



Running Contract Details	
Equipment Name	Multilevel Racking System with Material Lift
Running Contract Valid Till	20-11-2024
Tender Ref No	KMSCL/EP/T456/1347B1/2022
Tendered Quantity	25
Supplier Name	M/s Namaste Innovations
GST No	32AALFN8389A1Z5
Installation & Delivery Period	10 Week(s)
Up-time / PM vist	95% & 4 Visits per year
Warranty period	1 Years

Supplier`s Details		
Address	Contact Details	
TC 3/2727(1) First Floor Pattom Trivandrum - 695 004	Contact Person	Biju R Nair
	Phone	
	Mobile No	9447030999
	Email	sales@absolutech.in

Item-wise Price Details				
#	Item Details	Unit Rate (Incl.all taxes & charges)	Service Charges (Through KMSCL)	Grand Total
1	<b>Multilevel Racking System with Material Lift</b> <i>Model &amp; Make : G+1 and G+4 / Nikhil Equipments Pvt. Ltd</i>	0 Incl.GST :0%	0	0
2	<b>UPRIGHT FOR G+1 SYSTEM, Supply and placement of Roll formed upright as per the technical specification. Each upright shall have base plate and grouted with 2 nos. of bolts. The sections and materials as per the Technical Specifications. This upright to be utilised for G+1 multitier.The quoted rate includes all materiels including row spacers and labour charge for placement upright on ground .</b>	369.93 Incl.GST :18%	25.9	395.83
3	<b>BRACING FOR G+1 SYSTEM Supply and placement of Bracing - C channel lipped section as per technical specification. The quoted rate includes all materiels and labour charge for placement Bracing.</b>	142.78 Incl.GST :18%	9.99	152.77

Item-wise Price Details				
4	<b>DECKING LEVEL BEAM</b> Supply and placement of Z-Beam /box type as per the Technical Specifications. The quoted rate includes all materials and labour charge for placement Z profile/box type Beam.	677.56 Incl.GST :18%	47.43	724.99
5	<b>DECKING PANEL TYPE 1 (non catwalk level)</b> Supply and placement Deck Panel Press formed/Roll forming of as per the Technical Specifications. The quoted rate rate includes all materials including tie bracket & plastic connector interlocking panels and labour charge for placement deck panel used in non catwalk level.	184.32 Incl.GST :18%	12.9	197.22
6	<b>DECKING PANEL TYPE 2 (non catwalk level)</b> Supply and placement Deck Panel Press formed/Roll forming of as per the Technical Specifications. The quoted rate rate includes all materials including plastic connector interlocking panels and labour charge for placement deck panel used in non catwalk level.	184.32 Incl.GST :18%	12.9	197.22
7	<b>UPRIGHT FOR G+2 SYSTEM TO G+4 SYSTEM</b> Supply and placement of Upright Roll formed profile upright to be provided having slots at a pitch of 50mm and offer proper locking with the beam connectors. Uprights are mounted on the base plate with bolts and base plate to be grouted to floor using 2 expansion bolts .The sections and materials as per the Technical Specifications. The quoted rate includes all materiel including row spacers and labour charge for placement upright on ground .	577.61 Incl.GST :18%	40.43	618.04
8	<b>BRACING FOR G+2 SYSTEM TO G+4 SYSTEM</b> Supply and placement of Bracing as per the Technical Specifications. The bracing should make frame . The quoted rate includes all materiel and labour charge for placement Bracing.	172.63 Incl.GST :18%	12.08	184.71
9	<b>CATWALK LEVEL BEAM</b> Supply and placement of catwalk level beam with roll formed and lip welded as per technical specification.Two beams required at catwalk level decking and in that one beam need to have angle weld construction for catwalk support. The sections and materials as per the Technical Specifications. The quoted rate includes all materials and labour charge for placement box Beam.	947.54 Incl.GST :18%	66.33	1013.87

