রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ গেজেট

অতিরিক্ত সংখ্যা

কর্তৃপক্ষ কর্তৃক প্রকাশিত

সোমবার, ফেব্রুয়ারি ৫, ২০০৭

[বেসরকারি ব্যক্তি এবং কর্পোরেশন কর্তৃক অর্থের বিনিময়ে জারীকৃত বিজ্ঞাপন ও নোটিশসমূহ]

শিল্প মন্ত্রণালয়

বাংলাদেশ বয়লার বোর্ড

প্রজ্ঞাপন

তারিখ, ২৮ ভাদ্র ১৪১৩/১২ সেপ্টেম্বর ২০০৬

এস, আর, ও নং ২২১-আইন/২০০৬।—The Boiler Act, 1923 (Act No. V of 1923) এর section 28, section 31 এর সহিত পঠিতব্য, এ প্রদত্ত ক্ষমতাবলে বাংলাদেশ বয়লার বোর্ড, Boiler Regulations, 1951 এর নিম্নরূপ সংশোধনের লক্ষ্যে এস,আর,ও নং ৩২৭-আইন/২০০৫, তারিখ, ৬ মার্চ, ২০০৬ইং রোজ সোমবার বাংলাদেশ গেজেটে প্রাক প্রকাশনা করা হয়। উক্ত প্রজ্ঞাপনের ৩নং অনুচ্ছেদে বর্ণিত শর্ত মোতাবেক উক্ত বিষয়ে কাহারো কোন আপত্তি বা পরামর্শ ৩০ দিন অতিবাহিত হওয়ার পরও না পাওয়ায় The Boiler Act, 1923 (Act No. V of 1923) এর section 28, section 31 এর সহিত পঠিতব্য, এ প্রদত্ত ক্ষমতাবলে বাংলাদেশ বয়লার বোর্ড, Boiler Regulations, 1951 এর নিম্নরূপ সংশোধন করিল, যথা ঃ—

উপরি-উক্ত Regulation এর—

(ক) regulation 1 এর sub-regulation (3) এ উল্লিখিত "all the Provinces and the Capital of the Federation" শব্দগুলির পরিবর্তে "The whole of Bangladesh" শব্দগুলি প্রতিস্থাপিত হইবে;

(খ) regulation 2 এর—

(অ) clause (b) এর—

(১) "Central" শব্দটি বিলুপ্ত হইবে;

(২) "Form II" শব্দগুলির পর "and Form IIA" শব্দগুলি সন্নিবেশিত হইবে;

মূল্য ঃ টাকা ১৪.০০

(আ) clause (c) এর—

(১) sub-clause (i) এর—

(i) "Any Province of all the Provinces and the Capital of the Federation" শব্দগুলির পরিবর্তে "Bangladesh" শব্দ প্রতিস্থাপিত হইবে;

(ii) "In that Province" শব্দগুলি বিলুপ্ত হইবে;

(২) sub-clause (ii) এর "all the Provinces and the Capital of the Federation" শব্দগুলির পরিবর্তে "Bangladesh" শব্দ প্রতিস্থাপিত হইবে;

(গ) regulation 3 এর sub-regulation (2) এর পর নিম্নরূপ নতুন sub-regulation (3) সংযোজিত হইবে, যথা ঃ—

"(3) Where no specific provision is made in these regulations for design or manufacture of any pressure part of the boiler, the Inspecting Authority may permit the design, manufacture, stage inspections and certification of such pressure parts including the valves, mountings and fittings conforming to the international standards and foreign codes like B.S, ASME Boiler and pressure vessel code, TEMA, TRD, GOST, DIN, JIS and ISO Boiler Code ISO/R-831 which are known to be commonly used in industrially advanced countries.";

(ঘ) regulation 4 এর—

(অ) sub-regulation (b) এ উল্লিখিত "an Inspecting Officer" শব্দগুলির পর "or inspector" শব্দগুলি সন্নিবেশিত হইবে;

(আ) sub-regulation (c) এর পরিবর্তে নিম্নরূপ sub-regulation (c) প্রতিস্থাপিত হইবে এবং sub-regulation (c) এর পর নিম্নরূপ নতুন sub-regulation (cc) সন্নিবেশিত হইবে, যথা ঃ—

"(c) Inspecting Authority's Certificate-For boilers imported into Bangladesh a certificate from an Inspecting Authority in Form II certifying that the material was tested and the boiler built under its supervision shall be furnished to the Chief Inspector before or at the time of submission of the application for registration. Together with such certificate the

Inspection Authority may furnish a Memorandum of Inspection book in Form I prepared in the manner prescribed by Regulation 366 in respect of the inspection of the boiler during construction and the hydraulic test applied on completion. In the case of steel made and tested by well-known makers in Bangladesh or Great Britain the certificate of the makers in Form IV as prescribed in Regulation 26 may be accepted in lieu of a certificate form an Inspecting Authority.

