

## Annexure-III

### Technical specifications of Naturally Ventilated Greenhouse

S.N.	Items	Description/ Specification
1.	Structure	Naturally Ventilated Greenhouse
2.	Size	500 m <sup>2</sup> to 4000 m <sup>2</sup>
3.	Bay size	8m x 4m, with 4 side hockey 2 mtr
4.	Ridge height	6.5m to 7m
5.	Ridge Vent/Top Vent	80-90 cm opening fixed with 40 mesh nylon insect Screen
6.	Gutter height	4 – 4.5m from floor area
7.	Gutter slope	2% slope need be provided in civil foundation work/ structure.
8.	Gutter Material	2.00 mm thick GI with 220 GSM Galvanization
9.	Structural design	The structural design need to be sound enough to withstand wind speed minimum 120 km/hr minimum load of 25 kg/m <sup>2</sup> . There should be provision for opening one portion at either side for entry of small tractor/power tiller for inter-cultural practices. The firm needs highlight design features and list of greenhouse clients.
10.	Structure	Complete structure made of galvanized steel tubular pipes of equivalent section conforming Indian Standards having wall thickness 2mm, structural member should be joined with fasteners properly.
	Columns	76mm OD, 2 mm thick
	Trusses	Bottom cord 60 mm OD, 2 mm thick
	Trusses	Top cord 48 mm OD, 2 mm thick
	Purlin	48 mm OD, 2 mm thick
	Truss member& others	33/25 mm, 2 mm thick
	Hockey	60 mm OD, 2 mm thick
	Foundations	Telescopic type. The column size to be 45 cm x 45 cm x 90 cm depth of CC 1:2:4 ratio properly compacted over 10 cm layer of 1:8:16. Two holdfast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.
Fasteners	All nuts & bolts must be of high tensile strength and galvanized.	
11.	Entrance room & Door	One entrance room of size 3m X 3m X 3m (L X W X H) need to be provided and covered with 200 micron UV stabilized transparent plastic film. Two hinge doors of size 2 m width & 2.5 m height double leaf made in plastic/FRP sheets mounted in suitable strong frame.
12.	Cladding material	UV stabilized 200 micron transparent plastic films. Conforming Indian Standards (IS 15827: 2009), multilayered, anti-drip, anti- fog, anti-sulphur, diffused, clear and having minimum 85% level of light transmittance.
13.	Fixing of cladding Materials	All ends/joints of plastic film need to be fixed with two way GI profiles with suitable locking arrangement along with curtain top. Wooden batons or PVC grippers need not used.
14.	Spring Insert	Zigzag high carbon steel with spring action wire of 2-3 mm diameter must be inserted to fix sheet into Aluminum Profile.
15.	Curtains and insect screen	Roll up UV stabilized 200 micron transparent plastic film as curtains need be provided up to 3.0 m height on all sides with manual roll up system. 40 mesh nylon Insect proof nets (UV stabilized) of equivalent size need to be fixed Inside the curtains. Anti –flapping strips is suggested to ensure smooth functioning of the curtain.
16.	Shade net	UV stabilized 50% shading net with manually operated mechanism for expanding and retracting. Size of net should be equal to the floor area of greenhouse.
17.	Shade net operations	Non- motorized for all sizes with manual operation system.

18.	Drip Irrigation System with fogging & misting facility	Drip irrigation system under greenhouse need to be selected on the basis of crop spacing design on spacing 30 cm dripper to dripper (two rows per bed) 30cm x 40cm along with fogging and misting facilities. The spacing considered for calculation . The suggested bill of materials are Sand Filter 10 m <sup>3</sup> /hr, Hydrocyclone filter 25m <sup>3</sup> /hr, Screen Filter/Disc Filter 10 m <sup>3</sup> /hr, Control Valve 63mm, Control Valve 50mm, By-pass Assembly 1.5", Air Release Valve, 1", Non Return Valve 1.5", Throttle Valve 1.5", Flush Valve 50mm, Venturi 1.5" Assembly with manifold, PVC pipe 63 mm/4 kg cm <sup>2</sup> , PVC pipe 50 mm/4 kg cm <sup>2</sup> , PVC pipe 63 mm/6 kg cm <sup>2</sup> , PVC pipe 50mm/6kg/cm <sup>2</sup> , PE plane lateral 16 mm, emitting pipe lateral 16mm - @ 0.30 m to 0.40m spacing, hanging type micro sprinkler nozzle (four-way take off assembly) for very fine water particles (foggers & mister) to be fixed in PE pipe of diameter 16mm and fittings & accessories @ 5%. <u>Note: The above list of material is indicative list for 500 sqm structure area. The material may increase/decrease based on the size of structure.</u>
19.	Bottom apron	UV stabilized woven fabric 160 GSM/200 micron poly film and a height of 1 m above ground and 50 cm buried below ground (Total width 1.5 m)
20.	Trellising System	Base wire 8 mm or GI Pipe 60 mm OD, 2 mm thick ii) Trellising wire 3 mm steel or 2 mm gear wire iii) Supporting wire 4 mm steel or 3 mm gear wire

