



**NATIONAL CENTER FOR COMBUSTION RESEARCH
AND DEVELOPMENT (NCCRD)
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
CHENNAI – 600036, INDIA**

Ref. No. ICS/11-12/013/DSTX/TSUN

Date: 30 Dec. 2015

Due date: 20 Jan. 2016

Item name: Hoisting Elevator for Microgravity Drop Tower

1. Quotations are invited in duplicate for the items shown overleaf (in Annexure I). The quotations duly sealed and superscribed on the envelope with reference no. and due date, should be addressed to the undersigned so as to reach on or before the due date mentioned above.
2. The quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
3. The total cost of the equipment in terms of CIP Chennai should be clearly mentioned.
4. Terms of warranty and guarantee should be explicitly mentioned.
5. Packing and delivery charges, customs and clearance duty should be clearly stated.
6. Goods shall not be supplied without an official supply order.
7. Local firms : Quotations should be for free delivery to this institute. If quotations for ex-godown delivery charges should be indicated separately.
8. Firms outside Chennai: Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If ex-godown, packing, forwarding and freight charges must be indicated.
9. The rate of sales / general taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for sales / general taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax (CST) applicable to non-government educational institutions run with no profit motive for which a concession sales tax certificate will be issued at the time of final settlement of the bill.
10. Payment : Specify the mode of payment and if advanced payment has to be made. Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later.
11. IIT Madras is exempt from payment of excise duty and is eligible for concessional rate of customs duty. Necessary certificate will be issued on demand.
12. IIT Madras has the right to accept the whole or any part of the tender or portion of the quantity offered or reject it in full without assigning any reason.
13. The sealed quotation may be sent to

Prof. S. R. Chakravarthy

NCCRD Office

No. 201, Rarefied Gas Dynamics Lab (Behind Aerospace Engineering Dept.)

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Annexure I

Ref. No. ICS/11-12/013/DSTX/TSUN

Date: 30 Dec. 2015

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Hoisting Elevator for Microgravity Drop Tower of NCCRD

Quantity: 1 Nos.

One hoisting elevator is required for safe and smooth transportation of experimental drop capsule of 500 kg (maximum weight) from the microgravity laboratory in first floor of the NCCRD building) to the drop level at the top of the tower. The hoist should also provide for safe retrieval of the capsule from the bottom pit of the tower. Under normal operation of the drop tower 10-15 drops/day are expected. Please refer to the attached drawings and specifications below for more details.

Specifications of the hoisting elevator should be as follows:

Type of hoist	Winch type hoist
Number of elevators	1 nos. of travelling platform (on guide rails)
Load Capacity	1.5 tons to 2 tons
Vertical travel distance (for platform)	about 30.5 - 31 m
Lifting Speed	4 – 10 cm/s
Number of stops	5 (see figures for stop locations)
Number of openings	2 (First Floor- micro-g lab, Third Floor)
Platform material	Rigid, non-rusting preferably made of SS
Platform Dimension	2000 mm x 2000mm or lesser
Wire Rope	Non-rusting and rotation resistant.
Rope length	At least 41 m
Operating Temperature	0 –50 C
Operating Humidity	50%- 100% RH
Operation	Dual mode of operation: 1) Controlled preprogrammed operation mode with fixed stops for regular drop experiments and 2) maintenance /repair /emergency mode with manual control for stops at any desired location. Safety to be ensured in either mode of operation.
Warranty	2 years minimum
AMC	3 years after period of warranty



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Further details:

1. The lift platform should traverse on two rails with no shaking or wobbling either at rest or in motion.
2. The two guide rails are to be rigidly fixed on the east and the west walls of the tower and should extend from top of the door of floor 1 (micro-g lab) to the top of the tower (about 32 m)
3. The platform should have parapet wall of about 50 cm high.
4. The start and stop events should be smooth (without any jerk).
5. Should not form kink or twist while loading and unloading. Should be centered within +/- 5cm
6. The overhead room available for the winch drum and other accessories is maximum of 1.5 m (given in the drawing)
7. Stops: 5 places
 - i. STOP 1: Above the door of first floor (2.3 m from first floor)
 - ii. STOP 2: 4 m from the first floor
 - iii. STOP 3: At the third floor
 - iv. STOP 4: 3.5 m from the tower roof
 - v. STOP 5: At the top (about 1.5 to 2 m from the roof, minimum preferred)
8. Manual control panel (preferably a remote control) to be provided for manual operation of the platform.
9. With manual operation the last or the topmost stop is at STOP 4. The platform should not go up beyond this point for safety.
10. Platform locking mechanism to be provided at STOP 5, to minimize vibration at release of the drop capsule.
11. Lift control panel should be provided at the top of the tower and at the first floor (micro-g lab)

Door Dimensions

1. First Floor Door (microgravity lab)
 - a. Height = 230 cm
 - b. Width = 150 cm2 panel sliding door
2. Third Floor (maintenance entrance)
 - a. Height = 240 cm
 - b. Width = 95 cmNormal Steel door
- c. 20 cm by 100 cm platform extending into the elevator shaft required to fill gap between platform and 3rd floor entrance.



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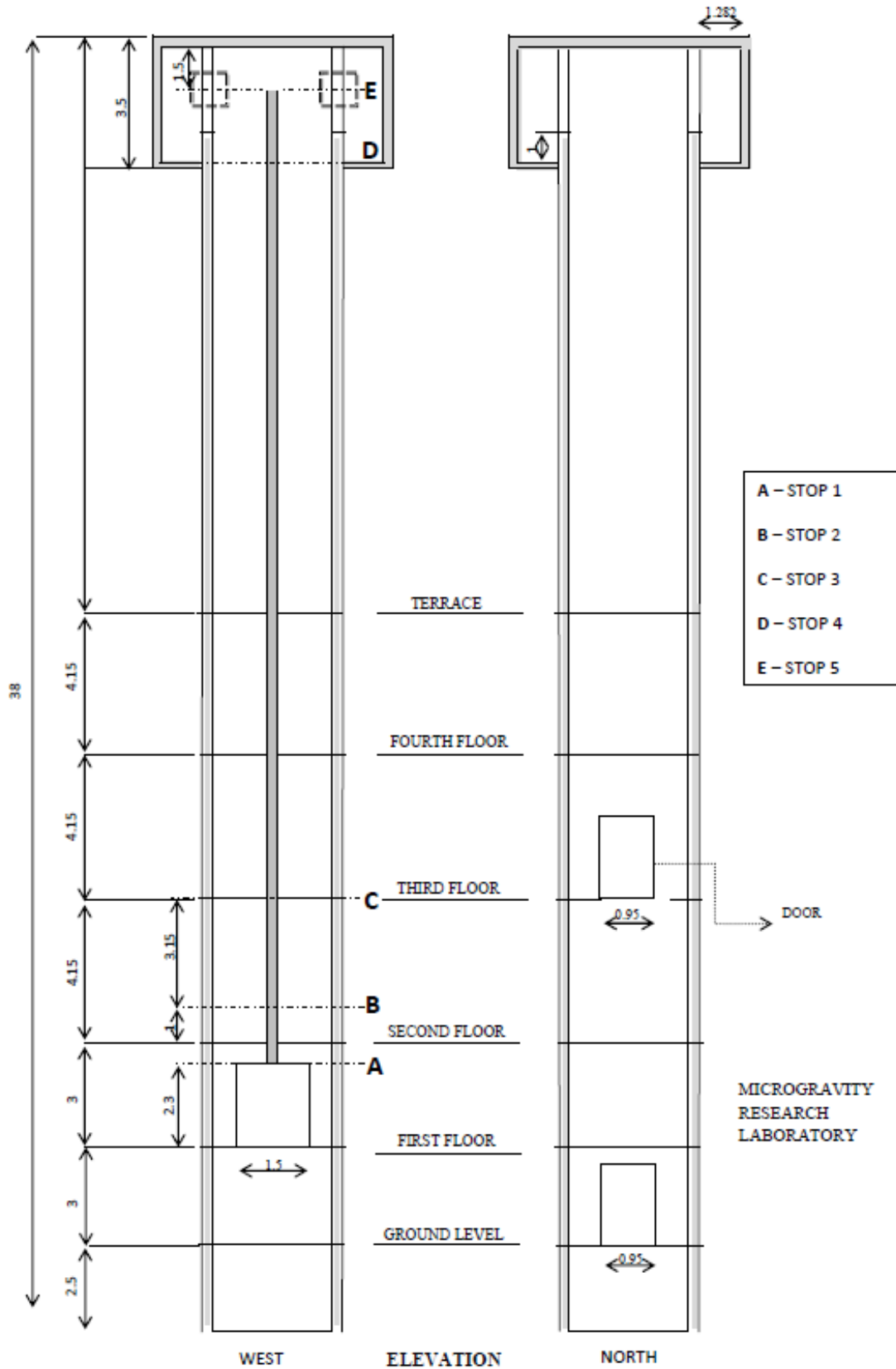
For further technical clarifications please contact:

Mr Nikhil VV, 09447320498, e-mail:nikhilvv01@gmail.com/nikhilzerog@gmail.com

Amit Kumar, 044-22574019, amitk@ae.iitm.ac.in

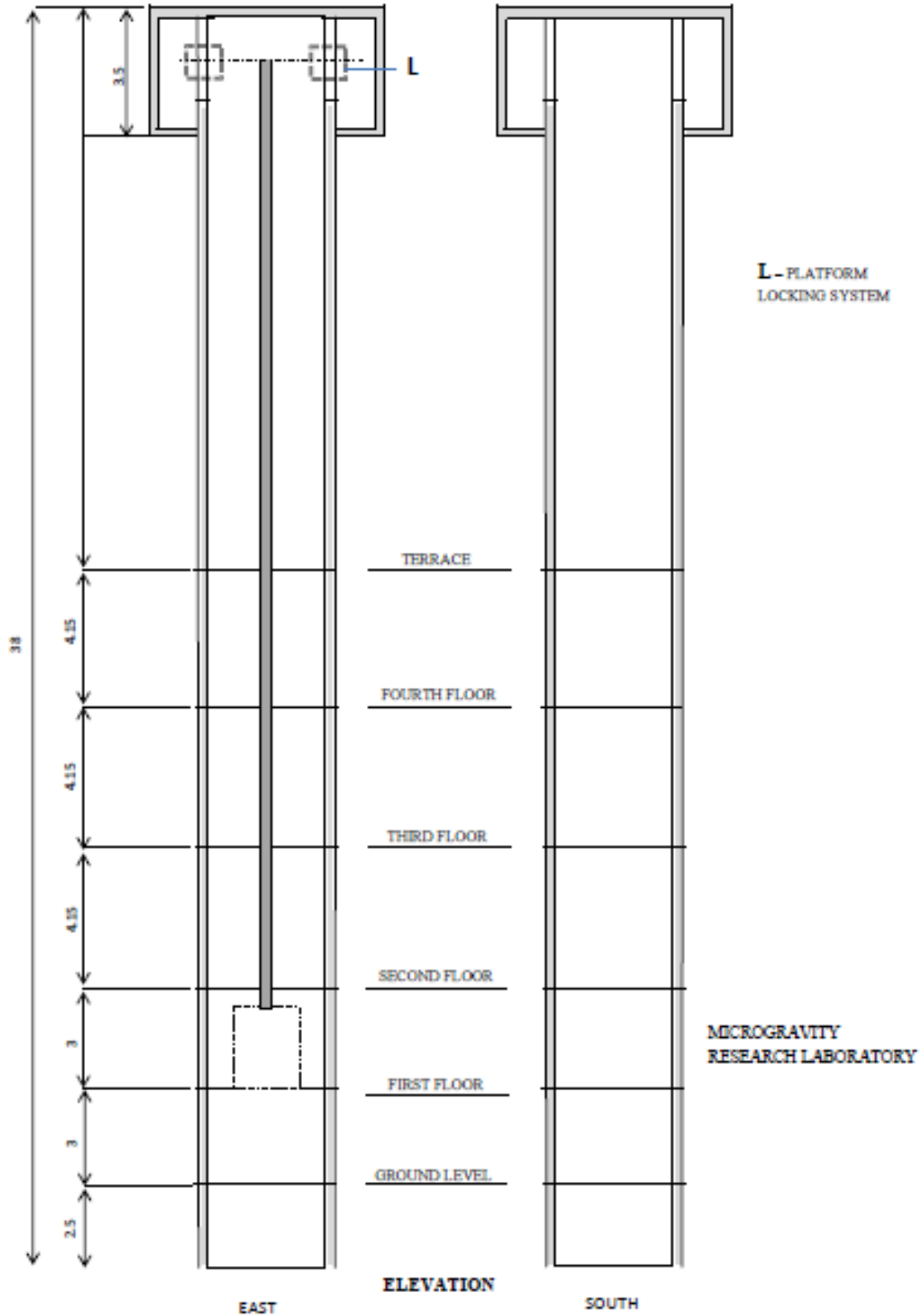