Item-wise Price Details				
10	<b>DECKING PANEL TYPE 3 (at catwalk level)</b> Supply and placement Deck Panel Press formed/Roll forming section as per the Technical Specifications. The quoted rate rate includes all materials including plastic connector interlocking panels and labour charge for placement deck panel used in catwalk level.	201.19 Incl.GST :18%	14.08	215.27
11	<b>DECKING PANEL TYPE 4 (at catwalk level)</b> Supply and placement Deck Panel Press formed/Roll forming section as per the Technical Specifications. The quoted rate includes all materials including plastic connector interlocking panels and labour charge for placement loading deck panel used in catwalk level.	201.19 Incl.GST :18%	14.08	215.27
12	<b>CATWALK STRUCTURE</b> Supply and placement of catwalk Assembly components for any tiers with perforated and press formed as per the Technical Specifications.Walkway panel to be roll formed construction manufactured in single piece flow without welding. They are to be designed to offer maximum load bearing capacity with high standards of stability and safety. Panel should have side slots for inter-bolting and slots at lips for bolting to the walkway beam. Panel should be laid perpendicular to the movement of trolley load 100kg including trolley weight and UDL load of 300kg/sq.m The quoted rate includes all materials, labour charge for placement of Cat walk .	616.55 Incl.GST :18%	43.16	659.71
13	Supply and placement of Railing pipe is bolted to the upright by railing clamp and open ends of the rails are blocked by Railing cap.Railing Clamp It is for fixing Railing pipe (Hand Rail & Knee Rail) with the upright for catwalk safety.The size of pipe as per technical specification.	1135.75 Incl.GST :18%	79.5	1215.25
14	<b>MESH CLADDING FOR EXTREME END RACKS</b> Supply and placement of Mesh Cladding(back mesh)of as per the technical specification with tube frame support in back portion of racks as per layout. The quoted rate includes all materiels and labour charge for placement Mesh cladding.	2141.7 Incl.GST :18%	149.92	2291.62
15	<b>COMMON TUBE STOPPER PIPE</b> Supply and placement of common tube stopper, normaly two no of stopper each level, . The materials as per the Technical Specifications. The tube stopper is common for double faced row. The quoted rate includes all materiels and labour charge for placement one pipe.	924.18 Incl.GST :18%	64.69	988.87

**Item-wise Price Details**

16	<p><b>STAIRCASE FOR G+1 SYSTEM</b> Supply and placement Staircase step having landing, hand railing etc as per technical specification.(including staircase for access to catwalk floor). The staircase unit should comprises of fabricated Side channel with railing unit as a single member in LH &amp; RH variety, which is bolted with step panels and Anti-skid (embossed type) steps to prevent slipping. Staircase should have inclination of 36 deg as per ergonomic standards.The materials as per the Technical Specifications. The quoted rate includes all materials and labour charge for placement staircase with single landing for G+1 multitier module.</p>	<p align="center">49324 Incl.GST :18%</p>	<p align="center">3452.68</p>	<p align="center">52776.68</p>
17	<p><b>VRC LIFT FOR G+1</b> Supply ,Installation, testing and commissioning of PIT type G+1 electro mechanical drive Vertical Reciprocating Conveyor of Carriage Clear Size as per technical specification with lifting capacity of 1000Kgs ,moving with a speed of 4m/min to 6m/min with a minimum clear height in civil of 3700 mm as per the technical specifications.</p>	<p align="center">1289150 Incl.GST :18%</p>	<p align="center">90240.5</p>	<p align="center">1379390.5</p>
18	<p><b>VRC LIFT FOR G+2 :</b> Supply ,Installation, testing and commissioning of PIT type G+2 electro mechanical drive Vertical Reciprocating Conveyor of Carriage Clear Size as per technical specification with lifting capacity of 1500Kgs ,moving with a speed of 4m/min to 6m/min with a minimum clear height in civil of 8200mm, as per the technical specifications.</p>	<p align="center">1406560 Incl.GST :18%</p>	<p align="center">98459.2</p>	<p align="center">1505019.2</p>
19	<p><b>VRC LIFT FOR G+3 :</b> Supply ,Installation, testing and commissioning of PIT type G+3 electro mechanical drive Vertical Reciprocating Conveyor of Carriage Clear Size as per technical specification with lifting capacity of 1500Kgs ,moving with a speed of 4m/min to 6m/min with a minimum clear height in civil of 10200mm, as per the technical specifications.</p>	<p align="center">1888590 Incl.GST :18%</p>	<p align="center">132201.3</p>	<p align="center">2020791.3</p>
20	<p><b>VRC LIFT FOR G+4</b> Supply ,Installation, testing and commissioning of PIT type G+4 electro mechanical drive Vertical Reciprocating Conveyor of Carriage Clear Size as per technical specification with lifting capacity of 1500Kgs ,moving with a speed of 4m/min to 6m/min with a minimum clear height in civil of 12200mm, as per the technical specifications.</p>	<p align="center">1967650 Incl.GST :18%</p>	<p align="center">137735.5</p>	<p align="center">2105385.5</p>

