Senate Fiscal Agency
P. O. Box 30036
Lansing, Michigan 48909-7536

BILL ANALYSIS

Telephone: (517) 373-5383
Fax: (517) 373-1986
TDD: (517) 373-0543

House Bill 4216 (Substitute S-2 as reported)
Sponsor: Representative Robert Jones
House Committee: Labor
Senate Committee: Economic Development and Regulatory Reform

Date Completed: 3-31-08

RATIONALE

The Boiler Act requires licensure for the installation or repair of boilers, and requires the inspection of boilers by licensed or certified boiler inspectors employed by the Department of Labor and Economic Growth (DLEG). The Act, however, does not regulate the *operation* of boilers, which means that Michigan lacks statewide standards and qualifications for operating boilers in various facilities. To promote knowledge, expertise, safety, and energy conservation in the day-to-day operation of boilers, those in the boiler operators' profession have suggested that Michigan law should provide for statewide uniform registration of people who hold themselves out as boiler operators or stationary engineers.

CONTENT

The bill would amend the Boiler Act to provide for the registration of boiler operators and stationary engineers. The bill would do all of the following:

-- Allow a person to operate a boiler without obtaining a registration, but prescribe a criminal penalty for a person who used various titles without being registered.
-- Allow a participant in an approved apprenticeship program, a qualified technical training program, or a qualified training program to use certain titles.
-- Establish criteria for classifications of boiler operators and stationary engineers.
-- Require the board of boiler rules to designate course content for qualified technical education programs.
-- Establish education and experience requirements for registration as a boiler operator or stationary engineer.
-- Allow an examination for boiler operators to be either written or oral, and require an examination for stationary engineers to be both written and oral.
-- Transfer certain rule-making authority from the board of boiler rules to DLEG.

Under the Act, "boiler" means a closed vessel in which water is heated, steam is generated, and/or steam is superheated, under pressure or vacuum by the application of heat from combustible fuels, electricity, or nuclear energy.

Under the bill, "boiler operator" or "stationary engineer" would mean a person engaged in the operation of boilers and associated auxiliaries. "Associated auxiliaries" would mean equipment that is required in the operation of a boiler, including pumps, regulators, feedwater heaters, superheaters, desuperheaters, economizers, air preheaters, draft fans, combustion and pollution control equipment, and prime movers.

Registration & Titles

The bill specifies that an individual could operate a boiler and associated auxiliaries

without obtaining a registration under the Act. Unless an individual or business entity had been issued a registration, however, the individual or business could not use any of the following terms or any other name, style, or description that indicated that the person or an individual employed by the business entity was registered:

-- Registered boiler operator or certified boiler operator.
-- Registered stationary engineer or certified stationary engineer.
-- Low pressure registered boiler operator or low pressure certified boiler operator.
-- High pressure registered boiler operator or high pressure certified boiler operator.
-- First-, second-, or third-class registered stationary engineer.
-- First-, second-, or third-class certified stationary engineer.

An individual registered under the Act could use only one of those titles or the abbreviation R.B.O., C.B.O., R.S.E., or C.S.E. A person using a title described above without a registration issued under the Act would be guilty of a misdemeanor punishable by up to 60 days' imprisonment and/or a maximum fine of $2,000. A business entity using or advertising the use of an individual having a title described above would be guilty of a misdemeanor punishable by the same penalty, if the individual were not registered under the Act.

A person applying for a registration would have to be at least 18 years old, possess the physical and mental capacities to perform his or her duties in a competent and safe manner, and meet the applicable requirements under the bill. An applicant would have to use a form provided by the DLEG Director. The Director would have to issue a registration upon the recommendation of the board and upon the applicant's payment of an examination and registration fee as provided for in DLEG rules. A registration could be renewed annually upon payment of the prescribed fee.

Within one year after the bill's effective date, the board would have to recommend for registration, without examination, an applicant who submitted evidence satisfactory to the board that the applicant had one or more of the following:

-- At least five years of experience in the class or category of boiler operator or stationary engineer for which he or she was applying.
-- A license as a boiler operator or stationary engineer from the City of Detroit or the City of Dearborn in a class for which the applicant was applying.
-- Successful completion of a four-year approved apprenticeship program, a qualified technical education program, or a four-year qualified training program.

An individual participating in an approved apprenticeship program, a qualified technical training program, or a qualified training program could use the title "apprentice certified boiler operator" or "apprentice certified stationary engineer".

"Approved apprenticeship program" would mean a training program for boiler operators or stationary engineers certified by or meeting the standards of the U.S. Department of Labor Bureau of Apprenticeship Training and approved by the board.

"Qualified technical training program" would mean an educational program approved by the board that has a minimum of 350 contact hours in classroom hands-on training, field training, or supervised plant visits for high pressure boiler operators. The board could establish lesser standards for an educational program for low pressure operator training or other entry-level training positions.

"Qualified training program" would mean either of the following:

-- An in-house training program approved by the board and offered to boiler operators and stationary engineers by an employer.
-- An in-house training program implemented or developed by a utility and offered to boiler operators and stationary engineers by an employer as a result of negotiations between an employer and its employees.