For the purpose of this regulation, the Boilers Board shall decide whether a maker is well-known or not.

"(cc) ***Inspection of boiler to comply into any international standard or foreign code.***—Notwithstanding anything contained in these regulations, the Inspecting Authority may inspect any boiler made for export during the various stages of its construction so as to comply with the requirements of any international standard or foreign code and may grant a certificate in Form IIA.";

(ঙ) regulation 250 এর পরিবর্তে নিম্নরূপ regulation 250 প্রতিস্থাপিত হইবে, যথা ঃ—

"250. ***Inspection and testing of boilers during construction.***— The Inspection Authority shall have access to works of the manufacturer at all reasonable times and shall inspect the manufacture of the boiler at the following stages and may reject any part that does not comply with the requirements of these Regulation. In case of any doubt the Inspecting Authority may examine at any stage other than the stages stipulated below. The manufacturer shall give at least 4 days notice to the Inspecting Authority/Inspecting Officer before reaching each stage. Before undertaking any of the stage inspections the Inspecting Authority/Inspecting Officer shall satisfy himself that the testing equipment/ instrument has been properly calibrated.

I. ***At the steel works :*** When the fillets, plates, angles, bars, skelps or any other parts to be used in the construction of the boiler are ready for examination and marking off of the mechanical test specimen and before they are cut from the parent plate or plates, and when test specimen have been machined and are ready for testing. For imported materials. Regulation 4 will be applicable.

II. At the pipe/tube maker's and fabricator's works :

(a) When the billets or skelps are ready for identification;

(b) When the pipes/tubes are ready for examination and selection of mechanical test pieces;

(c) When the test specimens are ready for testing;

(d) When the pipes/tubes are ready for hydraulic test. For parts manufactured from tubes/pipes at Fabricator's works either by manipulation or fabrication as may be required by the Inspecting Authority and in all cases of fabrication by welding after the weld preparation has been made, the components have been assembled and tack welded in position for final welding, and hydraulic test after completion of fabrication. For imported materials, regulation 4 will be applicable.

III. At the boiler manufacturer's works :

1. **Water tubes Boilers :**

(a) Fusion welded Drums and Headers.

(b) Seamless Drums and Headers.

(c) Riveted Drums.

(d) Headers for Water Tube Boilers of Riveted Construction.

(e) Tubes and Integral Piping.

A. Fusion welded drums and headers :

(i) When plates have been received at the boiler makers works to compare identification markings with those recorded on the steel makers certificates of manufacture and tests and to check the test results furnished by the steel makers in respect of mechanical and chemical properties, and when the test plates are ready for marking for identification before they are cut from the parent plate or plates.

(ii) When the cylindrical shell plates are formed to shape with the edges for welding and set up in readiness for commencement of welding and when test plates are attached.

(iii) When the welding of main cylindrical shell is completed and the shell checked for circularity and the radiographic or ultrasonic test records are available for scrutiny.

(iv) When the end-plates are for identification with the mill certificates and cut for the end-shape forming operation.

(v) When the plates are formed to shape with weld edges prepared and set on the cylindrical shell in readiness for the circumferential welding operation.

(vi) When the welding of the end-plates to the cylindrical shell is completed and the radiographic or ultrasonic test records are available for scrutiny.

(vii) When each plain shell drums or header is prepared to receive compensation plates and attachments and a representative number stand pipes, tube or tubes stubs are set up ready for welding.

(viii) When all welding on each drum is complete, the Inspection Authority shall check the record of heat treatment and the marking off preparation and testing of specimens from the test plates.

(ix) At hydraulic test, followed by external and internal examination and stamping. On thick drums of high carbon or alloy material further non-stamping. On thick drums of high carbon or alloy material further non-destructive examination shall be done on drums, nozzle and stub weld after stress-relief.

(x) Any drum having tube holes drilled subsequently to the hydraulic test shall be further examined on completion of this work and prior to dispatch form the manufacturers work.

B. Seamless Drums and Headers :

(i) When material is ready for identification with the steel makers certificate of manufacturer and test, also when each cylinder is prepared for forming, or welding of separate end closures and identify test plate material.

(ii) When each plain shell drum or header is prepared to receive compensation plates and attachments and representative number of standpipes, tubes or tube stubs are set up ready for welding.