Item-wise Price Details				
21	<p><b>STAIRCASE FOR G+2 SYSTEM (Not taken for evaluation) : Supply and placement Staircase step Width having landing, hand railing etc as per the technical specification .(including staircase for access to catwalk floor). The staircase unit shpuld comprises of fabricated Side channel with railing unit as a single member in LH &amp; RH variety, which is bolted with step panels and Anti- skid (embossed type) steps to prevent slipping. Staircase should have inclination of 36 deg as per ergonomic standards.The materials as per the Technical Specifications. The quoted rate includes all materiels and labour charge for placement stair case with single landing for G+2 multitier module.</b></p>	<p>61065 Incl.GST :18%</p>	4274.55	65339.55
22	<p><b>STAIRCASE FOR G+3 SYSTEM (Not taken for evaluation) : Supply and placement Staircase step Width having landing, hand railing etc as per technical specification.(including staircase for access to catwalk floor). The staircase unit shpuld comprises of fabricated Side channel with railing unit as a single member in LH &amp; RH variety, which is bolted with step panels and Anti- skid (embossed type) steps to prevent slipping. Staircase should have inclination of 36 deg as per ergonomic standards.The materials as per the Technical Specifications. The quoted rate includes all materiels and labour charge for placement stair case with single landing for G+3 multitier module.</b></p>	<p>74635 Incl.GST :18%</p>	5224.45	79859.45
23	<p><b>STAIRCASE FOR G+4 SYSTEM Supply and placement Staircase step Width having landing, hand railing etc as per the technical specification.(including staircase for access to catwalk floor). The staircase unit shpuld comprises of fabricated Side channel with railing unit as a single member in LH &amp; RH variety, which is bolted with step panels and Anti- skid (embossed type) steps to prevent slipping. Staircase should have inclination of 36 deg as per ergonomic standards.The materials as per the Technical Specifications. The quoted rate includes all materiels and labour charge for placement stair case with single landing for G+4 multitier module.</b></p>	<p>110330 Incl.GST :18%</p>	7723.1	118053.1
24	<p><b>Kick Plate for catwalk : It is the ãçâ, -ËœLÃçâ, -â,,ç section, provided over the catwalk surface on both sides of aisle. This plate prevents the foot slip through the gap between knee rail and catwalk surface while walking. It is fixed using M5x25 self tapping screw at 500mm pitch. Material Steel Height Minimum- 100mm Mfg process Press forming No of bend Minimum-3nos Fastener M5x25 at every 500mm pitch Surface finish Powder coated</b></p>	<p>369.93 Incl.GST :18%</p>	25.9	395.83

