



may be deleterious to concrete, masonry or steel. Potable water shall be considered satisfactory.

Tests on water samples shall be carried out in accordance with IS: 3025 and they will fulfill all the guide lines and requirements given in IS: 456:2000.

- **Excavation & Backfilling for foundation, pits, walls etc.**

Excavation shall be carried out to true line and levels in all types of soil and shall be carried out for all lifts as required by the work.

The Contractor shall provide suitable drainage arrangement to keep the pits dry. Contractor shall also carry out all de-watering required within the quoted rate.

If excavation is made in excess of the depth required, the contractor shall at his own expenses fill up the required level with lean concrete of mix 1:5:10 (1 cement: 5 coarse sand: 10 aggregate) or as decided by site-in-charge.

The contractor shall make necessary arrangements for lighting, fencing and other suitable measures for protection against risk of accidents due to open excavation at his own expense.

All shoring and strutting required holding the sides of excavation from collapse are included in the quoted rates.

No excavated material shall be deposited within 1.5M of edge of excavation.

The contractor shall not undertake any concreting in foundation until the excavation pit is approved by the site-in-charge.

The contractor shall not back fill around any work until it has been approved by the site-in-charge.

Backfilling shall be carried out of selected earth coming out of excavation. Backfilling shall be carried out in layers of 150 mm and compacted to achieve 95% maximum dry density of the soil being used. Any surplus earth generated shall be transported to areas designated by the Engineer-in-charge.

- **Sand filling in Plinth/Foundations**

Filling shall be carried out in layers not exceeding 15 cms and shall be compacted mechanically or by saturation to specified grade and level and to obtain 90% laboratory maximum dry density or as specified in schedule of rates.

Compaction by flooding may be accepted at the discretion of the Engineer-in-charge, provide the required compaction is achieved.

The Contractor shall not commence filling in around any work until it has been permitted by the Engineer-in-charge.

- **Plain and Reinforced Cement Concrete.**

The cement and steel reinforcement is in the contractor's scope of supply. Engineer-in-charge may require tests to be carried out by the contractor's as a part of his quoted rates to ensure conformity with the relevant standards.

Engineer-in-charge may rejects such of the cement supplied in the event of either unsatisfactory tests or in the event of deterioration due to age ,bad storage etc. Decision of Engineer-in-charge shall be final in this regard.



Water used for concreting work shall be suitable for drinking and shall conform to IS: 456:2000. It shall be free from injurious substances.

- **Source of Coarse and fine aggregates shall be approved by Engineer-in-charge.**
  - Contractor shall store each type and grade of aggregate separately. He shall maintain at site of work adequate quantities to ensure conformity of work. Wet aggregate delivered to site shall be stored for 24 hrs to facilitate drying before being to be used.
  - Admixtures shall be used only with the specific permission of Engineer-in-charge and where used shall be conforming to the instruction of the manufacturer of such extent as being undesirable the engineer-in-charge may reject the work totally and his decision shall be binding on the contractor. No extra payment shall be made for rectifying these defects. All burs and uneven faces shall be rubbed smooth by carborundum stone.
  - The Surface of non-shuttered faces shall be smoothed with a wooden float to give a finish equal to that of the rubbed down shuttered faces. Concealed concrete faces shall be left as from the shuttering except that honey combed surface shall be made good as detailed above. The floating shall not be executed to the extent of bringing excess fine material to the surfaces. The top faces of slab intended to be covered with screed, granolithic or similar surface shall be left with a rough finish. Sides and soffits to be later covered with plaster shall be suitably roughened.

#### 4.0 Structure steel works

##### Steel works

All finished steel unless otherwise specified shall be well and clearly rolled to dimensions and weight as specified by ISI subject to permissible tolerances as per IS-1852-1973.

Material shall be free from cracks, surface, flaws, laminations, rough and imperfect edges and other harmful defects like excessive rust, scaling and pitting etc. Structural steel work shall conform to requirements depending upon the designation of steel that is being selected to be used for particular structural function as specified in drawings.

All structural steel girders, channels, plates and other rolled section shall confirm to IS: 2062 grade-A Pipes shall confirm to IS: 1161 – YST 240 MPa.

