

**EXAMINATION INFORMATION
BOILER OPERATOR AND STEAM ENGINEER**

GENERAL: A valid Boiler Operator License or Steam Engineer License is required by the City of Los Angeles for a person to operate, within city limits, one or more high pressure steam boilers rated above 5 horsepower (high pressure steam is steam in excess of 15 PSI {PSI - pounds per square inch}) - L.A.M.C. Sec. 97.0201.

TYPE OF LICENSES:

1. **BOILER OPERATOR - 35 HP:** This license allows for the operation of high pressure steam boilers rated from over 5 HP to 35 HP (HP = horsepower).
2. **STEAM ENGINEER - 500 HP:** This license allows for the operation of one or more high pressure steam boilers rated up to 500 HP. If multiple boilers are connected for joint operation or piped to a common steam header, the total HP rating from all the connected boilers **cannot exceed 500 HP**.
3. **STEAM ENGINEER - UNLIMITED HP:** This license allows for the operation of one or more high pressure steam boilers of any size or horsepower rating.
4. **STEAM ENGINEER - TURBINE ENDORSEMENT:** Allows the operation of one or more Steam Turbines of any size. This endorsement is a notation printed on the Steam Engineer Unlimited Certification when the Turbine exam is passed. One must already have the Steam Engineer Unlimited license in order to qualify for the endorsement examination or one can apply for the Unlimited and Turbine examinations to be taken at the same time, in which case, the Steam Engineer Unlimited exam must be passed first in order to activate the Turbine Endorsement.

EXAMINATION REQUIREMENTS

A. EXPERIENCE:

1. **BOILER OPERATOR - 35 HP:** At least 6 months as an operator of boilers over 5HP but not exceeding 35 HP carrying over 15 pounds per square inch of steam.
2. **STEAM ENGINEER - 500 HP:** At least one-year full time as a steam engineer, operating boilers exceeding 35 HP and up to 500 HP. In lieu thereof, three years' relevant work experience is acceptable. Relevant work experience shall only be considered if it is within 10 years of application date and working with steam boilers exceeding 35 HP and up to 500 HP (combining HP to a common header is acceptable), which may include the following job titles/ positions: helper, assistant, apprentice, assistant operator or assistant engineer working with steam boilers.

3. **STEAM ENGINEER - UNLIMITED HP:** At least one-year full time as a steam engineer, operating boilers exceeding 500 HP. In lieu thereof, three years' relevant work experience is acceptable. Relevant work experience shall only be considered if it is within 10 years of application date and working with steam boilers exceeding 500 HP (combining HP to a common header is acceptable), which may include the following job titles/ positions: helper, assistant, apprentice, assistant operator or assistant engineer working with steam boilers.

4. **STEAM ENGINEER - TURBINE ENDORSEMENT:** One must already have the Steam Engineer Unlimited license and at least one-year experience as a Steam Turbine Operator. In lieu thereof, three years' experience as a helper, assistant, apprentice, assistant operator, or assistant engineer to the person in charge of a Steam Turbine. Work experience shall only be considered if it is within 10 years of application date and working with Steam Turbines.

EDUCATION EXPERIENCE AND CREDIT CLARIFICATION

Education Type	35 BHP Field Experience Required	500 BHP Field Experience Required	Unlimited Field Experience Required
Bachelor's Degree or Higher- In Engineering, Technology, Science, or Mathematics from an accredited institution.	3 Months	1 Year	1 Year
Associates Degree- In Engineering, Technology, Science, or Mathematics from an accredited institution.	3 Months	1 Year	2 Years
Apprenticeship Program- Stationary Engineer, Operating Engineer, or Building Engineer working with steam greater than 15 PSI. Certificate of completion is required.	3 Months	1 Year	2 Years
<i>Note: No work experience credit shall be accepted for volunteer work, steam plant operations courses or boiler seminar / classes. No work experience credit for foreign merchant marine or education from other countries. US Military; Provide applicable documentation for exam experience credit consideration.</i>			

B. FEES: APPLICATION / FILING: \$54.50 ANNUAL RENEWAL: \$27.50

There is no additional fee for the "TURBINE ENDORSEMENT" examination when taken in conjunction with the Unlimited Steam Engineer examination. If taken individually, a separate application and filing fee will be required.