Item-wise Price Details							
25	<b>Dismantling Multi level racking system with catwalk at any location ( G + 1 level of height ) . Only floor area to be measured. The rate shall be quoted only for labour charges Dismantling of Multi level racking system (Transportation, loading and unloading under KMSCL scope). (Not taken for Evaluation)</b>			1085.6 Incl.GST :18%	75.99	1161.59	
26	<b>Dismantling of Stair case in any location ( G + 1 level of height ).The rate shall be quoted only for labour charges Dismantling of Stairecase (Transportation, loading and unloading under KMSCL scope).( Not taken for Evaluation)</b>			20355 Incl.GST :18%	1424.85	21779.85	
27	<b>Re Installation of Multi level racking system with catwalk at any location ( G + 1 level of height ).Only floor area to be measured.The rate shall be quoted only for labour charges Re Installation of Multi level racking system (Transportation, loading and unloading under KMSCL scope) (Not taken for Evaluation)</b>			1085.6 Incl.GST :18%	75.99	1161.59	
28	<b>Re Installation of staircase at any location (( G + 1 level of height ).The rate shall be quoted only for labour charges Re fixing of Stairecase (Transportation, loading and unloading under KMSCL scope).( Not taken for evaluation)</b>			20355 Incl.GST :18%	1424.85	21779.85	
				<b>6899032.38</b>	<b>482932.27</b>	<b>7381964.65</b>	
Annual / Comprehensive Maintenance Charges (Exl.Tax)							
Rate	2 <sup>ND</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	5 <sup>th</sup> Year	6 <sup>th</sup> Year	7 <sup>th</sup> Year	8 <sup>th</sup> Year
<b>UPRIGHT FOR G+1 SYSTEM, Supply and placement of Roll formed upright as per the technical specification. Each upright shall have base plate and grouted with 2 nos. of bolts. The sections and materials as per the Technical Specifications. This upright to be utilised for G+1 multitier.The quoted rate includes all materiels including row spacers and labour charge for placement upright on ground .</b>							
<b>AMC</b>	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00
<b>CAMC</b>	2,00,000.00	2,00,000.00	3,00,000.00	3,00,000.00	3,00,000.00	3,00,000.00	3,00,000.00

### Other terms & conditions

1. The supplier shall execute an agreement with the purchaser as per tender conditions (agreement format is given in the tender document).
2. The supplier shall submit performance security amounting to 5.00% of the value of the supply order.
3. The labour & comprehensive charges of equipment after the completion of warranty period is finalized by KMSCL as mentioned above.
4. Since discount rate is not applicable for equipment under Running Contract of KMSCL, purchase/supply order can be issued directly to supplier at the given rate with tax & other charges (exclusive of KMSCL service charges).

5. If purchase/supply order is issued directly to the supplier, KMSCL service charge need not be paid. But the copy of the said order may be forwarded to KMSCL for information.

## **Technical Specification**

### **Equipment :Multilevel Racking System with Material Lift**

#### **I Introduction**

It is a manual picking shelving system suitable for storing medium to heavy loads. This storage system is for manual picking of products, following “man-to-goods” principle. i.e. goods which are easily handled & lifted by man are stored in these systems. All basic structural components of the system such as frame (Assembly of upright, bracing and base plate), beam & decking panel should be designed as per standards. The specifications cover the Design, Manufacture Supply, Installation, Testing and Commissioning of Multi Tier racking system of Heavy duty shelving system with Vertical Reciprocating Conveyors in Drug Store area of Health Department all over Kerala. The objective of providing the racking system is to increase the storage area in vertical dimension and also maximum utilisation of the volume effectively and efficiently for storage of medicines.

#### **II Components**

##### **Surface Finish;**

All steel components unless otherwise specified shall be powder coated for an average of 35 microns/Enamel Spray Painted, for obtaining a smooth, scratch resistant and lasting attractive finish. All items shall be powder coated and subject to anti corrosion pre-treatment process viz de-greasing, rinsing, phosphating etc. The quality of the Finish paint shall be as per the relevant standards of ISI or equivalent and to be of the colour as approved by the engineer.

**a. Assembly & Installation** Shelving Component Specification The shelving system should be completely a knock down construction. The racks are to be grouted on the floor using expansion bolts. No welding to be carried out at site.

