and personnel should be certified to help ensure public and worker safety.

Equal Opportunity Employer/Program

Auxiliary aids and services are available upon request to individuals with disabilities.

TDD/TTY Dial 711 then ask for (808) 586-8866

Attachment 1

Overview of Draft Proposed Regulatory Text for Crane Operator Qualification - February 24, 2015

I. Background:

In August 2010, OSHA promulgated a new standard on Cranes and Derricks in Construction following a negotiated rulemaking process. The rule requires employers to ensure that their crane operators are certified prior to operating a crane. After promulgation of the standard, OSHA received information from many in the construction industry that certification was insufficient to guarantee operators' safety, but was more akin to a learner's permit. They were concerned because they had not realized that the final rule replaced the employer's duty to ensure that crane operators are competent to operate a crane safely with the certification requirement as of November 10, 2014, a result that they viewed as insufficient to ensure safe crane operations. Individuals from the industry and certifying bodies also raised problems with providing certification by *capacity*.

OSHA held several stakeholder meetings to collect information on these issues and proceeded to propose and finalize a three-year extension to preserve the final rule's requirement for employers to ensure that operators were competent, as well as to extend the deadline for certification. This allowed OSHA time to revisit and address these issues.

In an effort to learn more about how employers currently train and qualify their operators, OSHA conducted more than 25 site visits/interviews with construction employers, crane rental companies, crane manufacturers, crane insurers, testing organizations, accrediting organizations, and trade groups.

II. The proposal:

OSHA has drafted proposed revisions to the standard for operator qualification that follows how most employers train, monitor, and evaluate crane operators, as reported to OSHA in the site visits.

- The draft proposal leaves the certification requirement and process essentially unchanged, except for the removal of the requirement for certification by capacity.
- The draft proposal describes evaluation responsibilities for employers.
- The training requirements generally follow the existing requirements, with some simplifications and measures to accommodate the evaluation process.
- The standard is essentially a performance standard; while it tells employers what they must do to ensure operators are competent, it does not tell them how to do that or for how long. It provides a process with required results.
- In order to protect employees from companies and operators (including those not subject to OSHA requirements) coming onto a multi-employer site to perform work without any evaluation of their operator's competency and abilities, the draft standard includes basic operator-evaluation responsibilities for controlling contractors who authorize these operations.

III. Summary of the rule:

- Operators must be trained, certified/licensed, and evaluated by employers before operating a crane.
- An operator who has not been certified and evaluated by an employer is an operator-in-training.
- An operator-in-training may operate a crane while under continuous supervision (similar to final rule).
- Certification date would not change (required as of November 10, 2017), but all other changes would take effect on the effective date of the rule.

Evaluation by the employer:

- Operators have to be evaluated on the equipment they will operate (it need not be the actual crane; other cranes to the same make and model would satisfy).
- The evaluation assesses the operator's:
 - o Skills to operate the equipment safely, including the configuration in which the equipment will be used
 - o Knowledge and judgment to make sound determinations about safe operation
 - o Ability to use load charts and follow manufacturer procedures
 - o Ability to perform assigned hoisting activities
 - o Practical knowledge of signaling, setup, assembly/disassembly, driving, inspection, maintenance, and shutdown, as applicable to the equipment.
- Employer provides documentation to the operator and on-site that the operator can carry as proof of assessment.
- Annual re-evaluation and when warranted.

Certification:

- Certification can still be provided by a third-party testing entity, a government licensing entity, or an employer-audited program.
- Military operators would still be qualified separately by the military, but would be exempt from the training and evaluation requirements.
- Certification still includes a written and practical exam, but certification will only be by *type* of crane—not by *capacity*.

Operator Training:

- The training requirements remain the same as in the existing rule, except that OSHA is clarifying that all operators must be trained and that all operators are considered to be operators-in-training until 1) certified for that type of equipment and 2) evaluated on the equipment that will be used.
- The operator-in-training may only operate a crane under constant supervision.
- The requirements for trainer qualifications are now more performance-oriented.
- Training is documented.