Electrodes required for metal arc welding shall be covered electrodes conforming to IS 814 – 1970. 88

Fabrication Steel section as required shall be straightened and cut to square and exact lengths. Cut ends exposed to view shall be finished smooth. No two pieces shall be otherwise welded or joined to make up the required length of the number. If straightening, flattening or bending is necessary, shall be done in process that



will not damage the material or impair its strength. Shearing, flame cutting or chipping shall be done carefully and accurately. Finished member shall be free from undue twists, bends, wrapping, distortion or other irregularities. Holes, where required shall be drilled to required size and not made nor enlarged by burning. Holes shall have their axis perpendicular to surface bored through. Any fabricated assembly shall be without the member being strained or forced into position and components shall meet at perfect angles. Where practicable, welds should preferably be made in flat position. Welds shall be free from cracks, discontinuity in welding or other defects categorized as such in relevant standards. Welds will be inspected and cost of the same shall be deemed to be included in the quoted rates. A defective weld, harmful to structural strength, shall be cut out and re-welded. All welds shall be cleaned of slag and other deposits after completion.

All structural steel works for canopy and other structures shall have butt welds between adjacent surfaces ground smooth. Items concealed from view need not require grinding of welds. Architectural metal work shall be well formed to shape and size with sharp lines, angles and true curves. Drilling and punches shall produce clean true line and surface. All site connections shall be preferably by permanent bolts. Welding at Site shall be done with the prior permission of engineer-in-charge. Exposed weld shall be ground smooth, exposed surfaces shall have smooth finish. Joints shall be milled to close fit and corner joints shall be well formed and in true alignment. Work shall be accurately fastened in place.

Painting shall be as described under the head "Painting".

## **5.0 Painting on Metal Work: Painting shall be done to meet the following specification,**

- **ON STEEL MEMBERS**

- Surface preparation as per grade St – 2 according to Swedish Standard SIS055900.
- Two coats of zinc phosphate in phenolic alkyd medium (DFT 35u / coat)
- Two coats of synthetic enamel (DFT 25u / coat) conforming to IS: 2932-1974.

### Surface Preparation & Primer

One coat of primer shall be applied on shop. The shop coated surface shall be rubbed down thoroughly with abrasive paper to remove dust, rust, other foreign matters and degreased cleaned with warm fresh water and air dried.

Primer coat of zinc phosphate primer shall be applied by brushing/spraying over the shop coat in a manner so as to ensure a continuous and uniform film throughout.

- **Final Paint**

After the primer is hard dry, the surface shall be dusted of and one coat of synthetic enamel paint of approved colour and shade (conforming to IS:

2932) shall be applied by brushing/ spraying to achieve the required DFT. Second coat will be applied after drying of previous one to give a uniform surface. Paints can be diluted by means of thinner as approved by paint manufacturer only.

White Washing with Whiting.

- **Preparation of mix:**

Whiting (ground white chalk) shall be dissolved in sufficient quantity of warm water and thoroughly stirred to form thin slurry which shall then be screened through a clean coarse cloth. Two kg of gum (DDL) and 0.4 kg of copper sulphate dissolved separately in hot water shall be added for every cum of the slurry which shall then be diluted with water to the consistency of milk so as to make a wash ready for use.

- **Preparation of surface**

Before new work is white washed, the surface shall be thoroughly brushed free from mortar droppings and foreign matter.

- **Application:**

The white wash shall be applied with moonj brushes to the specified number of coats. The operation for each coat shall consist of a stroke of the brush given from the top downward, another from the bottom upwards over the first stroke, and similarly one stroke horizontally from the right and another from the left before it dries.

Each coat shall be allowed to dry before the next one is applied. Further each coat shall be inspected and approved by the engineer-in-charge before the subsequent coat is applied. No portion of the surface shall be left out initially to be patched up later on.

For new work, three or more coats shall be applied till the surface presents a smooth and uniform finish through which the plaster does not show. The finished dry surface shall not show any signs of cracking and peeling nor shall it come off readily on the hand when rubbed.

- **Synthetic Enamel Paint**

The shop coated surface shall be rubbed down thoroughly with abrasive paper to remove dust, rust. Other foreign matters and degreased cleaned with warm fresh water and air dried.

Primer coat of red-oxide zinc chromate primer conforming to IS: 2074 shall be applied by brushing/spraying over the shop coat in a manner so as to ensure a continuous and uniform film throughout.