**b. Uprights:** Upright should be Roll formed construction made in single piece without welding. Upright should have slots at 50 mm. It enables the warehouse manager to utilize the rack optimally to suit the changing sizes. Uprights should be multi bend profiles, which have to be designed to offer maximum load bearing capacity with optimum surface utilization ensuring high standards of stability and safety. Uprights are to be bolted with base plates to transfer the load to ground. The row connector also to be included with the upright rate. Base plate already included in the uprights.

i. Profile width 55mm Profile depth 45mm Number of bends Minimum-6nos. Upright Thickness Minimum-1.6mm. Finish Powder coated. For G+ 1 system.

ii. Profile width 80 mm Profile depth 80 mm Number of bends Minimum-12nos. Upright Thickness Minimum- 1.6mm. Finish Powder coated. For G+ 2 to G+4 system.

**c. Base Plate :** It is a formed construction bolted to upright. They are to be anchored to ground using M8x75 torque type mechanical anchor bolts. Floor level variation should be adjusted with the use of shims.

i. .Width 100mm Depth 100 mm Connectivity Grouting No of exp bolt 2 no of M8x75.Finish Powder coated . **For G+ 1 system.**

ii. . Width 150mm Depth 150 mm Connectivity Grouting No of exp bolt 2 no of M12 x 100.Finish Powder coated . **For G+ 2 to G+4 system.**

**d. Diagonal and Horizontal bracing Channels:** It should be C –Type lipped sections. They are to connect uprights to make frames. All bracings shall be roll formed. Angles or strips are not to be used.

i. Profile width 25mm Profile depth 20mm Number of bend Minimum-6nos. Thickness Minimum-1.4mm. Finish Powder coated. **For G+ 1 system.**

ii. Profile width 30 mm Profile depth 30 mm Thickness Minimum-1.4mm. Finish Powder coated. **For G+ 2 to G+4 system.**

e. **Decking Level Beams & Catwalk level beams:** Beams are of horizontal members connecting two frames that support the decking panels. Beam locks by locking pins or locking clips that ensure beams are engaged with uprights precisely and prevent any accidental beam dislodgement due to handling. Type of Profile 'Z' Profile / Box Profile Usage For supporting decking panel

i. Profile Height Minimum-95mm Width Minimum-30mm Thickness Minimum-1.8mm No of bend Minimum-8 nos .Surface finish Powder coated. **Decking Level Beams.**

ii. Profile Height Minimum-110mm Width Minimum-50 mm Thickness Minimum-1.5 mm No of bend Minimum-8 nos .Surface finish Powder coated. **Catwalk level beams.**

f. **Decking Panel:** 6 Bend decking panels are formed section having 6 bends. Both ends of the panel have notches facilitating the seating of panel on the beam.

i. Profile Width Minimum-150 mm Thickness Minimum-0.7mm.Surface finish Powder coated. **Non Catwalk level.**

ii. Profile Width Minimum-200 mm Thickness Minimum-0.7mm.Surface finish Powder coated. **Non Catwalk level.**

iii. Profile Width Minimum-200 mm Thickness Minimum-0.7mm.Surface finish Powder coated. **Catwalk level.**

iv. Profile Width Minimum-150 mm Thickness Minimum-0.7mm.Surface finish Powder coated. **Catwalk level.**

g. **Panel Connectors:** It is the plastic connector used in 6-Bend Panel decking to inter-connect two panels without gap. This panel connector is designed with a feature of inserted-self locking type. Once it is installed, it is difficult to remove without breaking. Material Plastic Usage Interconnecting panel Qty per panel 2nos Length 25mm

h. **Cat Walkway assembly:** Walkway assembly Walkway is a platform/floor/walk way provided in multi-tier system on each landing level to access the decking levels for storing and picking the goods. This facilitates man and Trolley movement. Walkway Panel Walkway panel is roll formed construction made in single piece without welding. Walkway panel acts as flooring in multi tier system. They are designed to offer maximum load bearing capacity with high standards of stability and safety. Height of panel is 45mm & it has side slots for inter bolting and slots at lips for bolting to the walkway beam. No. of Bends Minimum-4. While walking on the catwalk surface finish should not peel off. The runner angles are roll formed to provide uniform angle of 90degree bend with no camber. The thickness of runner angle is 2.0mm. The panel used for catwalk should not be less than 2mm in thickness.