C. **ONE CURRENT PASSPORT SIZE COLOR PHOTO (FULL-FACE, 2" X 2")
PLEASE ATTACH TO THE APPLICATION.**

D. **APPLICATION AND OTHER REQUIRED INFORMATION:**

1. Applicants shall reside in the United States
2. If applicable, Military rank & enlistment location including DD Form 214 Certificate of Release or Discharge Active Duty
3. The City reserves the right to verify any claims of employment or work history related to Boiler operating experience
4. Incomplete applications will not be accepted
5. Provide relevant letters of recommendation, employment records, school degrees
6. LADBS is not responsible to notify you of errors on your application
7. LADBS is not responsible to conserve copies of your applications
8. LADBS is not responsible to compile your application
9. See Trade License Application Instructions form for additional guidance

E. **ABOUT THE EXAMINATION:**

All examination topics consist of two parts. The **first part** is a closed-book written examination with multiple choice questions pertaining to the safe operation of high-pressure steam boilers and steam-driven equipment. The **second part**, an oral interview, is given only when a passing grade is obtained from the first part and is used to determine the applicant's practical knowledge and safe operation of steam boilers and steam-related accessories. Except for foreign language translation dictionaries, no books or reference materials of any kind are permitted to be used during the examination. The use of phones, tablets, ear phones, head phones, or recording devices are strictly prohibited during the examination. Other than the restroom breaks, no one is allowed to leave the room or building until he/she has completed the examination(s) and returned the whole exam packages to the Examiner. The Examiners are not obligated to review test results with an unsuccessful applicant. In general, the steam boiler exam may contain questions in the following categories:

1. ***Boiler Operation & Maintenance***
2. ***Boiler Safety & Control Devices***
3. ***Combustion Principles***
4. ***Pumps and Compressors***
5. ***Water Treatment***
6. ***Safety or Relief Valves***
7. ***Physics & Chemistry***
8. ***Superheaters & Economizers***

PASSING SCORE: 70% minimum for each written and oral. Applicants who attain at least 18 correct written answers (from 25 questions) in either the Boiler Operator, Steam Engineer or Turbine Endorsement exam will be eligible for the oral interview. The oral interview consists of 10 questions, each question shall be awarded 0 to 10 points.

Both the written and oral exams must be passed in order to get a boiler operator or steam engineer license or the turbine endorsement. Cheating during the written exams will result in automatic failure of the applicant and may affect the acceptability of the applicant to take other City examinations.

SCHEDULING: All applicants will be notified of the examination date by phone or email. If unable to take the examination, the applicant will automatically be rescheduled.

Applications expire 6 months from cashier's validation date. If examinations are not taken within that time, a new application must be filed and new fees paid. The previous fees shall not be refundable. **NOTE: There are two (2) exam appointments/attempts per application. Cancellations or Failures to appear shall account for as "Failed to pass."**

EXAMINATION LOCATION: In person exams; Applicants will be notified of the examination date and location via USPS mail. **Virtual exams;** Applicants will be notified via email and provide with a link to log into for the exam. Applicants shall use a desktop or laptop computer only. Additional instruction to be provided when virtual exam is scheduled.

LENGTH OF EXAM: 1.5 HOUR

- F. **RE-EXAMINATION:** Applicants who fail to pass the first examination are entitled to a second examination. **It may take** up to four to six weeks to reschedule and there is no additional fee. Keep in mind, appointment date availability is not guaranteed, it is **approximate** and is dependent on the number of applicants and appointment availability. Applicants will be notified of the appointment date by phone or email. Applicants who fail to pass the second examination are required to **wait one month** before they may file another application. A new application along with the filing fee is required. Applicants who apply for a license and cannot pass the exam they applied for, will not be allowed to apply for a higher HP license.
- G. **IDENTIFICATION: A valid government-issued photo I.D. with a signature (such as driver's license, military I.D., or passport) will be required when applicants appear for the examination.** Failure to provide the proper identification may prevent the applicant from taking the scheduled examination until such time that the required identification is provided.

H. **REINSTATING EXPIRED LICENSE:** Your license has expired for over one year and your renewal can not be processed. If your license has not been expired for more than three years, you may file a request for a modification. The fee is \$255.06, which is non-refundable. Based on the results of the modification, you may be required to retake the examination or pay additional late fees. Once your request has been reviewed, you will be notified by mail of the results.

THERE ARE MANY SOURCES OF INFORMATION,
THE FOLLOWING IS BRIEF SUGGESTED REFERENCE LIST OF BOOKS
TRAINING SCHOOLS OR FACILITIES

The City of Los Angeles does **not** approve, certify, rate or endorse any of the information provided below. The information given on books for reference material and training schools, are merely suggestions and intended to give applicants an initial basis to studying or reviewing for the exam. It is the applicant’s primary responsibility, and are strongly encouraged, to pursue additional means that will help enhance their chances of passing the examination.