Controlling entities:

- A controlling contractor who authorizes a crane service must either:
 - o Check the operator's documentation as a qualified operator, or evaluate the operator per this standard.
 - o If an operator-in-training, the controlling contractor must ensure constant supervision pursuant to the standard.

Attachment 2

Physician Instructions for Crane Operator Medical Examination

PHYSICAL QUALIFICATIONS AND EXAMINATIONS OF OPERATORS

A person is physically qualified to operate a crane/digger derrick if that person:

1. Has no loss of a foot, a leg, a hand, or an arm, or has been granted a waiver
2. Has no impairment of the use of a foot, a leg, a hand, fingers, or an arm, and no other structural defect or limitation, which is likely to interfere with his/her ability to control and safely operate a crane/digger derrick or has been granted a waiver upon a determination that the impairment will not interfere with his/her ability to control and safely operate a crane/digger derrick
3. Has no established medical history or clinical diagnosis of diabetes mellitus currently requiring insulin for control
4. Has no current clinical diagnosis of myocardial infarction, angina pectoris, coronary insufficiency, thrombosis, or any other cardiovascular disease of a variety to be known accompanied by syncope, dyspnea, collapse, or congestive cardiac failure
5. Has no established medical history or clinical diagnosis of respiratory dysfunction likely to interfere with his/her ability to control and operate a crane/digger derrick safely
6. Has no current clinical diagnosis of high blood pressure likely to interfere with his/her ability to operate a crane/digger derrick
7. Has no established medical history or clinical diagnosis of rheumatic, arthritic, orthopedic, muscular, neuromuscular, or vascular disease that interferes with his/her ability to control and operate a crane/digger derrick safely
8. Has no established medical history or clinical diagnosis of epilepsy or any other condition that is likely to cause loss of consciousness or any loss of ability to control a crane/digger derrick
9. Has no mental, nervous, organic, or functional disease or psychiatric disorder likely to interfere with his/her ability to operate a crane/digger derrick
10. Has distant visual acuity of at least 20/40 (Snellen) in each eye without corrective lenses or visual acuity separately corrected to 20/40 (Snellen) or better with corrective lenses, distant binocular acuity of at least 20/40 (Snellen) in both eyes with or without corrective lenses, field of vision of at least 70 degrees in the horizontal median in each eye, and the ability to recognize the colors of traffic signals and devices showing standard red, green, and amber
11. When tested by use of an audiometric device, does not have an average hearing loss in the better ear greater than 40 decibels at 500 Hz, 1,000 Hz, 2,000 Hz, 3,000 Hz and 4,000 Hz with or without a hearing aid when the audiometric device is calibrated to American National Standard (formerly ASA Standard) Z24.5-1951

12. Does not use a prescribed or over-the-counter substance, including ethanol, which would impair the operator's performing safe operation of a crane/digger derrick. These include illegal drugs, controlled substances (including trace amounts), look-alike drugs, designer drugs, or any other substance that may have the effect on the human body of being a narcotic, depressant, stimulant, or hallucinogen. An exception to this ruling is that an operator may use such a substance or drug if the substance or drug is prescribed by a licensed medical practitioner who is familiar with the operator's medical history and all assigned duties and who has advised the operator that the prescribed substance or drug will not adversely affect the operator's ability to safely operate a crane/digger derrick. The treating physician will also provide a waiver to the Medical Examiner. (See waiver statement.)

INSTRUCTIONS FOR PERFORMING AND RECORDING PHYSICAL EXAMINATIONS

The examining physician should review these instructions before performing the physical examination. Answer each question yes or no, where appropriate.

The examining physician should be aware of the rigorous physical demands and mental and emotional responsibilities placed on operators. In the interest of public safety, the examining physician is required to certify that the operator does not have any physical, mental, or organic defect of such a nature as to affect the operator's ability to operate a crane/digger derrick safely.