Classifications

Under the bill, boiler operator and stationary engineer registrations would be classified as follows:

-- Low pressure boiler operators, who would operate low pressure boiler plants having an aggregate of not more than 4,000 square feet of boiler heating surface.
-- High pressure boiler operators, who would operate high pressure boiler plants having an aggregate of not more than 4,000 square feet of boiler heating surface or not more than 10 steam engine-turbine horsepower.
-- Third-class stationary engineers, who would operate boiler plants having an aggregate of not more than 7,500 square feet of boiler heating surface or not more than 100 steam engine-turbine horsepower.
-- Second-class stationary engineers, who would operate boiler plants having an aggregate of not more than 20,000 square feet of boiler heating surface or not more than 200 steam engine-turbine horsepower.
-- First-class stationary engineers, who would operate boiler plants having an aggregate of 20,000 square feet or more of boiler heating surface or 200 steam engine-turbine horsepower or more.

Technical Education Programs

Within 180 days after the bill's effective date, the board would have to promulgate rules designating the course content for qualified technical education programs for the various categories and classes of registration of boiler operators and stationary engineers.

The rules would have to provide that the course content of qualified technical education programs for entry-level registrants included at least all of the following subject matter areas:

-- Basic functions, construction, and operation of all types of boilers.
-- The function of boiler appliances, accessories, and associated auxiliaries.
-- Materials used in boilers and the effect of temperature extremes on those materials.
-- The fuels used in boilers and fundamentals of combustion.
-- Basic electricity.
-- Plant operation and boiler maintenance.
-- Instrumentation and controls.
-- Fundamental mathematics and principles of the metric system.
-- General safety procedures.
-- Recognition of dangerous operation conditions.

The board would have to provide that the course content for categories and classes other than entry-level registrants included subject matter similar to that described above in the degree of depth and difficulty appropriate for the category and class.

Registration Requirements

The DLEG Director could not issue a registration for a title whose use was restricted under the bill unless the applicant met the requirements described below. Upon payment of a fee prescribed in the Act and without examination, however, the board could register an applicant for the use of a restricted title if the applicant were a boiler operator or stationary engineer licensed or registered in another state, municipality, or country whose requirements for licensure or registration were at least substantially equivalent to Michigan's requirements for registration, as determined by the board, if that other state, municipality, or country extended the same reciprocal privileges to a boiler operator or stationary engineer registered in Michigan.

An applicant for a low pressure boiler operator registration would have to have at least one year of experience operating or maintaining low or high pressure boilers, steam prime movers, or associated auxiliaries.

An applicant for a high pressure boiler operator registration would have to have one or more of the following:

-- At least two years of experience in the operation of a high pressure boiler.
-- A low pressure boiler operator's registration and at least one year of experience in the operation of a low pressure boiler.
-- At least one year of a qualified training program, a qualified technical education program, or an approved apprenticeship program.

An applicant for a third-class stationary engineer registration would have to have one or more of the following:

-- Registration as a high pressure boiler operator and at least one year of

experience in the operation of a high pressure boiler.
-- Registration as a low pressure boiler operator, at least one year of experience in the operation of a low pressure boiler, and at least one year of maintenance experience on high pressure boilers and associated auxiliaries.
-- Registration as a high pressure boiler operator and at least one year of boiler maintenance experience or at least one year as an apprentice in an approved training program in a high pressure boiler plant having an aggregate heating surface of more than 4,000 square feet.
-- At least three years of experience in the operation of boilers in a high pressure boiler plant having an aggregate heating surface of more than 4,000 square feet.
-- At least one year of experience in the operation of boilers in a high pressure boiler plant having an aggregate heating surface of more than 4,000 square feet along with sufficient experience operating steam prime movers in excess of 10 horsepower for a combined total of at least three years of experience.
-- An associate degree in energy technology or a related field as determined by the board, with a power engineering option from a two-year college whose program was approved by the board, and employment or cooperative education experience of at least 360 hours as a power engineer, boiler operator, or stationary engineer in a steam electric generation plant or a high pressure steam heating or process plant.

An applicant for a second-class stationary engineer registration would have to have one or more of the following:

-- Registration as a third-class stationary engineer and at least one year of experience as a third-class stationary engineer.
-- A bachelor's degree in engineering, engineering technology, heating/power technology, or energy technology from a college or university whose program was approved by the board, and employment experience as an engineer in the engineering or research division of a steam electric power generating plant for at least one year.
-- At least four years of experience in the operation of boilers in a high pressure boiler plant having an aggregate heating surface of more than 7,500 square feet.
-- At least one year of experience in the operation of boilers in a high pressure boiler plant having an aggregate heating surface of more than 7,500 square feet along with sufficient experience operating steam prime movers in excess of 100 horsepower for a combined total of at least four years of experience.
-- At least one year of experience in the operation of boilers in a high pressure boiler plant having an aggregate heating surface of more than 7,500 square feet along with sufficient experience operating boilers in a high pressure boiler plant having an aggregate heating surface of more than 4,000 square feet for a combined total of at least four years of experience.

