INDIAN BOILER ACT, 1923

(RULES MADE THERE UNDER)

Objective of the Act:

An act to consolidate and amend the law relating to steam boilers to ensure the safety in its manufacture and use.

The connected regulations and rules enforced:

i. The Indian Boiler regulation 1950

ii. The Karnataka Boiler Rules 1982

iii. The Karnataka Economisers Rules 1959

iv. The Karnataka Boiler operation Rules 1959

v. The Karnataka Boiler Attendants Rules 1962

"Boiler" means any closed vessel exceeding (22.75 litres) in capacity which is used expressly for generating steam under pressure and includes any mountings or other fitting attached to such vessel, which is wholly or partly under pressure when steam is shut off.

"Economiser" means any part of a feed-pipe that is wholly or partly expressed to the action of flue gases for the purpose of recovery of waste heat.

"Steam –pipe" means any pipe through which steam passes from a boiler to a prime mover or other user or both, If

i. The pressure at which steam passes through such pipe exceeds 3.5 kilograms per sq. cm above atmospheric pressure or

ii. Such pipe exceeds 254 mm in internal diameter and includes in either case any connected fitting of a steam pipe

PROCEDURES FOR REGISTRATIONS OF BOILERS AND ECONOMISERS.

a. Package Boiler

Submit following Original documents pertaining to the Boiler intended for registration to the concerned Divisional Inspector.

i. Form-II, Form-III and Form-IVA

ii. Form-IIIC of all mountings and fittings

iii. Boiler drawings in original

iv. Form-IIIA of feed pipe

v. Registration fee paid in challan

The registration of the Boiler will be done within 30 days or shorter period as may be prescribed from the date of the receipt for examination of the boiler giving not less than 10 days notice of the date fixed.

After satisfactory completion of open inspection and hydraulic test provisional order will be issued pending steam test.

b. Water tube Boiler

- Obtain permission to erect the Boiler through an authorised Boiler repairer from the Chief Inspector of Boilers.

- Submit following Original documents pertaining to the Boiler intended for

- Registration to the concerned divisional Inspector.

  i. Form-II, Form-III, and Form-IVA

  ii. Form-IIIC of all mounting s and fittings

  iii. Form-IIIC of all mountings and fittings

  iv. Boiler Drawings in original

  v. Form-IIIA of feed pipe

  vi. Registration fee paid in challan

- Offer the Boiler for carrying out stage inspection to the concerned divisional inspector and obtain his clearance at every stage

PROCEDURES FOR REGISTRATIONS OF STEAM LINE

a. Obtain approval of the proposed steam line drawing from the Chief Inspector of Boilers by submitting following documents.

i. Steam line drawing in triplicate showing clearly welding details, materials specifications, working pressure of boilers and feed pipeline and registration Number of Boilers

ii. Steam line drawing scrutiny fee paid in challan (Fee is Rupees 50/- for every 30 meters or part thereof)

iii. Mention the authorised boiler repairer through whom you are getting the same erected

b. After obtaining approval of proposed steam line drawing from the Chief Inspector of Boilers make application for registration of proposed steam line with the divisional inspector by submitting the following original documents

i. steam line certificates in Form-IIIA

ii. Mounting And fittings certificates in Form-IIIC

iii. Welders certificate

iv. Registration fee paid in challan.

c. Offer steam pipe and fittings for material inspection and obtain clearance for erection from the inspector of boilers.

d. Offer the weld set up and weld edge preparation for inspection and obtain clearance for erection from the inspector of boilers.

e. Subject the weld joint joints for radiographic examination if needed

f. Subject the erected steam line for hydraulic test to the inspector of boiler

g. Submit revised steam line drawing incorporating any deviations caused during the erection due site condition for approval to the Chief Inspector of boiler through inspector of Boiler drawing scrutiny fee.

ANNUAL INSPECTION OF BOILERS ECONOMISERS AND STEAM LINES

a. Make application to the Divisional Inspector in Form-I and Inspection fee paid in challen.

The inspection of the Boiler, Economiser and steam line will be done within 30 days or shorter period as may be prescribed from the date of the receipt for examination of the Boiler giving not less than 10 days notice of the date fixed.

After satisfactory completion of open inspection and hydraulic test certificate for the use of Boiler, Economiser

will be issued within 48 hours of making such examination.

