

**Volume-II**

**NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE (NABI)**

(Department of Biotechnology,  
Ministry of Science and Technology, Govt. of India)  
Knowledge City, Sector-81, SAS Nagar, Mohali, Punjab

**FINANCIAL BID DOCUMENT**



**Construction of ATM room & security post with pre-fabricated structure at NABI**

# **TECHNICAL SPECIFICATIONS**

## **1.0 STANDARD SPECIFICATIONS TO BE FOLLOWED**

The work should be executed as per following CPWD specification and also the specification laid in tender document. In case, above specifications are not available for certain item, then the material should conform to ISI and BIS standards.

### **1.1 Civil Engineering Works**

CPWD Specification 2009 Vol. I & II along with latest correction slips. These Specifications have replaced CPWD Specifications 1996 along with Correction Slips issued on them. These Specifications cover all types of Works. The specifications are available as a printed document issued by CPWD and also in soft copy PDF Format in CPWD website.

### **1.2 Electrical Engineering Works**

- (A) CPWD General Specifications for Electrical Works Part I Internal - 2013.
- (B) CPWD General Specifications for Electrical Works Part II External - 1994.
- (C) CPWD General Specifications for Electrical Works Part IV Sub Stations – 2013.

The above specifications shall be read with upto date correction slips (if any).

### **(A) CIVIL WORKS**

#### **WORKMANSHIP FOR THE ENTIRE PLUMBING WORK.**

The workmanship shall be best of its kind and shall conform to the specifications, as below or Indian Standard Specifications in every respect or latest trade practices and shall be subject to approval of the Engineer-in- Charge. All materials and/or Workmanship which in the opinion of the Engineer-in- Charge is defective or unsuitable shall be removed immediately from the site and shall be substituted with proper materials and/or workmanship forthwith.

#### **WARRANTY AND HANDOVER**

The Contractor shall warrant that all plant, materials and equipment supplied and all workmanship performed by him to be free from defects of whatsoever nature before handover to the Engineer-in-Charge. All the Guarantee/Warranty certificates of all the items shall be in the name of Institute i.e., National Agri-Food Biotechnology Institute (NABI), Mohali.

## **HANDING OVER OF DOCUMENTS**

All testing and commissioning shall be done by the Contractor to the entire satisfaction of the Engineer-in- Charge and all testing and commissioning documents shall be handed over to the Engineer-in-Charge.

**NOTE: In case of any contradiction between the specifications, the contractor shall take the prior approval of the Engineer- In - Charge before executing the same at site.**

### **LIST OF MAKES TO BE ADOPTED**

S.No	Item	Make
1.	Cement	J K Lakshmi/ ACC/ Ultratech/ Ambuja
2.	Steel Reinforcement (TMT bars)	Tata/JSW Jindal/ Sail/Vizag
3.	Stainless Steel	Tata/Jindal/Apollo Tubes Ltd
4.	Mild steel tubular/section work	Jindal/Apollo/Tata/Swasthik
5.	Stainless Steel door fittings	Doorset/Godrej/Suzu Steel
6.	Paint	Asian Paint/ Berger/ICI
7.	Duco Paint	Dulux/Akzonobel/Nerolac/ Jenson & Nicholson India Ltd
8.	Rain water pipes, fittings	Diplast/Supreme/Finolex
9.	Aluminium Composite Panel	Alstrong India, Aludecor/Alex/ Alstone
10.	Galvanized sheet	Tata/Jindal/Sail
11	Structural glazing acp sheet sealant	Dow corning/Alstone/Henkel