An applicant for a first-class stationary engineer registration would have to have one or more of the following:

-- Registration as a second-class stationary engineer and at least two years of experience as a second-class stationary engineer.
-- At least six years of experience in the operation of boilers in a high pressure boiler plant having an aggregate heating surface of more than 20,000 square feet.
-- At least two years of experience in the operation of boilers in a high pressure boiler plant having an aggregate heating surface of more than 20,000 square feet along with sufficient experience operating steam prime movers in excess of 200 horsepower for a combined total of at least six years of experience.
-- At least two years of experience in the operation of boilers in a high pressure boiler plant having an aggregate heating surface of more than 20,000 square feet along with sufficient experience in the operation of boilers in a high pressure boiler plant having an aggregate heating surface of more than 7,500 square feet for a combined total of at least six years of experience.
-- Completion of a four-year approved apprenticeship program or a four-year qualified training program.
-- Completion of a four-year program with a bachelor's degree from a college or university in engineering, engineering technology, heating/power technology, or energy technology whose program was

approved by the board and that included a hands-on power option from a two-year community college program or the equivalent, as determined by the board, and at least one year of employment, internship, or cooperative education experience in a steam electric generation plant or high pressure steam heating process plant.

Examinations

The Act requires the examination for chief, deputy, or special inspectors to be a written exam. The bill specifies that the examination for boiler operators could be either written or oral and that the examination for stationary engineers would have to be both written and oral.

The Act provides that examinations must be confined to questions that will aid in determining the fitness and competency of the applicant for the intended service, and may be those prepared by the National Board of Boiler and Pressure Vessel Inspectors. The bill would allow the board of boiler rules to adopt any examination it determined appropriate and to delegate any administrative functions relating to the conduct of the examination.

Rule-Making

The Act requires the board to formulate definitions and rules for the safe construction, installation, inspection, and repair of boilers in Michigan. The bill instead would require DLEG to promulgate rules for the safe construction, installation, inspection, operation, and repair of boilers.

The rules for new construction must be based upon and follow the generally accepted nationwide engineering standards, formulae, and practices established and pertaining to boiler construction and safety. The board, by resolution, may adopt an existing published codification, known as the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers, with the amendments and interpretations. The bill would allow DLEG to adopt that codification, by rule.

The board, with the advice of the DLEG Director, must promulgate rules to establish the fee schedules for licenses, permits, certificates, and inspections. The bill instead would require DLEG, in consultation with the board, to promulgate rules to establish fee schedules for licenses, permits, certificates, registrations, examinations, and inspections. As currently required, the fees would have to reflect DLEG's actual costs.

MCL 408.752 et al.

ARGUMENTS

(Please note: The arguments contained in this analysis originate from sources outside the Senate Fiscal Agency. The Senate Fiscal Agency neither supports nor opposes legislation.)

Supporting Argument

According to information provided to the Senate Economic Development and Regulatory Reform Committee by a representative of Local 547 of the International Union of Operating Engineers (IUOE), the National Board of Boiler and Pressure Vessel Inspectors reported that there were 23,338 boiler accidents in the 10-year period of 1992 to 2001. Of those, 83% reportedly were a direct result of human oversight or lack of knowledge. The national board also determined that human oversight or lack of knowledge caused 69% of injuries and 60% of recorded deaths due to boiler accidents over that period, according to the IUOE representative. The operation of boilers by inadequately trained or inexperienced personnel increases the likelihood of mistakes and accidents.

By establishing various classifications of voluntary registration of boiler operators and stationary engineers, the bill would promote the safe and efficient day-to-day operation and maintenance of boilers. Although registration would be voluntary, a person could not identify himself or herself using one of the titles typically associated with boiler operation unless he or she were registered. This would ensure that only those with an appropriate level of education, training, and experience could bill themselves as boiler operators or stationary engineers, which should improve the safety and efficiency of boiler operation at large and small facilities throughout the State.

Response: While the bill could be a step toward establishing statewide standards for qualification as a boiler engineer, and thereby improving safety and efficiency, the State should establish a mandatory system of certification or licensure rather than a voluntary registration system.

Supporting Argument

Since the board of boiler rules already exists and operates to establish standards for installation, inspection, and repair of boilers in Michigan, the bill would not add to the State's bureaucracy. The existing board would oversee the professional standards and testing requirements proposed by the bill for registered boiler operators.

Legislative Analyst: Patrick Affholter

FISCAL IMPACT

The bill would have a minimal impact on the Department of Labor and Economic Growth. The Department would incur some increased costs to promulgate the rules and administer the voluntary registration program, as required by the bill. These costs would be offset by the fees that would be paid by registrants and existing restricted fund resources.

Local governments would incur the costs of misdemeanor probation and incarceration in local facilities, which vary by county. The revenue from any penal fines imposed pursuant to the bill would go to public libraries.

Fiscal Analyst: Lindsay Hollander
Elizabeth Pratt
Maria Tyszkiewicz