
 TechnipFMC	 IndianOil	PROJECT	Standby SRU & Additional Tanks IOCL Paradip Refinery		
		CLIENT	INDIAN OIL CORPORATION LIMITED		
SPECIFICATION FOR DEMOLITION & DISMANTLING WORKS	Project No. 080557C001	Document No. 080557C-000-JSS-2000-001		Rev. No. B	Page 1 of 6

SPECIFICATION FOR DEMOLITION & DISMANTLING WORKS

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1. INTRODUCTION

INDIAN OIL CORPORATION LIMITED (IOCL) has awarded Fax of Acceptance (FOA) dated 29th August 2019 to M/s. Technip India Limited (TPIL) for Consultancy services (PMC/EPCM services) for overall project management, FEED Review / FEED, Detailed Engineering, Procurement & expediting services, Tendering & award, Construction Management & Supervision, Assistance in start-up, Commissioning & performance test runs for installation of a Standby SRU of 525 TPD capacity and execution of Additional tanks for Paradip Refinery, Odisha, India.

2. DEFINITIONS & ABBREVIATIONS

Abbreviation	Definition /Expanded form
IOCL/ CLIENT	Indian Oil Corporation Limited
PMC/ CONSULTANT	Technip India Limited
LICENSOR	Party selected by IOCL for process technology ownership for any UNIT
CONTRACTOR	Party whose services are obtained for performing the works specified as part of LSTK / packages.
EPCM	Engineering, Procurement & Construction Management Services.
LSTK	Lump Sum Turn Key portion of the work to be executed by CONTRACTOR
FEED	Front End Engineering Design
AUTHORISED REPRESENTATIVE	IOCL's/ CONSULTANT's representative authorized to act for and on behalf of them.
VENDOR	Any third party supplying the equipment/materials for setting up the Plant
PROJECT	Indicates Standby SRU and Additional tanks Project, Paradip Refinery
SITE	Indicates Paradip Refinery in Odisha, India
UNIT	Indicates any particular portion of the project to be built which can be Process related or Utilities/Offsites related
SRU	Sulphur Recovery Unit
BIS	Bureau of Indian Standards

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3. SCOPE



This specification covers the technical and precautionary requirements for the dismantling & demolition of Brick works, Concrete, RCC / steel works etc.

4. TERMINOLOGY

- (a) Dismantling: The term 'Dismantling' implies carefully separating the parts without damage and removing. This may consist of dismantling one or more parts of the building as specified or shown on the drawings.
- (b) Demolition: The term 'Demolition' implies breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown on the drawings.

5. PRECAUTIONS



- (a) The demolition shall always be well planned before hand and shall generally be done in reverse order of the one in which the structure was constructed. The operations shall be got approved from the Engineer-in-Charge before starting the work.
- (b) Due care shall be taken to maintain the safety measures prescribed in IS 4130.
- (c) Necessary propping, shoring, Strutting and or under pinning shall be provided to ensure the safety of the adjoining work or property before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining work or property. Wherever specified, temporary enclosures or partitions and necessary scaffolding with suitable double scaffolding and proper cloth covering shall also be provided, as directed by the Engineer-in-charge.
- (d) Necessary precautions shall be taken to keep noise and dust nuisance to the minimum. All work needs to be done under the direction of Engineer-in-Charge. Helmets, goggle, safety belts etc. should be used whenever required and as directed by the Engineer-in-Charge. The demolition work shall be proceeded without causes the damage and nuisance to the adjoining building and the public.
- (e) Dismantling shall be done in a systematic manner. All materials which are likely to be damaged by dropping from a height or by demolishing roofs, masonry etc. shall be carefully removed first. Chisels and cutters may be used carefully as directed. The dismantled articles shall be removed manually or otherwise, lowered to the ground (and not thrown) and then properly stacked as directed by the Engineer-in-Charge.
- (f) Where existing fixing is done by nails, screws, bolts, rivets, etc., dismantling shall be done by taking out the fixing with proper tools and not by tearing or ripping off.
- (g) Any serviceable material, obtained during dismantling or demolition, shall be separated out and stacked properly within the plant boundary or as directed by the Engineer-in-Charge. All unserviceable materials, rubbish etc. shall be disposed off as directed by the Engineer-in-Charge.