- **Final Paint**

After the primer is hard dry the surface shall be dusted off and one coat of synthetic enamel paint of approved colour and shade (conforming to IS: 2932) shall be applied by brushing/spraying. The coats are applied after

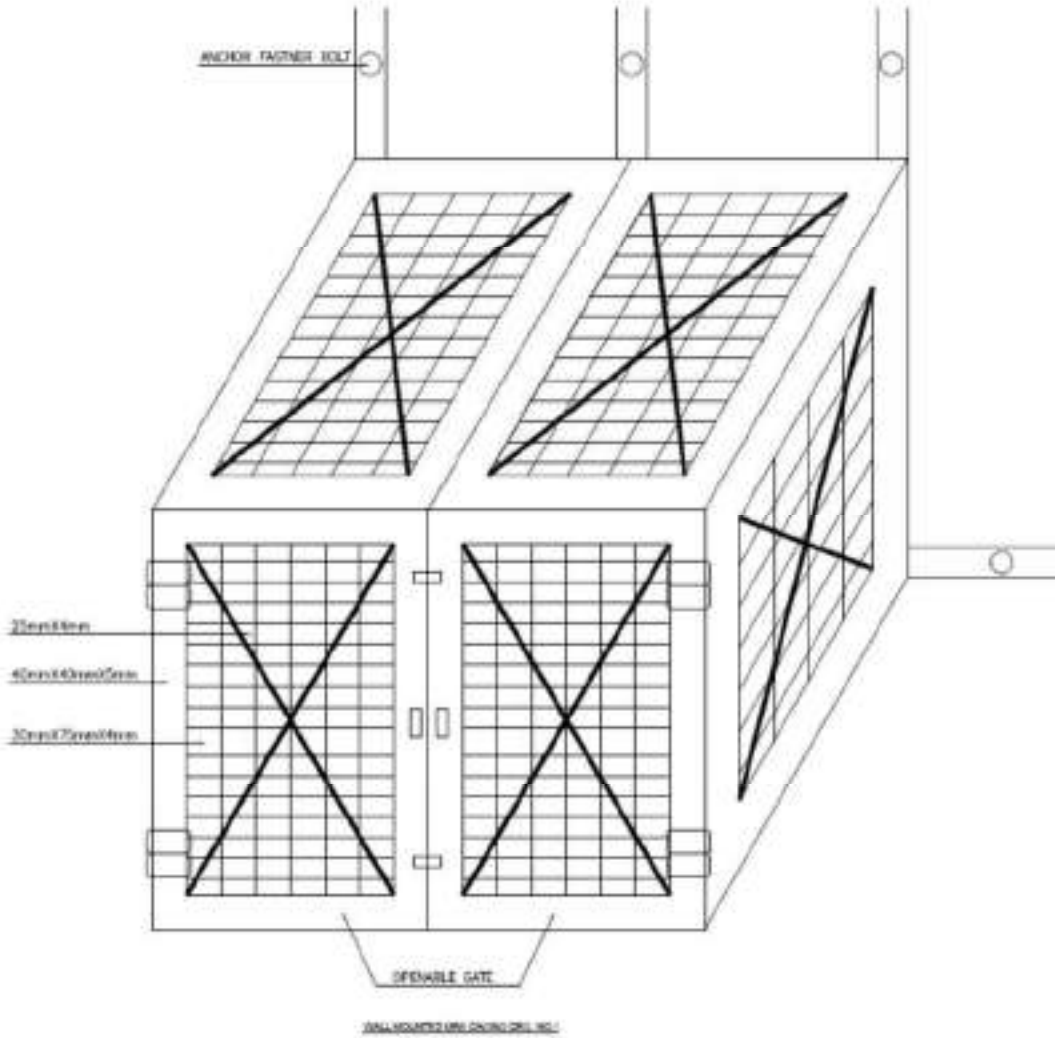