(iii) When all welding on each drum is complete and the radiographs or ultrasonic test records are available. The Inspection Authority shall check the record of heat treatment and the marking off, preparation and testing of specimens form the test plates.

(iv) At hydraulic test, followed by external and internal examination and stamping. On thick drums of high carbon or alloy material further non destructive examination shall be done on drum nozzle and stub welds after stress relief.

(v) Any drum having tube holes drilled subsequently to the hydraulic test shall be further examined on completion of this work and prior to dispatch from the manufacturer's work.

C. Riveted Drums :

(i) When cylindrical shell plates are ready for identification with plate mill certificate at boiler maker's works and cut to size ready for forming to cylindrical shape.

(ii) When the drum shell plates are bent to the circular form and drum ends are flanged.

(iii) When the drum shell and drum ends are drilled and when rivets are ready for testing.

(iv) When the drum seams are in process of riveting.

(v) When the boiler drums are ready for hydraulic test.

D. Headers for Water Tube Boilers of Riveted Construction :

(i) When cylindrical shell plates are ready for identification with plate mill certificates at boiler maker's works and cut to size reacy for forming to cylindrical shape.

(ii) When the test ring is ready for stamping and marking off of the test specimens for identification and before they are cut from header.

(iii) When the test specimens are ready for testing.

(iv) When the header is ready for hydraulic test.

E. Tubes and integral piping :

(i) When the tubes are ready for identification with the tube maker's certificate at the boiler maker's works and a representative number of tubes and pipes are prepared at the ends and set up ready for welding.

(ii) When records for non destructive tests on a percentage of butt welds is made available and all attachments have been welded to the tubes and piping.

2. Shell type Boilers :

(a) Welded Construction :

(i) When plates have been received at the boiler maker's works to compare identification markings with those recorded on the steel makers certificate of manufacture and test and to check the test resulted furnished by the steel maker's in respect of mechanical and chemical properties, and when test plate are ready for marking for identification before they are cut from the parent plate or plates.

(ii) When drum of shell plates and end plates have been formed with the plate edges prepared for welding and when test plates are attached.

(iii) When the first run has been deposited along with principal seams and test plates, when these seams have been completed on one side and prepared for welding on the other side, and on completion of welding.

(iv) When radiographic or ultrasonic test records are available for scrutiny.

(v) When weld test specimens have been prepared from the test plate previously selected, to witness the required test.

(vi) When opening have been prepared, and when stand pipes are similar connections have been tack welded in position and subsequently on completion.

(vii) When post weld heat treatment done.

(viii) On completion of manufacture during hydraulic testing and again after testing to inspect internally and externally.

(b) Riveted Construction :

(1) *Lancashire Cornish and multitubular horizontal boilers*

(i) When cylindrical shell plates are ready for identification with plate mill certificates at boiler maker's works and cut to size ready for forming to certificates at boiler makers works and cut to size ready for forming to cylindrical shape, the Inspecting Authority shall also identify weld test plate material.

(ii) When the shell and flue plates are bent to the circular form and before the later are welded and flanged.

(iii) When the weld grooves are machined and flue sections are being welded.

(iv) When the end plates have been dished and flanging operation completed.

(v) When the shell and end plates are being drilled and the flue sections have been welded, flanged and drilled and when the rivets are ready for testing.

(vi) When the shell and flue seams are in process of riveting and the tubes holes are ready for reception of tubes.

(vii) When the boiler has been prepared for a final internal and external examination.

(2) *Vertical cross tube and multitubular boilers*

(i) When cylindrical shell plates are ready for identification with plate mill certificates at boiler maker's works and cut to size ready for forming to cylindrical shape. The Inspection Authority shall also identify weld test plate material.

(ii) When the shell and flue plates are bent to the circular form and before the later are welded and flanged.

(iii) When the weld grooves are machined and flue sections are being welded.

(iv) When the end plates have been dished and flanging operations completed.

(v) When shell and end plates are being drilled and the flue section have been welded, flanged and drilled and when the rivets are ready for testing.

(vi) When the shell and flue seams are in process of riveting and the tube holes are ready for the reception of tubes.

(vii) When the boiler is completed and filled with water in readiness for the hydraulic test.

(viii) When the boiler is prepared for a final internal and external examination.

(c) **Headers for boilers of riveted construction:**

(i) When cylindrical shall plates are ready for identification with plates mill certificates at boiler maker's works and cut to size ready for forming to cylindrical shape.