REPAIRS TO BOILER ECONOMISER AND STEAM LINE.

a. The Inspector of Boiler after making examination of the Boiler, Economiser and Steam line will suggest any structural alteration. Addition or renewal will intimate the owner 48 hours of making the examination.

b. After receiving the suggestions from the Inspector of Boilers for carrying out needful repairs, make the boilers, Economisers and steam line serviceable, the owner shall make application to the Chief Inspector of Boilers seeking permission to carryout the repairs mentioning the authorised Boiler repairer name through whom he is getting the same repaired.

c. After obtaining approval from the Chief Inspector of Boilers the owner should offer the Boiler Economiser and steam line for which repairs are being carried out for inspection to the inspector of Boilers and obtain his clearance.

d. After satisfactory completion of open inspection and hydraulic test, after repairs. Certificates for the use of Boilers. Economiser will be issued within 48 hours of making examination.

PERSONS TO BE INCHARGE OF BOILERS:

A certificate of Second class shall qualify the boiler thereof to be incharge of a single boiler of any kind, the heating surface of which does not exceed 139.5 sq. Mt. a second class boiler attendant may , however, attendant to a battery of boilers (not consisting of more than connected boilers and not exceeding 139.5 sq. Mt. in aggregate of total heating surface) provided he is assisted by the number of firemen considered necessary by the Chief Inspector of Boilers.

A certificate of first class shall qualify the older thereof to be incharge of a single boiler of any kind or capacity or two or more boilers in a battery or of so many separate individual boilers , the total heating surface of which does not exceed 697.6 sq. Mt. provided that such boilers shall be situated within a radius 23 Mts. in the same premises belong to one owner.

PROCEDURES FOR APPEARING FIRST CLASS AND SECOND CLASS BOILER ATTENDANT EXAMINATION;

a. Requirement to appear for Second class examination

1. Age – shall not be less than 20 years

2. Experience – Has served for not less than 3 years as an engine fitter where boiler and engines are repaired or made and worked under steam. I year at least of which he should have worked as an assistant firemen, or

3. Has served for not less than 3 years in the capacity of a fireman or an assistant firemen on a steam boiler or a combined steam engine and boiler or

4. Produces from the head of an industrial or technical institution a certificate stating that he has completed a three years course of training, one year of which must have been as an apprentice in a steam power plant of a mill or factory or an engineering workshop for the maintenance of boilers.

b. Requirement to appear for first class examination:

1. Age – shall not be less than 21 years

2. Experience - Has served for not less than two years as a boiler attendant with second class certificate of competency in sole of working charge of boiler whose rated heating surface is not less than 46.51 sq. Mt. or

3. Produces from the head of an industrial or technical institution a certificate stating that he has completed a three years course of training one of which must have been as on apprentice in a steam power plant of a mill or factory or an engineering workshop where engines and boilers or repaired or made and in addition as served for not less than one year in sole working charge of a boiler not less than 46.51 of heating surface with a second class boiler attendants certificate.

c. Procedures for making application for first class and second class examination

I. FIRST CLASS;

1. Application shall made in Form-A duly attested by the Gazetted officer

2. Service certificate in original with copy

3. Character certificate issued by employer in original with a copy.

4. Two copies of recent bust photographs

5. Fee of Rs.100/- paid in challan

II. SECOND CLASS

1. Application shall be made in a Form –A duly attested by a Gazetted officer.

2. Service certificate in original with a copy

3. Character certificate issued by employer in original with copy

4. Two copies of recent bust photographs

5. Fee of Rs.100/- paid in challan.

BOILER OPERATION ENGINEERS EXAMINATION:

The qualified Boiler Operation Engineers are required to maintain a boiler or battery of boilers having a total heating surface area of 697.6m^2 . The requirements are:

age - not less than 23 years of age;

educational qualification - should have completed apprentice engineers course in a recognised workshop engaged in making or repairing of Boilers and Accessories OR should possess a degree in mechanical or electrical engg., or possess a diploma recognised by the Institute of Engineers.

Experience - should have served not less than 2 years as Engineer/Asst. Engineer in running and maintenance of battery of boilers not less than two in number and each boiler not having less than 93.02 m2 heating surface.

Method of examination - Written examination consists of one paper in Mathematics, applied mechanics, heat engines in each subject and one paper of drawing followed by oral examination.

Mode of application - Prescribed application duly filled in

(i) Form A attested by gazetted officer;

(ii) Service certificate in original along with a copy;

(iii) Character certificate from the employer;

(iv) Two recent passport size photographs;

(v) Rs.150/- paid in challan or DD

Contact person for further details : The secretary /Senior Inspector of Boilers, Boiler Operation Engineers Board.

