3.0 **REVISED TECHNICAL SPECIFICATION OF ELECTRIC HOIST**

3.1 The hoist shall be designed in accordance with IS: 3938-1983.

3.2 For outdoor hoists, motors, brakes & other equipment shall be covered to suit to outdoor operation.

3.3 All trailing cables shall be clamped with PVC or non-metallic clamps.

3.4 Defects in the materials like fractures, cracks, blowholes, or laminations are not allowed.

3.5 No cast iron parts shall be used except for electrical equipments and no wood or combustible material shall be used unless specifically mentioned otherwise.

3.6 All working parts requiring replacements or inspection or lubrication shall be easily accessible without the need for dismantling of other equipment or structure.

3.7 All bolts except those with nyloc nuts shall be provided with grip lock nuts or spring washer.

3.8 All parts of the hoist shall be thoroughly cleaned of all loose mill scales, rust or foreign matter & then painted as specified. All parts inaccessible after assembly shall be painted before assembly & assembled while paint is still wet.

3.9 All parts except motors, resistors, gears, thrustors, solenoids, etc. shall be de-rusted manually & painted as follows.

3.10 **MECHANICAL DETAILS**

3.10.1 Wheel & drive

The electric hoist shall run on two pairs of wheels, a pair of which shall be driven by motor through reduction gear. The wheels shall be of cast steel/forged steel, single flanged with taper / parallel treads to suit to monorail. The wheels shall be mounted on anti-friction bearings & shall be easily removable for repair & replacement. The wheel diameter shall be selected such that skidding does not take place even under unloaded condition.

3.10.2 Hoist mechanism

The hoist mechanism shall consist of a bottom block fitted with a standard forged swivel hook of the specified capacity, supported on 2 or 4 falls of wire rope. However, non-spinning type of wire rope shall be used for 2 falls rope arrangement. The wire rope shall be wound on a grooved drum which shall be sufficiently long to accommodate in one layer the length of rope requisite for the specified lift & in addition not fewer than two turns at each anchored end & one spare groove at the opposite end. The hoist drum shall be motor driven through
gears enclosed in oil filled reduction gearbox.

3.10.3 Gearing

Straight & helical spur gearing shall be used for all motions. Worm & bevel gears shall not be used with specific permission from purchaser. Preferably all first reduction gears shall have single helical teeth. All gears shall be hardened & tempered alloy or carbon steel with machine out teeth. Surface hardening of teeth is not acceptable. All gears shall be enclosed in oil filled gear box except when not possible.

3.10.4 Couplings

Each motor shall be connected to its gear drive by a flexible coupling.

3.10.5 Lubrication

All gears & bearings shall be lubricated either by splash lubrication or by grease. If possible, all the lubricating points shall be grouped together in easily accessible positions.

3.10.6 Bearings

Ball & roller antifriction bearings of reputed make shall only be used, with minimum bearing life as per IS: 3938.

3.10.7 Brakes

D.C. Electromagnetic brake shall be provided for each motion, however in case of conical rotor motors manufacturer's standard brake can be used.

3.10.8 Travelling speed (CT speed) shall be considered as 10 Mtr/min

3.10.9 Speed with safe working load lifting height (Lifting speed):

a) For 15T : 3Mtrs/min

b) For 7.5T : 3Mtrs/min for < 20 Mtr Height
: 4Mtrs/min for > 20 Mtr Height

c) For 5T : 3Mtrs/min for < 20 Mtr Height
: 5Mtrs/min for > 20 Mtr Height

d) For 3T : 3Mtrs/min for < 20 Mtr Height
: 6Mtrs/min for > 20 Mtr Height

3.11 ELECTRICAL DETAILS

3.11.1 For Electrical specification, refer volume 4 of Tender documents.

3.12 The Electric hoists shall be inspected as per IS: 3938 - 1983 and as specified in tender document.