(ii) When the testing ring is ready of stamping and the marking off of the test specimens for identification and before they are out from the header.

(iii) When the test specimens are ready for testing.

(iv) When the header is ready for hydraulic test.

IV. Valves and mountings:

(i) When the Steel casting Steel forging iron casting bronze casting etc. are ready for examination and selection of test specimens.

(ii) When the test specimens are ready for test.

(iii) When the parts are machined and ready for dimensional check in accordance with drawing approved by the Inspection Authorities.

(iv) When the fittings are ready for hydraulic test.

V. Identification marks :

Each boiler shall be permanently and clearly marked on the front end plate with :—

(a) Manufactures identification Mark.

(b) Inspection Authority's stamps.

(c) Date of hydraulic test and the year of manufacture.

(d) Hydraulic test pressure.

(e) Permissible Working Pressure.

(চ) regulation 262 এর পর নিম্নরূপ নতুন regulation 262A সংযোজিত হইবে, যথা ঃ—

262A: **Additional Requirement for Automatic Boiler.**—(1) General In addition to the requirements mentioned in regulation 262. every automatic boiler shall comply with the following requirements, namely—

(a) In the event of failure of automatic control devices, the boiler shall be capable of being brought under immediate manual control.

(b) When the Control alarm and tripping devices are housed in chambers External to the boiler there shall be isolating valves for isolating the steam and water connections of the chambers from the boilers which shall be—

(i) capable of being locked in open position :

(ii) mounted with the spindle horizontal to avoid the possibility of air lock if screw down stop valves are fitted on the water connection.

Provided that where sequential control water valves are fitted the steam isolating valve may be omitted.

(c) Where the control alarm and tripping devices are housed in chambers external to the boiler the steam and water connection of the chambers shall be not less than 25 mm bore.

(d) The boiler shall have a provision—

(i) to test the operation of the control or alarm devices of the chamber;

(ii) to blow separately through the water connection and the chambers to prevent the accumulation of deposits.

The means provided for flowing through shall be of sequential valves or equivalent devices so arranged that the water

connection to the boiler can not be shut off unless the drain connections to the chambers are open.

(e) The boiler shall have a drain system with a visual indication of flow. Tundishes of adequate size, placed in a prominent position shall be used wherever practicable.

(f) Where the boiler is provided with electrica. equipment for water level and firing control. It shall have this equipment's so designed that for any deviation from design set point or for any malfunction or any fault in the circuit caused both in the fuel and air supply the boiler to be automatically shut off. The positive means requiring manual resetting shall be provided to cut off the fuel and air supplies to the boiler if there be a failure of electricity supply to water level and /or firing control equipment. All electrical conductors, equipment and electronic devices in connection with water level and firing controls shall be properly insulated and protected against danger including adequate protection against the ingress of moisture and the effects of high temperature.

(g) All automatic boilers shall have automatic water level alarms and firing controls which can be tested regularly without altering the level of water in the boiler and may be incorporated in the automatic control system.

(h) A perceptible water level which are arranged for automatic working and not intended for continuous supervising shall be provided with an entirely independent and separately operated overriding control in addition to the water level and firing control specified in sub-regulation 2 and 3.

(i) The overriding control mentioned in clause (h) shall—

(i) be cut off fuel supply to the burners or the fuel and air supply to solid fuel stoker and operate an audible alarm with flickering signal when the water level in this boiler falls to a predetermined low water level;

(ii) be of the lock-out type and so that control of its electrical circuit has to be manually reset before the boiler can be brought back into operation.

(iii) be provided with its own entirely independent electrical/electronic control circuit.

(j) Where the overriding control mounted externally to the boiler it shall—

(i) be provided with its own chamber;

(ii) comply with the requirements of clause (e).(f).(g) and (h).

(2) **Automatic water level control.**— Automatic water level controls which shall regulate the feed water supply to the boiler in order to maintain effectively the level of water in the boiler between predetermined limits may be—

(a) float or displace operated; or

(b) operated by electrical probe; or

(c) operated by other approved principle subject to satisfaction of the Inspecting Authority.

(3) **Automatic firing control.**—Automatic firing control shall comply with the following requirements, namely :—

(a) At all times they shall control effectively the supply of fuel and air to the adequate requirement.

(b) It shall shut off the fuel supply to the burners or the fuel and air supply to the stocker under the following namely:—

(i) flame failure or pilot flame failure in the case of gas oil or pulverized fuel fired boilers. This control shall be of the lockout type required to be manually reset.

(ii) failure to ignite the fuel at the burner within a predetermined time. The control shall be of the lock out type required to be manually reset.