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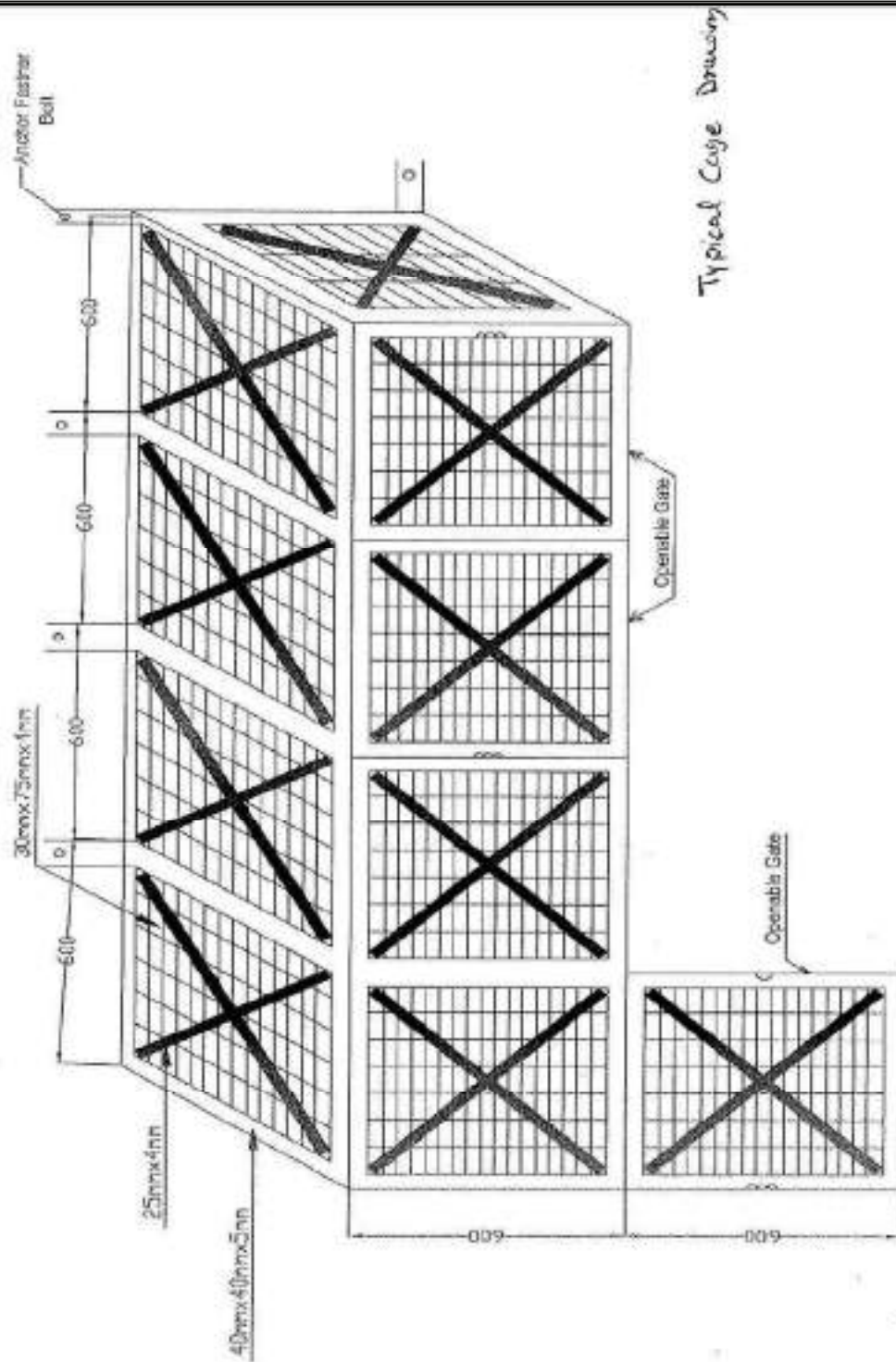
drying one after another to give a uniform surface. Paints can be diluted/thinning by means of thinner only as per the requirements of the finished paint surface.