General Information. The purpose of this history and physical examination is to detect the presence of physical, mental, or organic defects of such a character and extent as to affect the applicant's ability to operate a crane/digger derrick safely. The examination should be made carefully and at least as completely as indicated by the attached form. History of certain defects may be cause for rejection or indicate the need for making certain laboratory tests or a further, and more stringent, examination. Defects may be recorded that do not, because of their character or degree, indicate that certification of physical fitness should be denied. However, these defects should be discussed with the applicant and he/she should be advised to take the necessary steps to ensure correction, particularly of those that, if neglected, might lead to a condition likely to affect his/her ability to operate safely.

General Appearance and development. Not marked overweight. Not any posture defect, perceptible limp, tremor, or other defects that might be caused by alcoholism, thyroid intoxication, or other illnesses including sedating or habit-forming drugs.

Head—eyes. When other than the Snellen chart is used, the results of such test must be expressed in values comparable to the standard Snellen test. If the applicant wears corrective lenses, these should be worn while applicant's visual acuity is being tested. If appropriate, indicate on the Medical Examiner's Certificate by checking the box Qualified only when wearing corrective lenses. In recording distance vision, use 20 feet as normal. Report all vision as a fraction with 20 as a numerator and the smallest type read at 20 feet as denominator. Note ptosis, discharge, visual fields, ocular muscle imbalance, color blindness, corneal scar, exophthalmos, or strabismus uncorrected by corrective lenses.

Contact lens wear may not be allowed in many work areas where mandatory eye protection disallows contact lens wear. The applicant must be made aware that safety glass eyewear may routinely be required at job sites and must pass vision-testing protocols with safety eye glasses specified and approved ANSI Z89.

Ears. Note evidence of mastoid or middle ear disease, discharge, symptoms of aura vertigo, or Meniere's syndrome. When recording hearing an audiometer is used to test hearing. Record decibel loss at 500 Hz, 1,000 Hz, 2,000 Hz, 3,000 Hz, and 4,000 Hz.

Throat. Note evidence of disease, irremediable deformities of the throat likely to interfere with eating or breathing, or any laryngeal condition that could interfere with the safe operation of a crane/ digger derrick.

Thorax—heart. Stethoscopic examination is required. Note murmurs, arrhythmias, and any past or present history of cardiovascular disease of a variety known to be accompanied by syncope, dyspnea, collapse, enlarged heart, or congestive heart failures. An electrocardiogram is required when findings so indicate.

Blood Pressure. Record with either spring or mercury column type of sphygmomanometer. If the blood pressure is consistently above 160/90mm. Hg. further tests may be necessary to determine whether the operator is qualified to operate a crane/digger derrick.

Lungs. If any lung disease is detected, state whether active or arrested; if arrested, your opinion as to how long it has been quiescent.

Gastrointestinal system. Note any diseases of the gastrointestinal system.

Abdomen. Note wounds, injuries, scars, or weakness of muscles of abdominal walls sufficient to interfere with normal function. Any hernia should be noted if present. State how long and if adequately contained by truss.

Abnormal masses. If present, note location, if tender, and whether or not applicant knows how long they have been present. If the diagnosis suggests that the condition might interfere with the control and safe operation of a crane/digger derrick, more stringent tests must be made before the applicant can be certified.

Genitourinary. Urinalysis is required. Acute infections of the genitourinary tract, as defined by local and state public health laws, indications from urinalysis of uncontrolled diabetes, symptomatic albuminuria in the urine, or other findings indicative of health conditions likely to interfere with the control and safe operation of a crane/ digger derrick will disqualify an applicant from operating a crane/ digger derrick.

Neurological. If positive Romberg is reported, indicate degrees of impairment. Pupillary reflexes should be reported for both light and accommodation.

Knee jerks are to be reported absent only when not obtainable upon reinforcement and as increased when foot is actually lifted from the floor following a light blow on the patella; sensory vibratory and positional abnormalities should be noted.

Extremities. Carefully examine upper and lower extremities. Record the loss or impairment of a leg, foot, toe, arm, hand, or fingers. Note all deformities, the presence of atrophy, semi paralysis or paralysis, or varicose veins. If a hand or finger deformity exists, determine whether sufficient grasp is present to enable the operator to secure and maintain a grip on the controls. If a leg deformity exists, determine whether sufficient mobility and strength exists to enable the operator to operate pedals properly. Particular attention should be given to, and a record should be made of, any impairment or structural defect that may interfere with the operator's ability to operate a crane/digger derrick safely.