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- (h) The contractor shall maintain/disconnect existing services, whether temporary or permanent, where required by the Engineer-in-Charge. Suitable alternate arrangement shall be made to maintain the continuity and proper functioning of affected service lines with the approval of the Engineer-in-Charge.
- (i) No demolition work should be carried out at night especially when the building or structure to be demolished is in an inhabited area.
- (j) Screens shall be placed where necessary to prevent injuries due to falling pieces.
- (k) Water may be used to reduce dust while tearing down plaster from brick work.
- (l) Safety belts shall be used by laborers while working at higher level to prevent falling from the structure.
- (m) First-aid equipment shall be got available at all demolition works of any magnitude.

6. RECOMMENDATIONS FOR DEMOLITION OF CERTAIN SPECIAL TYPES AND ELEMENTS OF STRUCTURES

- (a) Roof Trusses: If a building has a pitched roof, the roof structure should be removed to wall plate level by hand method. Sufficient purlins and bracing should be retained to ensure stability of the remaining roof trusses while each individual truss is removed progressively.
- (b) Temporary bracing should be added, wherever necessary to maintain stability. The end frame opposite to the end where dismantling is commenced, or a convenient intermediate frame should be independently and securely guyed in both directions before work starts.
- (c) On no account should the bottom tie of roof trusses be cut until the principal rafters are prevented from making outward movement.
- (d) Heavy Floor Beams
Heavy bulks of timber and steel beams should be supported before cutting at the extremities and should then be lowered to a safe working place.
- (e) Brick Work
 - 1) Expert advice should be obtained and at all stages of the demolition, the closest supervision should be given by persons fully experienced and conversant in the type of work to ensure that the structure is stable always.
 - 2) Dead load as much as possible may be removed provided, it does not interfere with the stability of the main structure.
 - 3) Where it is impossible to allow debris to fall to the ground below, centering designed to carry the load should be erected and the arch demolished progressively. The design of the centering should make appropriate allowance for impact.

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- 4) Collapse of the structure can be effected in one action by the use of explosives. Charges should be inserted into boreholes drilled in brick work. This method is the most effective for demolition of tall viaducts.
 - 5) Where explosives are used, it is preferable to ensure the collapse of the whole structure in one operation to obviate the chance of leaving unstable portions standing.
- (f) Cantilevers (Not part of a Framed Structure)
- A cantilever type of construction depends for its stability on the super imposed structure. Canopies, cornices, staircases and balconies should be demolished or supported before the tailing down load is removed.
- (g) In-situ Reinforced Concrete
- 1) Before commencing demolition, the nature and condition of the concrete, the condition and position of reinforcement, and the possibility of lack of continuity of reinforcement should be ascertained.
 - 2) Attention should be paid to the principles of the structural design to determine which parts of the structure depend on each other to maintain overall stability.
 - 3) Demolition should be commenced by removing partitions and external non-load bearing cladding. It should be noted that in some buildings the frame may rely on the panel walls for stability.
- (h) Where hard demolition methods are to be used, the following procedures shall be adopted.
- 1) Reinforced Concrete Beams

For beams, a supporting rope should be attached to the beam. Then the concrete should be removed from both ends by pneumatic drill and the reinforcement exposed. The reinforcement should then be cut in such a way as to allow the beam to be lowered under control to the floor.
 - 2) Reinforced Concrete Columns

For columns, the reinforcement should be exposed at the base after restraining wire guy ropes have been placed round the member at the top. The reinforcement should then be cut in such a way as to allow the column to be pulled down to the floor under control.
 - 3) Reinforced Concrete Walls

Reinforced concrete walls should be cut into strips and demolished as for columns.