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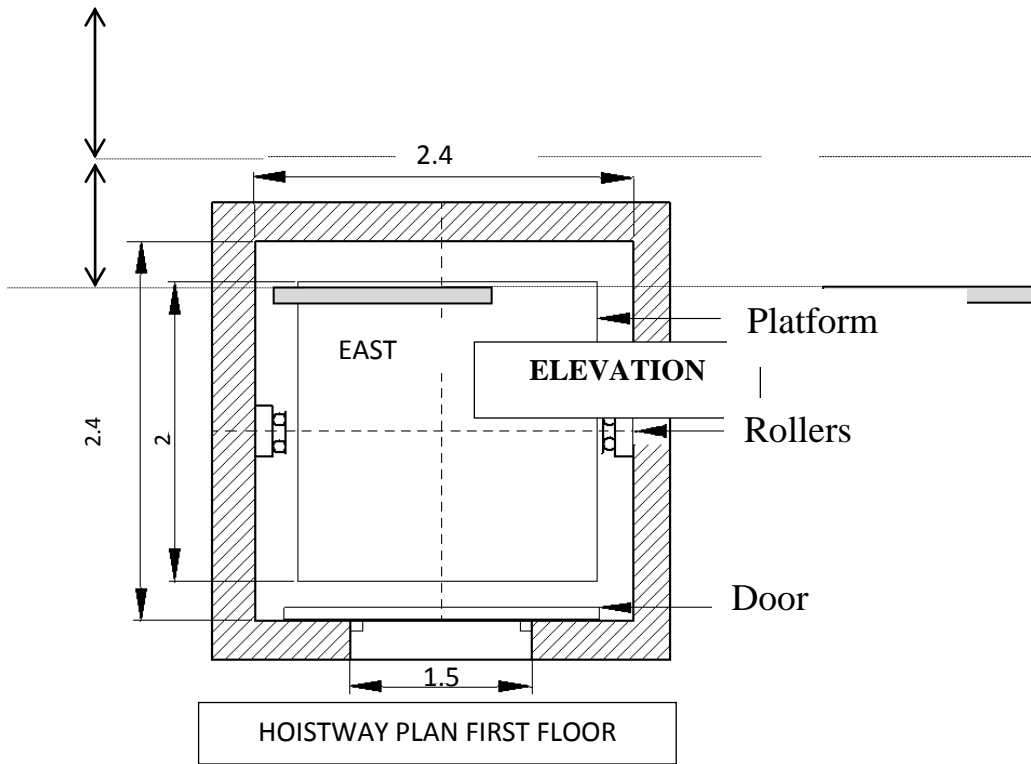


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