BOILER OPERATOR’S GUIDE

Harry M. Spring

STEAM PLANT OPERATION

Woodruff & Lammers

LOCAL 501 OPERATING ENGINEERS

For Members Only
213 385 2889

HIGH PRESSURE BOILERS

Steingress & Frost

POWER BOILERS

A.S.M.E. Code Section I

L.A. TRADE TECHNICAL COLLEGE

400 W. Washington Blvd
Los Angeles, CA 90015
213 744 9058

RECOMMENDED CARE OF POWER BOILERS

A.S.M.E. *Code Section VII
CALIFORNIA CODE OF REGULATIONS
Title 8. Divisions 1 and 2
Boiler & Unfired Pressure Vessel Safety
Orders State of California - D.O.S.H.

SOCALGAS- ENERGY RESOURCE CENTER

9240 Firestone Blvd
Downey, CA 90241
877 238 0092

**EXAMINATION INFORMATION
BOILER OPERATOR AND STEAM ENGINEER**

THE FOLLOWING ARE SAMPLE QUESTIONS WHICH ARE RELEVANT TO THE EXAMINATION FOR A LICENSE TO OPERATE A BOILER CARRYING OVER 15 POUNDS PER SQUARE INCH (PSI) OF STEAM PRESSURE.

1. What are the precautions to be observed when starting any boiler that has been closed down overnight? Are there any special precautions required before starting a gas burning boiler?
2. How do you bring a newly-started boiler on line?
3. How do you determine whether the feedwater check valve for the boiler is not closing?
4. What causes foaming in the boiler? How do you know when a boiler is foaming? How do you stop foaming in a boiler?
5. What is boiler priming? What causes priming? How can priming in a boiler damage an engine or pump?
6. What would you do if the pressure gauge on the boiler registered 150 PSI and you knew the safety valve was set to open at 100 PSI?
7. How do you test a safety valve to see if it operates at the proper set pressure? What is the difference between a safety valve and a relief valve? How often do you test these valves? How is a leaking safety valve repaired?
8. How do you change the pressure setting of a safety valve if it popped at a pressure less than the steam pressure you desired? Would you install a shut-off valve between the boiler and its safety valve?
9. What causes heavy black smoke from the firebox of an oil-burning boiler?
10. What does heavy yellow smoke from the firebox of an oil-burning boiler indicate?
11. Name some of the causes of an excessive amount of accumulated soot in the firebox and tubes of an oil burning boiler.
12. How often should a boiler be blown down? If the boiler water is treated, is it necessary to blow down the boiler every day? Why? What is the purpose of treating the boiler water? What is TDS?
13. What would you do if you could not see the water level in the boiler gauge glass while the boiler is in operation? What would you do if the water level in the gauge glass shifted up and down?
14. If the boiler feedwater pump is operating and the water level in the boiler is not rising, what is the best thing to do? Can you increase the speed of the feedwater pump for more water volume?
15. What is boiler water pH? What pH reading is considered acidic and alkaline? Give an example.
16. What is a superheater? What is the purpose of superheating the steam? Does a superheater require a safety valve? Are there any precautions to be taken when bringing a superheater on line?
17. What causes boiler tubes and other boiler heating surfaces to overheat or fail?
18. How do you prevent corrosion or pitting? What effect has oxygen or carbon dioxide on metals?

TRADE LICENSE APPLICATION INSTRUCTIONS

1. **Examination Title:** What exam are you applying for? 35HP, 500HP, Unlimited, Unlimited with Turbine
2. **Date:** The date you are filling out the exam application
3. **Applicant Name:** What is your full legal name as it appears on your driver's license or approved Government identification
4. **Birth Date:** What date were you born Month/Date/ Year
5. **Address:** Where do you reside as of the date you are filling out the exam application
6. **Email:** What electronic mail address do you want to be contacted at?
7. **Phone:** What phone number do you want to be contacted at? Mobile phone number is preferred
8. **Height:** What is your approximate height measurement (feet/inches)?
9. **Weight:** What is your approximate weight?
10. **Eyes:** What is the color of your eyes?
11. **Hair:** What is your hair color?
12. **Employer-Name Address:** Only list the relevant employers name and address where you have operated a steam boiler. You may also include the name of the school and address
13. **Duties Related to Examination:** List the duties and responsibilities for each of the employers. You may also provide separate documents listing your job duties. A signed and completed "Steam Operator & Boiler Engineer Certification of Work Experience" shall be included with your application.
14. **Dates:** List the date you began with the employer/school and the date you left the employer/school
15. **Total time:** How many years and months were you with the employer/school or if you are still with the employer/school
16. **Applicant's Full Signature:** Sign the application certifying the information you provided is true