Spine. Note deformities, limitation of motion, or any history of pain, injuries, or disease, past or presently experienced in the cervical or lumbar spine region. If findings so dictate, radiologic and other examinations should be used to diagnose congenital or acquired defects, spondylolisthesis, or scoliosis.

Recto-genital studies. Diseases or conditions causing discomfort should be evaluated carefully to determine the extent to which the condition might be handicapping while lifting, pulling, or during periods of prolonged operation that might be necessary as part of the operator's duties.

Laboratory and other special findings. Urinalysis is required, as well as other tests as the medical history or findings upon physical examination may indicate are necessary. A serological test is required if the applicant has a history of luetic infection or present physical findings indicate the possibility of latent syphilis. Other studies deemed advisable may be ordered by the examining physician.

Diabetes. If insulin is necessary to control a diabetic condition, the operator is not qualified to operate a crane/digger derrick. If mild diabetes is noted at the time of examination and it is stabilized by use of a hypoglycemic drug and a diet that can be obtained while the operator is on duty, it should not be considered disqualifying. However, the operator must remain under adequate medical supervision.

General. The physician must date and sign his findings upon completion of the examination.

The medical examination shall be performed by a licensed doctor of medicine or osteopathy. A licensed ophthalmologist or optometrist may perform examinations pertaining to visual acuity, field of vision, and ability to recognize colors.

If the medical examiner finds that the person he/she examined is physically qualified to operate a crane/digger derrick, the medical examiner shall complete the Medical Examiner's Certificate and furnish one copy to the person examined and one copy to the employer.

The medical examiner must attach all treating physician, ophthalmologist, or optometrist medical information pertaining to the applicant. Waiver acceptance is up to the medical examiner when waiver is attached to applicant application. The medical examiner is expected to verify the waiver provided by treating physician and qualify or disqualify applicant because of his examination of the applicant.

The medical examiner is expected to perform testing as needed of all applicants and may submit an accommodation statement, if applicable, about an applicant's physical limitations to aid an employer with ADA guidelines. Any accommodation statements must be attached to medical artifaction.

Waiver by physician. Treating physicians must provide signed statements disclosing disease state and/or medication and state, "I have examined the aforementioned operator applicant and within medical certainty I find the applicant at no greater risk than the general population as a result of any physical, mental, or organic defects, and can safely operate a crane/digger derrick with the aforementioned diagnosis and treatment regimen subject to passing the CCO examinations."

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Attachment 3

Hoisting Machine State/City Fee Comparison

California - \$200 permit fee (for site), \$350 crane erection fee (for site)

Connecticut - \$50 application fee, \$25 per certification year (apprentices)

Massachusetts - \$75 annual certification fee

Maryland – crane regulations but no individual certification

Minnesota – 3rd party and variable fees

Montana – class I & II: \$80, \$100 certification fee; \$80, \$50 renewal fee; class III: \$60, \$50

New Jersey - \$50 per year with a minimum of 5 years (\$250)

New Mexico - \$50 application fee; \$125 certification fee; \$75 renewal fee; \$25 add specialty fee

Nevada - \$25 application fee; \$200 certification fee

New York – 3 years of experience and state exams required

Oregon - \$230 to 285 initial certification fee; \$130 to \$165 renewal fee (3rd party)

Pennsylvania - \$100 annual certification fee

Rhode Island - \$75 application fee, \$48 per certification year

Utah – 3rd party administration

Washington – 3 state exams at \$250 each (by 3rd party)