(iii) When the water level in boiler with a perceptible water level falls below a predetermined safe level. The control shall also cause an audible alarm to sound.

(iv) Failure of forced or induced draught fans or any automatic flue damper.

(v) Increase in boiler pressure to predetermined value.

(vi) When the outlet steam temperature in a forced flow once through boiler increases to a predetermined value.

(4) Nothing of sub-regulations (1), (2), and (3) shall not apply to once-through forced circulation boiler.";

(ছ) regulation 361 এর পর নিম্নরূপ নতুন regulation 361A সংযোজিত হইবে, যথা ঃ—

"**361A. Registration of boilers where requisite valid documents for registration are not furnished.**—(1) For the purpose of registration of boilers where all the requisite valid documents for registration are not furnished, necessary tests including physical, chemical and metallographic test shall be carried out in the testing laboratory of Bangladesh University of Engineering and Technology (BUET) or in Bangladesh Atomic Energy Commission and if the results are satisfactory the boiler shall be registered.

(2) In every cases depending on the type and design of a boiler, the Chief Inspector shall decide the number of rest pieces and the location from where those test pieces are to be cut out.

(3) When the workmanship of a boiler is in any way doubtful the Chief Inspector shall reduce such percentage of the working pressure of the parts of the boilers, as the Chief Inspector deems fit.

(জ) regulation 362 এর sub-regulation (a) এর পরিবর্তে নিম্নরূপ sub-regulation (a) প্রতিস্থাপিত হইবে, যথা ঃ—

(a) The registry number of every boiler shall, within a period of one month after its registration, be cut in the from plate it, in such position as pointed out by the Inspector. The device shall be distinguished by the following letters :—

"BA:BO/বাঃবঃ"

The distinguishing letters shall be engraved above a number and separated there from by a horizontal line two and a half inches in length. The letters and figures shall be one inch in

height and of suitable breadth, provided that in the case small boilers the letters and figures of the device may in the desecration of the Chief Inspection be reduced to 3/8 in height. The whole shall be enclosed in a rectangle, the upper and lower sides of which shall be three inches apart and one quarter inch clear of the top of the letters and the clear of the top of the figures respectively as indicated below :

"BA:BO/বাঃবঃ

2001/২০০১"

The side lines shall be an equal distance clear from the figures. The engraving shall not be less than 1/64th inch in depth.";

(ঝ) **regulation 373** এর পরিবর্তে নিম্নরূপ **regulation 373** প্রতিস্থাপিত হইবে এবং অতঃপর নিম্নরূপ নতুন **regulation 373A** সংযোজিত হইবে, যথা ঃ—

'**373. Submission of plans of boiler** :—(1) In the case of land industrial boilers upto 200 m^2 heating surface and upto 11 kgs/cm working pressure made in Bangladesh for use in this country the manufacturing drawings and the particulars of materials, design and construction of boilers shall be submitted by the maker of the boilers to the Chief Inspector of for boilers having more than 200 m^2 heating surface and more than 11 kg/cm^2 working pressure to the Inspecting Authority where the principal parts of the boilers to be manufactured/assembled for examination and approval before commencement of the manufacture of boilers.

(2) In the case of boilers made outside the country for use in Bangladesh the manufacturing drawings and the particulars of the materials design and construction of boilers shall be submitted initially to the Inspecting Authority for examination and approval. Thereafter the manufacturing drawings and the particulars of materials, design and construction of boilers shall be submitted to the Chief Inspector of boilers for examination before import of boilers so as to avoid questions arising at the examination of the finished boilers.

(3) The Inspecting Authority or the Chief Inspector or both as the case may be shall after examination of the manufacturing drawings and the particulars intimate to the proposers whether they are satisfied with the materials design construction and fitness of the parts for the intended pressure and, if not what modification is necessary therein. When the manufacturing drawings and the particulars of boilers have been approved the Inspector or Inspecting Officer in making his examination or inspection during the construction of boilers shall see that the design and the particulars of construction as approved have been carefully followed and that the material corresponds with the approved particulars.

(4) The fees for the scrutiny of the manufacturing drawings and the particulars of the materials design and construction of boilers under sub-regulations (1) or (2) shall be on the scale prescribed in regulation 365. When the manufacturing drawings have been scrutinized and respect and in respect of them alternations have been suggested and the same are resubmitted for scrutiny separate fee at the rate of 10 percent of the fee for the first scrutiny of the drawings shall be payable if the manufacturing drawings contain alternations other than those previously suggested.