**Note:-** Any other material make not mentioned above shall be ISI marked & got approved from Engg-in-charge

## BOQ for construction of ATM & security post with prefabricated structure

S.No.	Description.	Unit	Qty	Rate	Amount	
<u>1</u>	Earth work in excavation by mechanical means(hydraulic excavator)/manual means in foundation, trenches of drains( 10 sqm. on plan), including dressing of sides and ramming of bottoms lift , including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50m.					
		Qty in cum.	cum	12.61755		
<u>2</u>	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead upto 50 m and lift upto 1.5 m.					
		total in cum	cum	12.62		
3	Supplyof earth from outside including stacking, filling in layers not exceeding 20 cm in depth, consolidating by ramming and watering, carriage, royalty etc complete.					
			cum	11.00		
<u>4</u>	Providing & laying in position cement concrete of specified grade excluding the cost of centering and shuttering -All work upto plinth level.					
-		1:5:10 (1cement: 5 coarse sand: 10 graded stone aggregate 40 mm nominal size).				
	Qty in cum	cum	3.33			
5	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.“(Note :- Cement content considered in this item is @ 330 kg/cum.“Excess/ less cement used as per design mix is payable/recoverable separately).					
a		All works upto plinth level				
			cum	9.05		
b	All works above plinth level upto floor V level	cum				

	TotalQty	cum	6.4		
6	Extra for providing richer mixes at all floor levels				
	Providing M-35 grade concrete instead of M-25 grade BMC/ RMC. (Note : Cement content considered in M-35 is @ 350 kg/ cum)				
	Total Qty	cum	2.5		
7	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
	Thermo-Mechanically Treated bars of grade Fe-500D or more.	Kgs	2305.0		
g	Centering & shuttering including strutting, propping etc. and removal of form for:-				
a	Foundation, footings, bases of columns, etc. for mass concrete.	Sqm.	39.60		
b	Columns, Pillars, Piers, Abutments, Posts and Struts.	sqm	27.000		
c	Lintels, beams plinth beams, girders, bressumers and cantilevers.				
	beams	sqm.	31.200		
d	Suspended floor, roofs, landing, balconies & access platform.	sqm.	13.20		
9	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth, above plinth in:				
	Cement mortar 1:4 (1 cement : 4 coarse sand)				
	Qty in cum.	cum	15.57		
10	15 mm cement plaster on the rough side of single or half brick wall of mix : 1:4 (1 cement: 4 fine sand)	sqm	113.4442		
11	12 mm cement plaster of mix : 1:4 (1 cement: 4 fine sand)	sqm	15.60		
12	Finishing walls with textured exterior paint of required shade:- New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	sqm	63.6721		

13	Structural steel work in single section, fixed with or without connecting plate, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.				
		Kg	35.00		
14	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: (a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment. (b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed Code Description Unit Rate No. SUB HEAD : 22.0 WATER PROOFING 383 with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs. (c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineerin-charge. (d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineerin-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep. (e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the Engineer-in-Charge : 22.7.1 With average thickness of 120 mm and minimum thickness at khurra as 65 mm.				
	With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	sqmtr	12.0		

15	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.				
a	80x1.20 mm M.S. laths with 1.20 mm thick top cover	sqmtr	12.0		
b	Providing and fixing ball bearing for rolling shutters.	each	10.0		
16	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge				
	Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	cum	1.4		
17	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.				
	In cement mortar	cum	1.9		
18	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :				
	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture	sqm	21.869		
19	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade : New work (two or more coats) over and including water thinnable priming coat with cement primer	sqm	6.750		
20	Providing , fixing of pre-painted corrugated mild steel sheet roofing including vertical / curved surface fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter complete (up to any pitch in horizontal/ vertical or curved surfaces), excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.				
	1.00 mm thick	sqm	24.0		



21	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying 50 micron powder coating of approved colour including welding and bolted with special shaped washers etc. complete.				
	Hot finished welded type tubes	Kg	866.02		
22	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. :				
a	Powder coated aluminium (minimum thickness of powder coating 50 micron)				
		Kg	125.0		
b	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required .				
	Powder coated aluminium (minimum thickness of powder coating 50 micron)	Kg	45.0		
23	Providing and fixing M.S. fan clamp type I or II of 16 mm dia M.S. bar, bent to shape with hooked ends in R.C.C. slabs or beams or MS section during laying, including painting the exposed portion of loop, all as per standard design complete.	each	1		
24	Providing and fixing ISI marked aluminium butt hinges anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete:				
	125x75x4 mm	each	12		
25	Providing & fixing aluminium tower bolts, ISI marked, anodized(anodic coating not less than grade AC 10 as per ISI: 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete.				
	150x10 mm	Each	12		