West Virginia - \$75 application fee

	State/City	State Requirements for a Crane Operator
1	California	A State Certification card is not required, but the state expects crane operators to comply with the OSHA rules even though the rules have not gone into effect yet. For the most part, contractors require a license to operate a crane and enforce that to help with insurance costs.
2	Connecticut	In the state of Connecticut, one must have 2 years of documented experience in order to apply for a state license to operate a crane. The application fee is \$50 and the license fee (2 years) is \$50. Applicant must pass both a written and practical exam administered by the state. Operators without 2 years of documented experience can apply for an Apprentice certificate that will require that any crane operations are supervised by a crane operator. Apprentice application fee is \$25. Also in Connecticut, individual cranes must be licensed for a cost of \$40 per year. Renewal fee is \$50 for two years.
3	Georgia	Certification by the State is not required; contractors appear to require it.
4	Hawaii	In the state of Hawaii, one must show the State that they have passed a written and practical exam given by one of the accredited crane licensing agencies: CIC, NCCER, OECP or NCCCO. They must also provide a current physical exam and photo. The application fee is \$50 and the State license can be purchased for \$100 per year - not to exceed the expiration date of the accredited license presented. Fees are for the year and are not pro-rated. Renewal fees are \$100 per year up to expiration of accredited license, with a current physical exam.
5	Illinois	Certification by the State is not required; contractors appear to require it.
6	Indiana	Certification by the State is not required.
7	Iowa	Certification by the State is not required; contractors appear to require it.
8	Massachusetts	After submitting an application fee of \$75, applicant must take a test given by the state. If applicant does not score at least 70%, applicant must wait 90 days before being eligible to re-test. Operators of all equipment that hoists must be licensed, including for cranes, excavators, forklifts, etc. An applicant who passes the written exam may be required to take a practical exam. License expires on Operators birthday every two years. In order to renew, Operator must provide a certificate of continuing education provided by an approved trainer. Renewal fee is \$75 for two years. Medical certificate must always be valid in order for state license to be valid.

9	Minnesota	Requires
10	Montana	Accepts a license from an accredited organization such as CIC, NCCCO, NCCER and OECP. That, along with a current physical and payment of \$80 will get you a Montana Crane License for one year. License must be renewed annually for \$80. If you do not have an accredited crane license, you can take the written and practical exam through the State at one of many job service locations. Written test fees are \$100. Applications require a notarized statement from employer(s) regarding a total of 1,000 hours of experience. There are several classes of licenses - see rules for more information.
11	Nevada	
12	New Hampshire	*Follows same rules as Massachusetts.
13	New Jersey	There is no application fee for New Jersey. If the application is accepted, a payment of \$250 is due to cover a 5-year period. The application must be notarized. A current physical exam is required. The first license issued may be pro-rated to coincide with the date of expiration on the accredited agency certificate presented. The state recognizes a certificate issued by an accredited agency, CIC, NCCCO, NCCER or OECP. Renewal fee is \$250 for five years.
14	New Mexico	Application fee is \$50, license fee is \$75 for two years. Experience must be verified by the employer and application notarized. Application must include a physical exam performed within the last 12-month, and a drug screen also in the last 12 months. Class I must be 21 years old with 500 hours of experience (in the last 3 years) and can operate any crane. Class II must be 18 years old with 500 hours of experience (in the last 3 years) and can operate hydraulic cranes up to 100 tons or 150' boom with evidence of a practical exam administered by an approved agency. Class III must be 18 and is considered in training. All classes of license require a written exam given by an approved training facility OR a certificate from an accredited agency such as the NCCCO. Renewal fee is \$75 for two years.