#### LIST OF APPROVED MAKES FOR CIVIL WORK

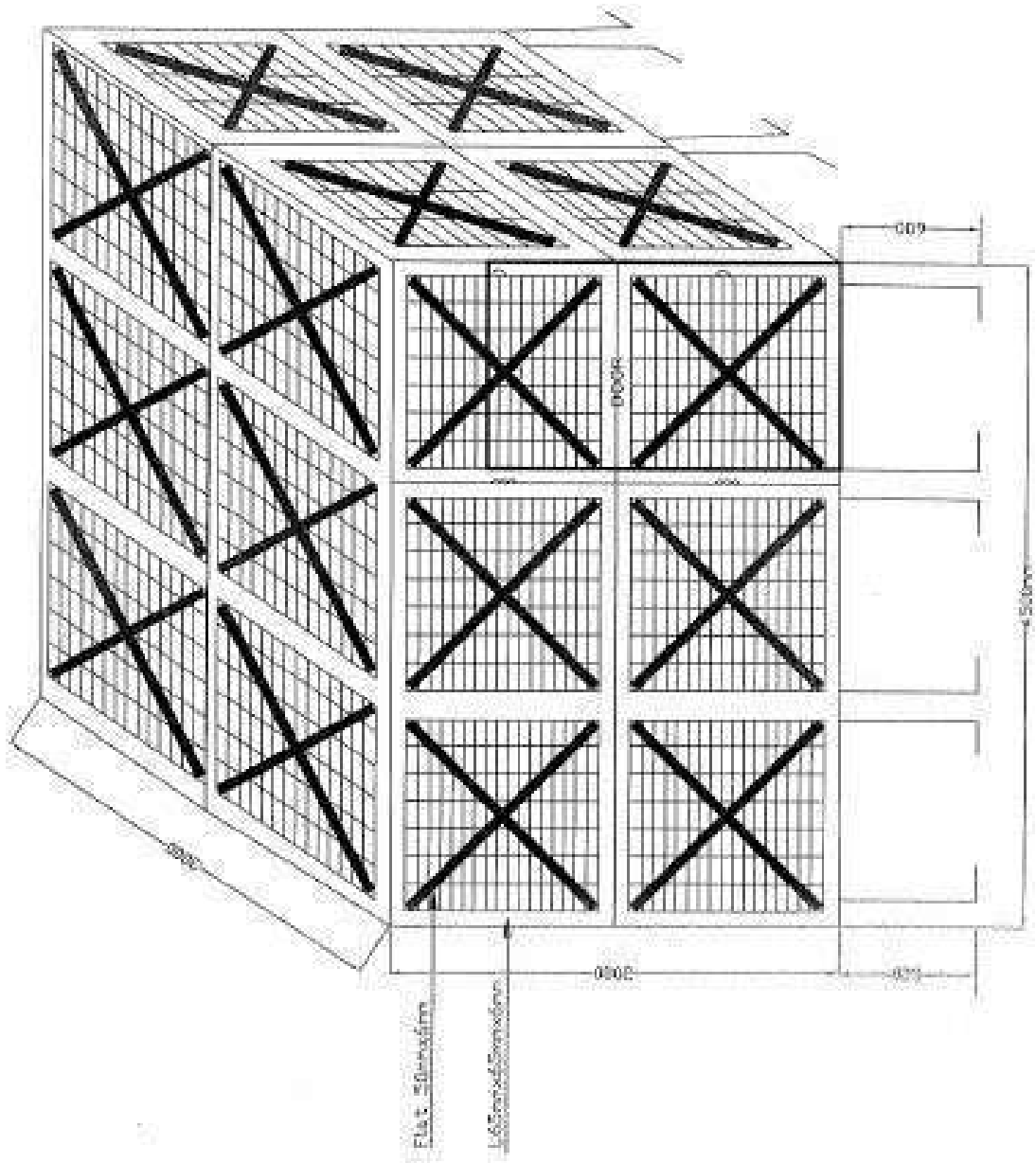
- Ordinary Portland Cement (OPC)-ACC,DLF,JK,& Sarvshaktiman
- Pozolona Portland cement (PPC) – Ultratech
- Steel (Tor Steel) – Sail,Tisco & Rathi
- Steel (Structural Steel) – Sail & Tisco
- Bolts – Unbrako, TVS & GKW
- Electrodes – ESAB, Advani, D&H
- GI / MS Pipes (IS: 1239,IS : 3589) – Tata, Jindal,Prakash,Surya & TISCO
- Paint – Asian Paints,ICI, Shalimar & Berger
- Construction Chemicals – CICO,FOSROC,ROFFE,ST,MC & Pidilite
- Ceramic Tiles – Kajaria ,Orient, Bell & Somani
- Vitreous Tiles – Diamond , Granamite, Spartek & Somani (gravity)
- Grout – ACC, Roffe, Fosroc & Unitile



DRAWING - 01



WALL MOUNTED 2 BAR MRS CAGING  
DRAWING- 02



SKID CAGING  
DRAWING- 03





## ISOLATION VALVE

15792/03-CD-MC-DS-001

### STANDARD SPECIFICATION FOR ISOLATION VALVE

0	09.03.2021	Issued for Approval	RKY	RKT	HK
Rev.	Date	Subject of revision	Author	Checked	Approved



# ISOLATION VALVE

15792/03-CD-MC-DS-001

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