a. **Walkway Gap Panel** Walkway gap panel is manufactured by bending operation. It is provided to fill the gap between walkway panels in an Aisle. It is generally installed at the end of the Aisle/junction of Picking or Cross Aisle. Height of the panel is 47mm & it has slots for bolting with the walkway panel. Height Minimum-47mm No of bends Minimum-2.

b. **Mesh Cladding :** Cladding to be provided at three sides and at the back side of single faced rack in order to prevent the stored objects from falling down from upper tier. Normally it is Galvanized/ powder coated. Wire mesh size should be 32x32x2.5 mm.

c. **Common Tube Stopper:** Stopper of size 60 mm x 40 mm x1 mm thick .

d. **Railing :** It is the ERW pipe provided in Overhang catwalks and end of the working aisle for safe walking. It is provided as three rows said to be a hand rail and knee rails. The dimensional position is shown below. Railing pipe is bolted to the upright by railing clamp and open ends of the rails are blocked by Railing cap. Up-to 6 meter length single pipe is provided, beyond that joining will be there. Railing Clamp It is for fixing Railing pipe (Hand Rail & Knee Rail) with the upright for catwalk safety. The plastic Profile of the clamp has a hole for fixing railing pipe and slot on clamp is used to fix it with upright. Railing Clamp Railing Cap It is the end dummy cap provided at opening ends of railing pipe. It is a Plastic cap suitable for dia 40mm pipe. Railing Cap Sliding Gate fixing clamp.

e. **Kick Plate :** It is the 'L' section, provided over the catwalk surface on both sides of aisle. This plate prevents the foot slip through the gap between knee rail and catwalk surface while walking. It is fixed using M5x25 self tapping screw at 500mm pitch. Material Steel Height Minimum- 100mm Mfg process Press forming No of bend Minimum-3nos Fastener M5x25 at every 500mm pitch Surface finish Powder coated.

f. **Upright Cap:** This is a plastic cap which is used to cover the upright top end. Generally it is put on uprights that support Catwalk. In addition it is provided for all aisle side uprights.

g. **Stair Case:** Staircase is an independent, in-built unit with multi-tier system for reaching one floor to another floor (or) tier to tier. This is provided at a specific area of a shelving layout, where it is easy to access. The staircase unit comprises of fabricated Side channel with railing unit as a single member in LH & RH variety, which is bolted with step panels. The typical single tier fabricated staircase is shown in below fig. Generally single tier staircase has single landing level and multi-tier staircase has minimum two landing levels.

i. Overall size of staircase Minimum-1200(W) x 2700 (H) Inclination 36 deg . **For G+ 1 system.**

ii. Overall size of staircase Minimum-1550(W) x 8910 (H) Inclination 36 deg . **For G+ 4 system.**



**h. Kickplate:** on steps Yes Step depth Minimum- 275mm Clear width Minimum-725mm Step to step height Minimum-190mm Rail height Minimum- 1200mm Color of step Galvanized.

**i. Safety Signage:** These signage's are for the safety of warehouse personnel and longer life of the storage system. Quantity of signage's will be based on the layout.

a. Signages are for the safety of warehouse personnel and longer life of the Storage system. Total 8 nos direction boards with Acrylic sheet 600 x 200 mm

b. Signages to be of photo print with Size 600 x 900mm of thickness 5mm one no to bolted to the upright near VRC for detailed function of VRC.

**j. Material standards :** The material of constructio

a). IS 5986 / IS 2062 / IS 513 or equivalent to foreign standards like DIN/JIS as applicable.

b) The steel procured should be of high strength Hot rolled/Cold rolled steels procured from SAIL, TATA STEEL, JINDAL or equivalent. As a proof for the specified material, supplier should submit steel test certificate from manufacturer.

c) The Heavy duty-Multi tier shelving System is of complete knock down construction. No welding to be carried out at site.