26	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete				
	Single rubber stopper	each	2		
27	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :	Each	10		
	125 mm				
28	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.	Each	1		
29	Providing & fixing bright finished brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles of approved quality with necessary screws etc. complete.	Each	1		
30	Providing and applying white cement based putty of average thickness 1mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.				
		sqm			
			13.9		
31	Providing and laying vitrified tiles in floor & dados, skirting in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3kg/sqm including grouting the joints with white cement and matching pigments etc., complete.				
	Size of Tile 800x800 mm	sqmtr			
	Total Qty	sqmtr	8.8		
32	Extra for providing frosted glass panes 5.5 mm thick instead of ordinary float glass panes 5.5 mm thick in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).	sqmtr	0.5		
33	Providing and fixing of Stainless steel wire mosquito net in Grade-304 with 0.50 mm dia wire including cutting, moulding, stretching to prevent sags, wastage, transportation, labour , profits, fixing accessories etc complete in all aspects in Aluminium doors.				

		sqmtr	4.89		
34	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete				
	Single rubber stopper	each	2.0		
35	Providing, fabricating and supplying and fixing panels of exterior grade aluminium composite panel 3mm minimum thickness cladding in pan shape in metallic colour of approved shades made out of 4mm thick aluminium composite panel material consisting of 3mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, structural glazing silicone sealant, backer rods etc.				
	Net Total Qty	sqm	49.3		
36	Providing and fixing of 5.5 mm thick float glass (weight not less than 13.50 kg/sqm) in doors, sliding windows, ventilator etc. This cost should include cost of EDPM beading, silicon sealing, gaskets etc.	sqm	5.39		
37	Providing & fixing G.I. pipes complete with G.I. fittings in trenching including filling etc.				
	External work				
a	25 mm dia nominal bore	Rmt.	6		
b	20 mm dia nominal bore	Rmt.	5		
c	15 mm dia nominal bore	Rmt.	5		
38	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :				
a	15 mm nominal bore	each	2		
b	40 mm dia nominal bore	each	1		

39	Constructing masonry chamber 30x30x50cm inside, in brick work in cement mortar 1:4(1cement: 4 coarse sand) for stop cock, with C.I. surface box 100x100x75mm(inside) with hinged cover fixed in cement concrete slab 1:2:4 mix(1cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) i/c necessary excavation, foundation concrete 1:5:10(1cement: 5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 cement (1cement: 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design.				
	-With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	2		
40	Providing & placing on terrace (at all floor levels) polyethylene water storage tank, ISI:12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	Ltr.	500		
41	Labour charges for fixing of existing wash basin , pedestal along with any grouting, clamps, angle supports etc complete in all aspects	each	1.0		
42	Providing ,laying & testing of 100 mm OD PVC pipes, bends etc capable of 6 Kg/sqcm pressure capacity including cutting, jointing with suitable solvent etc complete to the satisfaction of Engineer- In Charge		7		
a	100 mm diameter 6 Kg pressure	Rmt.			
b	100 mm diameter coupler/bend	each	5		
43	Providing & fixing of SWR floor drain (4" dia)along with SS cover plate complete in all respects complete to the satisfaction of Engg-in-charge	each	2		
44	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including cutting and threading the pipe etc. complete :				
	50 to 80 mm nominal bore	each	1		
45	Charges for fixing of existing water closet . New pvc connections, traps, angle cock etc to provided for fixing of old wc.	Job	1		
	<b>Total estimated cost inclusive of GST, profits taxes etc</b>				

**NOTE: - Payment shall be released item wise based on actual measurement examined at site by Engineer- In- Charge. Rate quoted shall be deemed to be inclusive of GST/other taxes.**

Signature/Stamp of Bidder