15	New York	New York State Law requires a State Certification in order to operate a crane in the state. The Commissioner may (or may not) issue a license to someone bringing a license from another state. Applicants must take a written and practical exam and submit proof of at least three years of working with cranes and a physical exam. Minimum age for applicants is 21 years old. It appears that there is not a 'license' fee, but the application fee is \$150, and that is good for three years. Operators must also sign an affidavit regarding child support obligations. (License can be revoked for failure to pay child support.) There are several classes of license. Written Exams are administered twice a year, in January and June. Practical exams are conducted by three members of the DOL Crane Examining Board and are videotaped from beginning to end. The average score of the three judges is the final score and must be better than 65%.
16	North Carolina	
17	Oregon	Variable fees
18	Pennsylvania	Pennsylvania accepts certification cards from the 4 accredited bodies. A State license will be issued upon payment of \$100. All State licenses expire on October 31 of even numbered years. Must have a current physical exam. Renewals cost \$130 for two years and must be accompanied by a current accredited certification card and physical exam. The State of Pennsylvania encourages email communication and renewal online.
19	Rhode Island	Rhode Island requires all applicants to take a written exam and must score 70% to pass. Cannot retest for two months. They do not require a practical exam, but all applicants must submit a notarized statement on company letterhead signed by a present or past employer. It is not clear if there is a minimum number of hours of experience needed. The non-refundable application fee is \$75. If the written test is passed, the Operator is invoiced for the license fee that varies. A Full License costs \$48, specialty licenses are \$42. Current DOT physical exams are required. License will be valid for not more than two years - to expire on the operator's birthday. Operators who are late to renew are subject to a fee of \$12/month.
20	Utah	3rd Party Administration
21	Vermont	*Follows same rules as Massachusetts.
22	Washington	3 exams by 3rd party at \$250 each

23

West Virginia

It appears as though West Virginia only accepts NCCCO certification. Application fee of \$75 covers license for one year. State Licenses must be renewed annually for \$75. Current DOT physical exam is required.

State/City	App. Fee	License Fee	Term	Renewal Fee	Phys. Exam	State/ City Crane Exams	Third Party Accreditation	Documented Experience Required	General Industry Crane License
Conn	\$50	\$50	2 yr	NA	NO	Yes	NA	Yes	
Hawaii	\$50	\$100/yr	5 yr	\$100/yr	Yes	No	Yes	No	No
Mass	\$75	Included	2 yr	\$75	Yes	Yes	No	No	
Minnesota		3rd party and variable fees							
Montana	\$0	\$80	1 yr	\$80	yes	yes	yes	yes	Yes
Nevada	\$25	\$200							Yes
NH	\$75	Included	2 yr	\$75	Yes	Yes	No	No	
New Jersey	\$0	\$250	5 yr	\$250	Yes	no	Yes	No	
New Mexico	\$50	\$75	2 yr	\$75	Yes	no	Yes	yes	
New York	\$150	NA	3 yr	NA	Na	Yes	No	Yes	
North Carolina									
Oregon		\$230 - \$285		\$130 - \$165					
Penn	\$0	\$100	2 yr	\$200	Yes	No	Yes	Yes	Yes
Rhode Island	\$75	\$48	1 yr	\$48	Yes	Yes	No	Yes	Yes
Utah		3rd party admin							
Vermont	\$75	Included	2 yr	\$75	Yes	Yes	No	No	
Wash						3 exams by 3rd party at \$250 each			

West Virginia	\$75	Included	1 yr	\$75	Yes	No	Yes	No	
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	State/City	State Requirements for a Crane Operator
1	California	A State Certification card is not required, but the state expects crane operators to comply with the OSHA rules even though they have not gone into effect yet. For the most part, contractors require a license to operate a crane and enforce that to help with insurance costs.
2	Connecticut	In the state of Connecticut, one must have 2 years of documented experience in order to apply for a state license to operate a crane. The application fee is \$50 and the license fee (2 years) is \$50. Applicant must pass both a written and practical exam administered by the state. Operators without 2 years of documented experience can apply for an Apprentice certificate that will require that any crane operations be supervised by a crane operator. Apprentice application fee is \$25. Also in Connecticut, individual cranes must be licensed for a cost of \$40 per year. Renewal fee is \$50 for two years.
3	Georgia	Certification by the State is not required; contractors appear to require it.
4	Hawaii	In the state of Hawaii, one must show the State that they have passed a written and practical exam given by one of the accredited crane licensing agencies: CIC, NCCER, OECP or NCCCO. They must also provide a current physical exam and photo. The application fee is \$50 and the State license can be purchased for \$100 per year - not to exceed the expiration date of the accredited license presented. Fees are for the year and are not pro-rated. Renewal fees are \$100 per year up to expiration of accredited license, with a current physical exam.
5	Illinois	Certification by the State is not required; contractors appear to require it.
6	Indiana	Certification by the State is not required.
7	Iowa	Certification by the State is not required; contractors appear to require it.