(5) The above procedure shall be followed in the case of extensive repairs or alternations to boilers but no fee shall be leviable for examination of such plans and particulars.

"373A. ***Inspection fees for boilers and parts thereof constructed in Bangladesh.***—The inspection fee or Boilers during construction shall be calculated on the following basis :—

(i) At four times the registration fee for a boiler of Riveted Construction.

(ii) At four times the registration fee for a Boiler of Welded Construction.

(iii) At three times the registration fee for small industrial Boiler.

(ঞ) CHAPTER X এর পর নিম্নরূপ নতুন CHAPTER XA সংযোজিত হইবে, যথা ঃ—

"CHAPTER—XA

SMALL INDUSTRIAL BOILERS

GENERAL

379. **Definition.**—In this Chapter, "Small Industrial Boiler" means—

(a) a shell type boiler generating steam for use external to itself under pressure up to 7 kg/cm^2 and having a volumetric capacity exceeding 22.76 liters but not exceeding 500 liters including the volumetric capacity of all pressure parts being heated from the same heating source and connected to the boiler; or

(b) a coil type boiler or a once through boiler or a water tube boiler having the conditions specified in clause (a) about except that—

(i) the limitation of pressure shall be 7kg/cm^2, and

(ii) the capacity shall be not exceeding 150 liters.

Provided that in case of boilers having combined features of clauses (a) and (b), the working pressure shall be restricted to 7kg cm^2, and the volumetric capacity of particular pressure parts shall not exceed the limits specified in the respective clauses above subject to an aggregate of 500 liters.

380. ***Extent to which variation from the standard conditions laid down in the preceding Chapters is permissible.***— In respect of small industrial boiler, the following variations from the standard conditions laid down in the preceding Chapters shall be permitted, subject to the conditions specified below, namely—

(a) **Materials :**

(i) The materials used in the construction of Small Industrial Boilers shall, except as otherwise provided hereinafter, conform to the provisions made in Chapter II of these regulations.

(ii) Steel plates used in the construction of the small industrial boilers must comply chapter II of these regulation and plate for shell and heads shall be not less than 8 mm in thickness.

(iii) Heads of parts of small industrial boilers when not exposed to direct impact of flame may be made of cast iron or malleable iron provided they comply with other requirements of these regulations.

(iv) The allowable stress on cast iron or malleable iron shall be based on the tensile strength of material with a factor of safety of not less than 4.5.

(b) Design, construction, workmanship and the method of computing the maximum allowable working pressure—

(i) The construction except where otherwise specified shall be the same as those prescribed in the relevant provisions of the preceding chapters of these regulations.

(ii) In the case of fusion welded boilers stress relieving is not compulsory but radiography of welded joints is required to confirm the quality of welded joints.

(iii) In the small Industrial Boilers unflanged steel tube plate may be inserted into the shell and welded for the entire thickness as shown in figure below with a fillet weld having a throat not less than $1\frac{1}{4}$ times the thickness of the shell or tube sheet whichever is smaller.

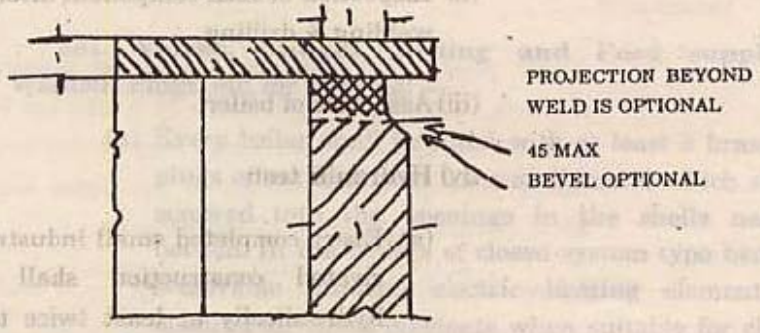

Figure-7

(iv) The minimum thickness of unflanged welded tube sheets shall be 10 mm.

(v) The temperature of the heating element of electrically heated steam small industrial boilers shall be so controlled that it shall not exceed 650°C.

(vi) The tubes shall be made of steel.

(vii) The tube holes shall be drilled full size with shells but starps and ends bolted up in position or may be punched at least 1.3 mm smaller in diameter than full size and then drilled, reamed or finished full size with a rotating cutter. The sharp edges and chips removed. the plates and butt straps re-assembled metal to metalwith pins fittings the holes and with tack bolts.