REGISTERS TO BE MAINTAINED

Register of boilers and scantlings in Form no. B;

Registration book and Memorandum of Inspection book of all Boilers in Form no.I;

Register of appeals in Form C;

Register of accidents in Form no.D;

Register of registration and inspection fees in Form NO.E;

Register in Form F – all registered boiler;

Register of steam pipelines in Form G;

FEE CHARTS UNDER THE BOILER ACT

The management shall deposit all fees payable under the Act:

(I) In the Govt. Treasury or the Reserve Bank of India in the state of Karnataka under the following prescribed Head of account through challan. " 0230 Labour and Employment 103 Fees for Inspection of steam Boilers" OR

(II) by cheque or DD drawn in favour "Chief Inspector of Factories and Boilers in Karnataka, Bangalore" payable at Bangalore.

1. FEE FOR INSPECTION OF BOILERS

n.e-not exceeding

Sl.No.	Particulars	Sq.Mts	Sq. Mts	Rupees
1	For Boiler rating not exceeding		10	500-00
2	For Boiler rating exceeding	10 n.e	25	600-00
3	For Boiler rating exceeding	25n.e	50	750-00
4	For Boiler rating exceeding	50n.e	75	850-00
5	For Boiler rating exceeding	75n.e	100	1000-00
6	For Boiler rating exceeding	100n.e	150	1150-00
7	For Boiler rating exceeding	150n.e	200	1300-00
8	For Boiler rating exceeding	200n.e	400	1600-00
9	For Boiler rating exceeding	400n.e	600	1800-00
10	For Boiler rating exceeding	600n.e	800	2000-00
11	For Boiler rating exceeding	800n.e	1000	2400-00
12	For Boiler rating exceeding	1000n.e	1200	2500-00
13	For Boiler rating exceeding	1200n.e	1400	2700-00

14	For Boiler rating exceeding	1400n.e	1600	3000-00
15	For Boiler rating exceeding	1600n.e	1800	3200-00
16	For Boiler rating exceeding	1800n.e	2000	3600-00
17	For Boiler rating exceeding	2000n.e	2200	4000-00
18	For Boiler rating exceeding	2200n.e	2400	4800-00
19	For Boiler rating exceeding	2400n.e	2600	5200-00
20	For Boiler rating exceeding	2600n.e	2800	5600-00
21	For Boiler rating exceeding	2800n.e	3000	6000-00

In respect of boilers exceeding 3000sq.mts rating an additional fee of Rs.200/- for every 200 sq.mts or part thereof shall be charged. Fee for ordinary inspected of miniature boiler shall be Rs.250/-.

2. FEES FOR INSPECTION OF ECONOMISER

n.e – not exceeding

Sl.No	Particulars	Sq.mts	Sq.mts	Rupees
1	For economiser rating not exceeding		50	400-00
2	For economiser rating exceeding	50 n.e	100	500-00
3	For economiser rating exceeding	100 n.e	150	600-00
4	For economiser rating exceeding	150 n.e	200	700-00
5	For economiser rating exceeding	200 n.e	250	800-00
6	For economiser rating exceeding	250 n.e	300	900-00
7	For economiser rating exceeding	300n.e	350	1000-00
8	For economiser rating exceeding	350 n.e	400	1100-00
9	For economiser rating exceeding	400n.e	450	1200-00
10	For economiser rating exceeding	450 n.e	500	1300-00
11	For economiser rating exceeding	500		1400-00

3. FEES FOR REGISTRATION OF BOILER

Sl.No	Particulars	Rupees
1	For boiler rating not exceeding 10 sq.mts	600/-
2	For boiler rating exceeding 10 but not exceeding 30 sq.mts	800/-
3	For boiler rating exceeding 30 but not exceeding 50 sq.mts	900/-
4	For boiler rating exceeding 50 but not exceeding 70 sq.mts	1100/-
5	For boiler rating exceeding 70 but not exceeding 90 sq.mts	1300/-
6	For boiler rating exceeding 90 but not exceeding 110 sq.mts	1500/-
7	For boiler rating exceeding 110 but not exceeding 200 sq.mts	1700/-
8	For boiler rating exceeding 200 but not exceeding 400 sq.mts	1900/-
9	For boiler rating exceeding 400 but not exceeding 600 sq.mts	2200/-
10	For boiler rating exceeding 600 but not exceeding 800 sq.mts	2400/-
11	For boiler rating exceeding 800 but not exceeding 1000 sq.mts	2700/-
12	For boiler rating exceeding 1000 but not exceeding 1200 sq.mts	3200/-
13	For boiler rating exceeding 1200 but not exceeding 1400 sq.mts	3600/-
14	For boiler rating exceeding 1400 but not exceeding 1600 sq.mts	4200/-