8	Massachusetts	After submitting an application fee of \$75, applicant must take a test given by the state. If applicant does not score at least 70%, applicant must wait 90 days before being eligible to re-test. Operators of all equipment that hoists must be licensed, including for cranes, excavators, forklifts, etc. An applicant who passes the written exam may be required to take a practical exam. License expires on Operators birthday every two years. In order to renew, Operator must provide a certificate of continuing education provided by an approved trainer. Renewal fee is \$75 for two years. Medical certificate must always be valid in order for state license to be valid.
9	Minnesota	Requires
10	Montana	Accepts a license from an accredited organization such as CIC, NCCCO, NCCER and OECP. That, along with a current physical and payment of \$80 will get you a Montana Crane License for one year. License must be renewed annually for \$80. If you do not have an accredited crane license, you can take the written and practical exam through the State at one of many job service locations. Written test fees are \$100. Applications require a notarized statement from employer(s) regarding a total of 1,000 hours of experience. There are several classes of licenses - see rules for more information.
11	Nevada	
12	New Hampshire	*Follows same rules as Massachusetts.
13	New Jersey	There is no application fee for New Jersey. If the application is accepted, a payment of \$250 is due to cover a 5-year period. The application must be notarized. A current physical exam is required. The first license issued may be pro-rated to coincide with the date of expiration on the accredited agency certificate presented. The state recognizes a certificate issued by an accredited agency, CIC, NCCCO, NCCER or OECP. Renewal fee is \$250 for five years.

14	New Mexico	Application fee is \$50, license fee is \$75 for two years. Experience must be verified by the employer and application notarized. Application must include a physical exam performed within the last 12-month, and a drug screen also in the last 12 months. Class I must be 21 years old with 500 hours of experience (in the last 3 years) and can operate any crane. Class II must be 18 years old with 500 hours of experience (in the last 3 years) and can operate hydraulic cranes up to 100 tons or 150' boom with evidence of a practical exam administered by an approved agency. Class III must be 18 and is considered in training. All classes of license require a written exam given by an approved training facility OR a certificate from an accredited agency such as the NCCCO. Renewal fee is \$75 for two years.
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21	Vermont	*Follows same rules as Massachusetts.
22	Washington	3 exams by 3rd party at \$250 each
23	West Virginia	It appears as though West Virginia only accepts NCCCO certification. Application fee of \$75 covers license for one year. State Licenses must be renewed annually for \$75. Current DOT physical exam is required.

Attachment 4 – HMOAB Budget and Certification Data

Fiscal Year	Cash	Revenues	Expenses	Difference
2010-2011				
2011-2012	\$364,797.00	\$36,960.00	\$45,043.00	-\$8,083.00
2012-2013	\$356,714.00	\$34,420.00	\$57,554.00	-\$23,134.00
2013-2014	\$333,580.00	\$49,275.00	\$30,848.00	\$18,427.00
2014-2015	\$352,007.00	\$43,451.00	\$34,560.00	\$8,891.00
2015-2016	\$360,898.00	\$35,447.00	\$53,816.00	-\$18,369.00
2016-2017	\$342,529.00	\$40,000.00	\$60,000.00	-\$20,000.00

Data for Fiscal Year 2016-2017 are estimated.

Fiscal Year	Total Applicants	New	Renew	Total Members
2010-2011	38	14	24	340
2011-2012	59	21	38	359
2012-2013	56	20	36	297
2013-2014	82	38	44	325
2014-2015	114	61	53	408
2015-2016	104	62	42	369
2016-2017	100	60	40	369

Data for Fiscal Year 2016-2017 are estimated.

Attachment 5

Haag Engineering provided HMOAB with its crane accident data as of February 2016. At that time, 509 crane accidents were utilized for evaluation. Tables 1-1 through 1-3 below compare the general industry and construction industry accident accumulation by capacity, boom length, and crane type. The numbers in red are areas in which general industry accidents surpassed construction industry accidents in that category.