(c) **Inspection and testing.**—The Small Industrial Boilers shall be subject to inspection during construction and after completion by an Inspecting Authority or Chief Inspector of Boilers. The inspection of the small industrial boiler shall be made at the following stages:

A. Small industrial boiler of Shell type:

(i) Material identification and inspection,

(ii) Inspection of each component after completing welding & drilling,

(iii) Assemble of boiler,

(iv) Hydraulic test:

(a) Every completed small industrial boiler of riveted construction shall be tested hydraulically at least twice the working pressure;

(b) In case of small industrial boiler wholly or partly welded construction the hydraulic test pressure shall be equal to two times the maximum allowable working pressure of the boiler.

(v) A test coupon shall be provided by the maker for conducting root and face bend test.

B. Small industrial-boilers of coil type, once through boilers and water tube boilers : —

(i) Identification of materials;

(ii) During coil manufacture;

(iii) Hydraulic test—The pressure for hydraulic test shall be two times that of the working pressure of the boiler.

(d) Certificates and Maker's Stamps —

A. The certificate and maker's stamp shall be in conformity with the provisions of chapter 1 of these regulations.

B. If owing to small size of the small industrial boilers all information can not be visibly stamped on the boiler plate, maker's certificate accompanying the boiler shall contain the necessary details, but in all cases name, works number and the year of the making must be stamped or exhibited on the small industrials boiler.

381. **Valves, Gauges, Fitting and Feed supply.**—(1) Washout Plugs, etc, for clearing: —

(a) Every boiler shall be fitted with at least 3 brass wash plugs of not less than 2.5 mm diameter which shall be screwed into the openings in the shells near the bottom. In the boilers of closed system type heated by removable internal electric heating elements, the opening for these elements when suitable for cleaning purposes may be substituted for wash out openings.

(b) Boilers not exceeding 300 mm internal diameter may have two 2.5 mm openings for cleaning one of which may be used for the attachment of the blow off valve. The openings shall be opposite to each other, wherever possible. All threaded openings in the boiler shall be provided with riveted or welded reinforcement, if necessary, to give four full threads therein.

(c) Electric boilers of a design employing removable top cover flange for inspection and cleaning need not be fitted with washout openings and washout plug. Level gauges are not required for once through boilers.

(2) Every boiler shall be provided with at least one feed pump or other feeding device except where it is connected with a water main carrying pressure to feed the boiler or where the steam generator is operated with no extraction of steam (closed system). In the later case, in lieu of the feeding device, a suitable connection or opening shall be provided to feed the boilers. Such connection shall be not less than 1.3 mm in diameter.

(3) Subject to the provisions of this sub-regulation every boiler shall be fitted with necessary mountings and fittings as provided in chapter VI of these regulations, and they shall be of substantial construction suitable for 7 kgs/cm^2. All these fittings except safety valves shall be certified by manufacturers of the fittings themselves—

(a) **Feed pipe**—The feed pipe shall be provided with a check valve and a stop valve of a size not less than that of the pipe. The feed water may be delivered to the boiler through the openings of the same size in the shell as that of the blow off connection.

(b) **Blow Off**—Each boiler shall be equipped with a blow off connection, not less than 18 mm in size located to drain the boiler water from the lowest water space

practicable when the boiler is under pressure. Feed water shall not be introduced through the opening or connection needed for the water column, water level indicator or the gauge cock.

(c) **Water Level Indicator/Water Gauges**—Every boiler other than a coil type or a once through boiler shall be fitted with two gauge glasses not less than 150 mm long for determining the water level. The boiler shall have the lowest visible part of the water gauge located at least 25 mm above the lowest permissible water level. The lowest permissible water level of vertical boilers shall be at a point one-third of the height of the shell above the bottom head or tube sheet where the boiler is equipped with internal furnace, the water level shall not be less than one-third of the length of the tubes above the top of the furnace tube sheet.

(d) **Pressure Gauge**—The steam pressure gauge shall have its dial graduated to not less than twice the maximum allowable working pressure of the boiler. The diameter of the dial shall be at least 100 mm and the pipe connecting the pressure gauge shall be minimum 10 mm and the connection shall be through siphon.

(e) **Safety Valve**—Each boiler shall be equipped with two safety valves in series for relieving the steam pressure. The diameter of the valve shall not be less than 19 mm. The minimum relieving capacity of the safety valve shall be sufficient to discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than 10 percent above maximum allowable working

pressure. The safety valve shall be connected to the boiler independently of any other steam connections, without any unnecessary intervening pipe or fitting. Such intervening pipe or fitting if unavoidable shall be not longer than the corresponding face to face dimension of a tee fitting of the same diameter and the minimum opening there through shall be at least equal to the valve inlet.