**k. Vertical Reciprocating Conveyor For (G+ 1 level)**

1. Name of Equipment : Vertical Reciprocating Conveyor.

2. No.of.Landing : 2 Stops.(Ground + 1s).

3. Capacity : 1000Kg + Cabin weight.

4. Carriage Clear Size : 1400x1450x1500(WxDxH)

5. Working Height : Ground –0 mm , First Floor -2062 mm

6. Application : For vertical transportation of materials only

7. Entry / Exit : Opposite side

8. Lifting Speed : 4-6 mtr/min

9. Operation : Local control at each floor

Loading pattern : a) NON-Palletized Materials will be loaded into the cage from one side at the shop floor level. The size of the Trolley shall be 1000(L) x 800(W) x 1200(H) mm. Materials should not be jetting out from any side.

b) Discharge of materials shall be on same side **on all tiers at catwalk floor level.**

Operations : a) Through local control stations on each floor for call & send operations.

Carriage : Carriage shall be of Tubular Constructions with perforated Panels on its non operating ends. The operating ends have safety cross bar. The carriage bar is 5mm Mild Steel chequered plate.

Other features : a) Collapsible type access door on each loading floor level.

a. Modular structure with perforated sheets all around –on all access sides & ground level only. At the other levels –the modular structure houses the access gates at each level.

- c) These lading floor – access doors are electrically & mechanically inter-locked with the movement of the carriage. This means that unless these access gates are completely closed – the VRC unit will not move up or down
- d) Floor limit Switches on each floor. Over – travel & gravity switch is provided.
- e) Main control panel at ground level+ Sub-control station at each levels.
- f) The upward & downward movements of the carriage shall be inter-locked with collapsible access gates, by positioning of the limit switches. Hence to operate the lift it is essential that these doors are closed.
- g) Control Panel is to be located on the First floor level.
- h) The carriage can be called or sent from any of the floor levels.
- i) Emergency STOP push button to be provided in each tier

**Safety features:**

1. Safety mechanism in case of accidental wire rope failure. (Optional)
2. Safety interlocks for doors to ensure safe operation.
3. Siren indication if door is open.
4. Operation stoppage if door is open.
5. Buffer spring at bottom.
6. Safety mesh fencing all over the structure
7. Safety hand rail at top, for safety of maintenance personnel.
8. Overload Indication Alarm

**Drive details :** *Electro – mechanically driven by a hollow shaft helical geared Motor Unit with Fail Safe Brake.*

Type : **Roller chain /Wire Rope type**

Motor : 4.0HP/1400 rpm for 750 Kgs.

Gear Box : Reputed Make

Electric Motor : Reputed Make with Braking System

Brake : Fail – safe electro-magnetic type DISC brake.

Main Lifting Chain : 1” Duplex Roller Chain with 2 Nos. of Chains.

Chain tensioner

Chain : 5/8” Simplex Roller chain with 2 Nos. of chains at each corner loop

Material of

Construction : En-9 with Heat Treatment.

Bearings : FAG/SKF

**i. Vertical Reciprocating Conveyor For (G+ 4 level)**

1. Name of Equipment : Vertical Reciprocating Conveyor.

2. No.of.Landing : 5 Stops.(Ground + 4s).

3. Capacity : 1500Kg + Cabin weight.
4. Carriage Clear Size : 2030x1090x1500(WxDxH)
5. Working Height : Ground –0 mm , First Floor -2062 mm
6. Application : For vertical transportation of materials only
7. Entry / Exit : Opposite side
8. Lifting Speed : 4-6 mtr/min
9. Operation : Local control at each floor
10. Door : Collapsible gate
11. Flooring : M.S Chequered plate
12. Power supply : 3 phase
13. Motor: 3 phase Geared motor
14. Control : Relay control
15. Operation panel: Call button ,send button& Emergency stop button ( with Illuminated push buttons)
16. Type : Roller chain /Wire Rope type

**The tenderer allow to quote the material sizes as mention below:**

1. **The quoted item should be as per actual technical speciation.**

**(or)**

1. **+/- 10 % of technical speciation .**

**(or)**

1. **Above the technical speciation.**