15	For boiler rating exceeding 1600 but not exceeding 1800 sq.mts	4600/-
16	For boiler rating exceeding 1800 but not exceeding 2000 sq.mts	5000/-
17	For boiler rating exceeding 2000 but not exceeding 2200 sq.mts	5400/-
18	For boiler rating exceeding 2200 but not exceeding 2400 sq.mts	6000/-
19	For boiler rating exceeding 2400 but not exceeding 2600 sq.mts	6300/-
20	For boiler rating exceeding 2600 but not exceeding 2800 sq.mts	6800/-
21	For boiler rating exceeding 2800 but not exceeding 3000sq.mts	7200/-

Above 3000 sq.mts for every 200 sq.mts or part thereof an additional fee of Rs.200/- shall be charged.

4. FEES FOR REGISTRATION OF ECONOMISER

Sl.No	Particulars	Rupees
1	For rating not exceeding 50 sq.mts	500/-
2	For rating exceeding 50 but not exceeding 100 sq.mts	600/-
3	For rating exceeding 100 but not exceeding 150 sq.mts	700/-
4	For rating exceeding 150 but not exceeding 200 sq.mts	800/-
5	For rating exceeding 200 but not exceeding 250 sq.mts	900/-
6	For rating exceeding 250 but not exceeding 300 sq.mts	950/-
7	For rating exceeding 300 but not exceeding 350 sq.mts	1000/-
8	For rating exceeding 350 but not exceeding 400 sq.mts	1100/-
9	For rating exceeding 400 but not exceeding 450 sq.mts	1200/-
10	For rating exceeding 450 but not exceeding 500 sq.mts	1300/-
11	For rating exceeding 500 but not exceeding 600 sq.mts	1400/-
12	For rating exceeding 600 but not exceeding 700 sq.mts	1500/-
13	For rating exceeding 700 but not exceeding 800 sq.mts	1600/-
14	For rating exceeding 800 but not exceeding 900 sq.mts	1700/-
15	For rating exceeding 900 but not exceeding 1000 sq.mts	1800/-

Above 1000 sq.metrs for every 200 sq.mts or part thereof, an additional fee of Rs.100/- shall be charged.

TRANSFER OF BOILER:

Whenever a boiler is transferred from another state into the state of Karnataka, the owner shall make application for registration of the transfer. The boiler cannot be used until registration has been effected.

The documents required to be submitted in respect of this to the Chief inspector of Boilers are:

1.Application along with no objection letter from the previous owner;
2.A treasury receipted challan for Rs.2000/-

DETAILS OF BOILER ACCIDENTS OCCURRED IN THE STATE

A. Boiler Accident caused by starvation due to insufficient NPSH,

Boilers installed at M/s The Mysore Sugar Company Ltd., Mandya were frequently failing due to starvation, thus resulting in tube damages and downtime of boiler causing production hamper. Upon thoroughly investigating the root cause, it was found that the starvation was due to insufficient NPSH provided. After providing required NPSH, no such failure of pressure parts have taken place and thus no downtime of boiler and also production hamper has not been caused.

B. Boiler accident caused by overheating due to accumulation of Sludge/Sediment/Scale.

Fire Tube Boilers installed at M/s Wipro Ltd., Tumkur were frequently failing due to overheating caused by Scale accumulation, which is in turn was caused due to improper treatment of feed water. Feed water available in the factory site was contaminated by high percentage of Silica. The management was facing the problem of proper cleaning of adhered scale due to its inherent hardness and sticking property, thus resulted in tube replacement,

The management was advised to install Cation and Anion exchange bed to avoid slippage of Silica into the feed system. Accordingly after the installation of mixed bed, no need of replacement of the tube or any other pressure parts have not taken place resulting in saving of fuel and also expenditure incurred in tube replacement.

C. Boiler Accident caused by overheating of furnace due to sludge accumulation in the narrow space between the furnace and shell.

A fire tube boiler installed in a rice mill was thrown to a distance of about 50 feet from its original foundation caused by jet action due to sudden failure of furnace. After investigating the accident it was found that the furnace was overheated due to accumulation of sludge between the furnace and shell, this is in turn due to improper blowing down operation.

D. Boiler accident due to Tube Failure caused by erosion.

A Water tube boiler installed at M/s Davanagere Cotton Mills Ltd., Davanagere was failed due to erosion of front bork tube due to excessive Silica content in fuel. Due to the sudden discharge of hot contents from the failed portion which resulting in death of three persons who were standing in front of the fire hole door, due to scald. The Department advised the management to provide proper refractory lining on such sensitive portion to overcome erosion.