

METHOD STATEMENT FOR BRAZING & JOINTING OF COPPER PIPES

Below is a brief method statement for copper pipe installation and brazing for any kind of project. Below is list of mandatory tools and equipment's that are useful for this activity.

1. Tool box for Mechanical/Hand Tools
2. Levelling Instrument
3. Silver Brazing Rods
4. Blow-Torch or Heating Torch
5. Thermometer (Heating gauge indicator if any)
6. Grinding Machine, Drilling machine & Cutting Machine
7. Oxygen & Acetylene cylinder & Cutting outfit
8. Measuring Equipment's
9. Applicable PPE & Welders Safety equipment's.

PRE-INSTALLATION PROCEDURE

- All workers to attend safety induction conducted by main contractor and given specific training on the safe installation methods.
- Task lighting to be ensured prior to start of **Brazing Copper Pipes** including riser piping.
- Riser checklists to be filled and kept updated till completion of riser pipes Brazing activities.
- Copper Pipes Brazing jointing works as indicated on the approved shop drawing and as per site requirements.
- The Site Engineer, Site Supervisor will give necessary instructions to certified welders and tradesmen provided necessary approved construction/shop Drawings of latest revision along with coordinated layouts.
- The Site Engineer and Supervisor also explain to the certified welders and tradesmen regarding safety precautions to be observed.

INSPECTION GUIDANCE FOR BRAZING WORKS

The Engineer / Supervisor will complete the inspection checklist and follow the inspection & test Plan detailed in this procedure. The intent of this procedure is to establish a high level of assurance that the end product meets the specification requirements and Consultant satisfaction. The QA/QC Inspectors should verify the approved procedures for Brazing are followed and the inspections and testing records are completed.

JOINTING BRAZING PROCEDURE & WORK SEQUENCE

COPPER PIPE PREPARATION OF BRAZING JOINTS:

- Prior to alignment of pipes for Brazing each length of pipe will be inspected thoroughly to ensure that no visible defects are present. Check the materials as per the standard and specification and get approval from the consultant / Employer representative.
- The EDGE ends of each pipe and the area which is adjacent (at least 1" from the edge inside and outside) shall be thoroughly cleaned from the rust, paint oil scale or the other foreign materials, which are harmful for welding and brazing alloy heat build-up quality.
- Each length of pipe shall be thoroughly cleaned by blowing air from both ends of the pipe. Protect and cover the openings of pipes with suitable cap or polyethylene sheet in order to avoid any foreign material entering.
- Ensure all both pipe ends are clean without any dirt or oil deposits before inserting to the socket which is Endex socket fittings, pressing firmly to reach stopper tip from inside socket start levelling until its firmed follow procedure below.
- For proper aligning external pipe clamps or jigs shall be used and (tack welding) or initial application of brazing alloy to hold the alignment. When above is not possible, tack welding shall be used for alignment.
- Ensure all Brazing alloy rods are suitable to use particularly for wall thickness of the copper pipe and its diameter size of the copper pipe to insure proper usage as per manufacturer's data and recommendations.
- Pre-Heating temperature must be 700 to 750°C (COPPERPIPES). Heat the assembled joints between Pipe and Endex fittings evenly on all sides while heating build up encircling direction either left to right depends on the welder.
- Apply solder or brazing Alloy rod to the mouth of the fittings when reaches the correct temperature the solder alloy will flow freely into the joints. Briefly reapply the blowtorch and wipe off any excess flux residues (solders).
- Allow the joint to cool down without disturbances (not flash with water or any Coolant). And clean the joint by fined sand paper generally to remove excess flux residues.

BRAZING / WELDING CONFORMANCE

- Welding / Brazing alloy of piping shall be performed in accordance with the approved WPS based on project specifications and applicable codes for BS standards; hence there is no welding or brazing procedure specification on the project mentioned. Contractors' ability and expertise will be incorporated on this method statement based on welding code standards and according to manufacturer's recommendation.

- Oxy-acetylene welding to BS 26340 Class 11 with filler rods to BS 1453 and BS EN 12536 as appropriate. Arc welding to BS 4515 and BS 2971 Class 11.
- Bronze welding of copper tube & Pipes oxy-acetylene and inert gas shall be in accordance with BS 1724.
- Flange connection shall be according to ANSI standard. Otherwise stated by approving consultant.
- Certificates will be provided if required by Clients Representative.
- Welding shall not be permitted when weather conditions are bad viz. rain, high winds or any other climate condition that may hamper the quality of welding. Proper wind protection closures shall be provided for welders during welding.
- All the equipment used for welding & brazing shall be in good condition.
- Raise inspection (WIR) to consultant, all fabrication shall be visually inspected and acceptance criteria shall be as per ITP.
- All welds and brazing joints will be 100% visually examined conformity to drawing shall be done for all the lines checking that all components supports, brackets, etc. are installed as per approved materials and shop drawing details and specification of the project.