Construction vs. General Industry Statistical Analysis of Accidents Investigated by Haag Engineering

Table 1-1 Total accidents by crane capacity:

Crane Capacity	General Industry	Construction Industry
0-14 ton	12	10
15-99 ton	79	147
100-199 ton	20	59
200-299 ton	22	42
300-599 ton	6	7

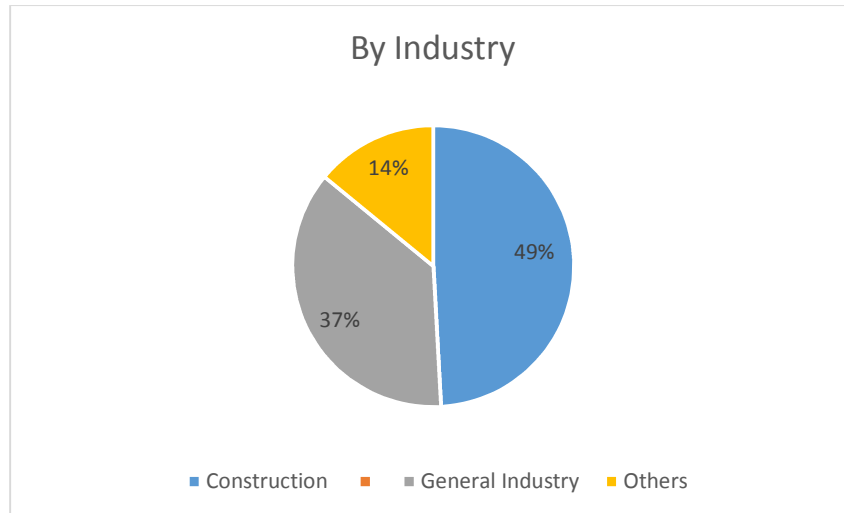
Table 1-2 Total accidents by boom length:

Crane Boom Length	General Industry	Construction Industry
0-50 ft.	64	119
51-100 ft.	39	33
101-150 ft.	21	49
151-200 ft.	13	37
201-250 ft.	2	19
251-300 ft.	6	3
301-350 ft.	1	5
351-400 ft.	0	1
>400 ft.	1	2

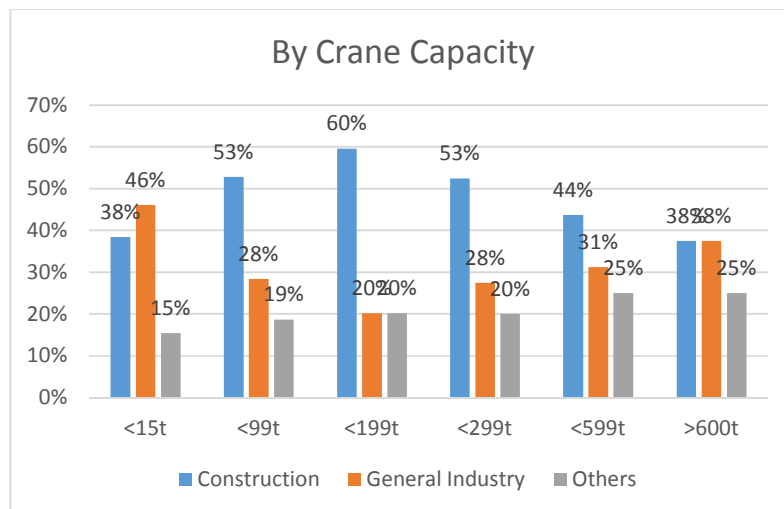
Table 1-3 Total accidents by crane type:

Crane Type	General Industry	Construction Industry
Boom Truck	11	17
Mobile Hydraulic	52	92
Mobile Lattice	29	93
Mobile Rough Terrain	19	18
Tower Crane	5	42

Charts based on Accidents Investigated by Haag Engineering



The cumulative total for construction crane accidents is approximately 49%. General industry and manufacturing stand out as the second largest group accounting for 37% of crane accidents.



Most crane accidents occur in smaller crane capacities at approximately 60%. The licensing of crane operators in all industries has the potential of addressing this gap since many general industry cranes fall within this crane capacity.