TRADE LICENSE APPLICATION

221 N. Figueroa St., Suite 700
Los Angeles, CA 90012
(213) 482-0099

Examination Title: Date:

Applicant Name: Birth Date:

Address:

Address City State Zip

Email: Phone:

Height: Weight: Eyes: Hair:

Employer/Education – Name and Address <small>* Only show experience needed to qualify for examination</small>	Duties Related to Examination	Dates	Total Time
		From: <input type="text"/> To: <input type="text"/>	YEARS/MOS <input type="text"/>
		From: <input type="text"/> To: <input type="text"/>	YEARS/MOS <input type="text"/>
		From: <input type="text"/> To: <input type="text"/>	YEARS/MOS <input type="text"/>
		From: <input type="text"/> To: <input type="text"/>	YEARS/MOS <input type="text"/>
		From: <input type="text"/> To: <input type="text"/>	YEARS/MOS <input type="text"/>

I hereby certify that all of the information that I have given herein is true and complete to the best of my knowledge and belief. I understand that any false statement will subject me to disqualification.

Applicant's Full Signature

FOR OFFICE USE ONLY:

EXAM NUMBER	EXAM STATUS		
		Exam Date	
	Oral		
LICENSE NUMBER	Written		
	Final		
	Initial		

FEES		2nd Fees (if applicable)
Approved for Exam By	<input type="text"/>	
Filing Fee	<input type="text"/>	
D.S.C Surcharge	<input type="text"/>	
System Surcharge	<input type="text"/>	
Total Fees Due	<input type="text"/>	

For Cashier's Use Only

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities



Boiler Operator & Steam Engineer Certification of Work Experience

INSTRUCTIONS:

The applicant shall complete the information in Part 1 below, then the person certifying the work experience (employer or contractor) shall complete Part 2. The Los Angeles Department of Building and Safety reserves the right to contact the certifier to verify work experience and/or dates. If additional space is needed to list the experience, please attach a separate sheet that must also be signed under the same certification statement contained below.

Use a separate form for each employer. Please type or print neatly and legibly in black or dark blue ink—pencil is not acceptable. Forms containing strikeouts or modifications may not be accepted. Corrections must be initiated by the certifier.

PART 1- APPLICANT INFORMATION				
The <u>Applicant</u> must complete Part 1 <u>before</u> the Certifier completes Part 2				
Name: <input type="text"/>				
First: <input type="text"/>	Last: <input type="text"/>	Middle: <input type="text"/>		
Have you had a previous City of Los Angeles Boiler License? Yes <input type="radio"/> No <input type="radio"/>				
License Number: <input type="text"/>		Expiration Date: <input type="text"/>		
Type of classification and the license you are applying for:				
35 HP <input type="radio"/>	500 HP <input type="radio"/>	Unlimited HP <input type="radio"/>	Unlimited HP w/ Turbine <input type="radio"/>	Turbine <input type="radio"/>

PART 2- WORK EXPERIENCE AND CERTIFICATION STATEMENT				
The <u>Certifier</u> must complete Part 2 <u>after</u> the applicant completes Part 1				
Employer: <input type="text"/>				
License #: <input type="text"/>		Supervisor: <input type="text"/>		
Employer's street address				
Number/Street: <input type="text"/>		City: <input type="text"/>	State: <input type="text"/>	ZIP: <input type="text"/>
Name of Certifier		Telephone # of Certifier		Certifier email address
<input type="text"/>		<input type="text"/>		<input type="text"/>
Applicants job title: <input type="text"/>				
DATES (List only dates that the applicant was engaged in work related to the type of examination indicated in Part 1)				
From <input type="text"/>	To <input type="text"/>	Equals Years <input type="text"/>	Months <input type="text"/>	
In the space below, describe the job duties related to boiler and/or boiler operation only:				
<input type="text"/>				
List the boiler(s) and/or turbine(s) that you have worked with at this job:				
Manufacturer	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Boiler Type	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Used As	<input type="text"/>	<input type="text"/>	<input type="text"/>	
HP & PSI	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Were the boilers connected to a common steam header? Yes <input type="radio"/> No <input type="radio"/>				
I Certify that I have <u>direct knowledge of the work covering the time period outlined above</u> . I certify under penalty of perjury, under the laws of the State of California, that the information stated above is true and correct.				
Date: <input type="text"/>	Signature: <input type="text"/>		Printed Name: <input type="text"/>	

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities. Form No. www.ladbs.org