No valve of any description shall be placed between safety valve and the boiler not on the discharge pipe from the safety valve to atmosphere.

The electrically hearted boilers shall be effectively earthed with a lead of substantial cross section.

382. ***Registration, Operation and Maintenance of small industrial boilers.***—(1) The Registration & inspection fees for small industrial boilers will be determined as per existing rules and regulations.

(2) The certificate of manufacture and test for Small Industrial Boilers shall be furnished in Form XII appended to these regulations.";

(ট) FORM-II এর পর নিম্নরূপ নূতন FORM-IIA সংযোজিত হইবে, যথা ঃ—

"FORM II A

Inspecting Authorities certificate of inspection during construction in respect of a boiler made to International standard or foreign code for export

[Rugulation 4(cc)]

DESIGNATION OF THE INSPECTING AUTHORITY

We hereby certify that the.....type boiler; length..... diameter.....working pressure.....built by Messrs..... under Shop No. .....was constructed under our supervision and inspected at various stages of construction by the Inspecting Officer and that the design, construction and workmanship were satisfactory and in every respect in accordance with.....Code Specification. The boiler is stamped as under :

MAKER'S NAME	
Works number	Year of make
Tested to	on
Working pressure	Inspecting Officer's or Inspecting Authority's Official Stamp.

The boiler on completion was tested to.....in the presence of the Inspecting Officer on.....and it satisfactorily withstood the test. Details of tests and inspections are furnished with certificate.

We have satisfied ourselves that the design, construction and dimensions of the boiler are as shown in the Maker's Drawing No. ..... approved and signed by us, and that the particulars entered in the Marker's Certificate of manufacture are correct to the best of our knowledge and belief. Maker's certificate, signed by them and counter signed by us, as required by the.....Code/Specification is enclosed.

Signature of Inspecting Authority

Dated.....This.....Day of.....20.....";

(ঠ) FORM-XI এর পর নিম্নরূপ নূতন FORM-XII সংযোজিত হইবে, যথা ঃ—

"FORM-XII

Certificate of Manufacture and Test for Small Industrial Boilers (Manufactured Under Chapter XII)

1. Maker's Name.....Year of Make.....
2. Manufactured for.....
3. Location of Installation.....
4. Boiler Identification .....Inspecting officer's stamp.....
5. Drawing No. .....Alteration No. .....
6. Design Code.....Working Pressure (kg/cm^2).....
7. Size of Boiler

Length (Meters)	Width (Meters)	Height (Meters)	Diameter (Meters)

8. Shell/Furnace/Tube Plates/Flange Details

Material Specification	CHEMICAL COMPOSITION					MECHANICAL PROPERTIES			
	C	Si	Mn	P	S	Y	S	U.T.S	%EL
Tube.....									
Furnace.....									
Tube Plates.....									
Flange.....									

Boiler Tubes/Pipe/Pads Details.....

Diameter thickness Material Specification	Chemical Composition					Mechanical Properties			
	C	Si	Mn	P	S	Y	S	U.T.S	%EL
Tube.....									
Pipes.....									
Pads.....									

9. Volumetric Capacity.....

7. Heating Surface.....

11. Nozzle connection.

(a) Steam Outlet.....
(No. Size Type of Nozzles)

(b) Safety Valve.....
(No. Size Type of Nozzles)

(c) Auxiliary.....
(Size and Type)

(d) Blow off Valve.....
(No. Size Type of Nozzles)

(e) Feed Water Valve.....
(No. Size Type of Nozzles)

12. Shop Hydro Test Pressure.....Date

.....(Signature of Manufacturer) Date.....

We certify that the above boiler constructed under our supervision and inspected at a various stages of construction by the inspecting officer and that the construction, workmanship were satisfactory as per Bangladesh Boiler Regulations.

Inspecting Officer Signature of Inspecting Authority

Dated.....This.....Day of.....20.....”

বাংলাদেশ বয়লার বোর্ডের আদেশক্রমে

মোহাম্মদ আবদুল্লাহ্
সদস্য-সচিব
বাংলাদেশ বয়লার বোর্ড।

এ, কে, এম রফিকুল ইসলাম (উপ-সচিব), উপ-নিয়ন্ত্রক, বাংলাদেশ সরকারি মুদ্রণালয়, ঢাকা কর্তৃক মুদ্রিত।
মোঃ আমিন জুবেরী আলম, উপ-নিয়ন্ত্রক, বাংলাদেশ ফরম ও প্রকাশনা অফিস,
তেজগাঁও, ঢাকা কর্তৃক প্রকাশিত।