### Technical specifications of Greenhouse with Fan & Pad cooling System

Sr.No.	Items	Description/ Specification
1.	Product	Greenhouse with Fan & Pad cooling
2.	Size	500 m <sup>2</sup> to 4000 m <sup>2</sup>
3.	Bay size	8m x 4m, with 4 side hockey 2 mtr
4.	Ridge height	6 m
5.	Gutter height	4 – 4.5 m from floor area
6.	Gutter slope	2% slope need be provided in civil foundation work/ structure.
7.	Gutter Material	1.8 mm thick GI with 220 GSM Galvanization
8.	Structural design	The structural design need to be sound enough to withstand wind speed minimum 120 km/hr and minimum load of 25 kg/m <sup>2</sup> . There should be provision for opening one portion at either side for entry of small tractor/power tiller for intercultural practices. The firm needs highlight design features and list of greenhouse clients.
9.	Structure	Complete structure made of galvanized steel tubular pipes of equivalent section conforming Indian Standards having wall thickness 2mm, structural member should be joined with fasteners properly.
	Columns	76mm OD, 2 mm thick
	Trusses	Bottom cord 60 mm OD, 2 mm thick
	Trusses	48 mm OD, 2 mm thick
	Purlin	48 mm OD, 2 mm thick
	Truss member& others	33/25 mm, 2 mm thick
	Hockey	60 mm OD, 2 mm thick
	Foundations	Telescopic type. The column size to be 45 cm x 45 cm x 90 cm depth of CC 1:2:4 ratio properly compacted over 10 cm layer of 1:8:16. Two holdfast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.
Fasteners	All nuts & bolts must be of high tensile strength and galvanized.	
10.	Entrance room & Door	One entrance room of size 3m X 3m X 3m (L X W X H) need to be provided and covered with 200 micron UV stabilized transparent plastic film. Two hinge doors of size 2 m width & 2.5 m height double leaf made in plastic/FRP sheets mounted in suitable strong frame.
11.	Cladding material	UV stabilized 200 micron transparent plastic films. Conforming Indian Standards (IS 15827: 2009), multilayered, anti-drip, anti- fog, anti-sulphur, diffused, clear and having minimum 85% level of light transmittance.
12.	Fixing of cladding materials	All ends/joints of plastic film need to be fixed with two way GI profiles with suitable locking arrangement along with curtain top. Wooden batons or PVC grippers need not used.
13.	Spring Insert	Zigzag high carbon steel with spring action wire of 2-3 mm diameter must be inserted to fix shade net into Aluminum Profile.
14.	Co-axial fan	Co-axial fan (ISI mark) of minimum 1200 mm diameter containing 6 numbers of GI sheet blades, frame is of GI sheet materials followed by aluminum louver. 12 Fans per acre.
15.	Cellulose pad for cooling	Cellulose pad of thickness 4” – 6” thick, height: 5’, width as desired equipped with anodized aluminum frame. Cooling pad complete with all necessary framing material (Aluminum) as required for distribution

		and return, gutter, down spout cap and drip pan, plumbing kit, pump 220 Volt single phase, suspension hardware, metal flashing required to seal pad for vent opening over flow 20 mm PVC & 40mm standard sink drain.
16.	Circular pump with accessories for cooling pad	Circular pump with required capacity & accessories to be provided for wetting & circulating the pad area.
17.	Digital controller with sensory devices	The necessary digital controller with sensory device & accessories of standard quality (at least two units for 500 sqm area) should be provided to operate the fan & pad system to control temperature & humidity inside the Greenhouse.
18.	Electric wiring inside greenhouse	Use copper wire to withstand desired load of required electrical gadgets/appliances with ISI mark.
19.	Shade net	UV stabilized 50% shading net with manually operated mechanism for expanding and retracting. Size of net should be equal to the floor area of greenhouse.
20.	Drip Irrigation System with fogging & misting facility	Drip irrigation system under greenhouse need to be selected on the basis of crop spacing design on spacing 30 cm dripper to dripper (two rows per bed) 30cm x 40cm along with fogging and misting facilities. The spacing considered for calculation . The suggested bill of materials are Sand Filter 10 m <sup>3</sup> /hr, Hydrocyclone filter 25m <sup>3</sup> /hr, Screen Filter/Disc Filter 10 m <sup>3</sup> /hr, Control Valve 63mm, Control Valve 50mm, By-pass Assembly 1.5", Air Release Valve, 1", Non Return Valve 1.5", Throttle Valve 1.5", Flush Valve 50mm, Venturi 1.5" Assembly with manifold, PVC pipe 63 mm/4 kg cm <sup>2</sup> PVC pipe 50 mm/4 kg cm <sup>2</sup> , PVC pipe 63 mm/6 kg cm <sup>2</sup> , PVC pipe 50mm/6kg/cm <sup>2</sup> , PE plane lateral 16 mm, emitting pipe lateral 16mm - @ 0.30 m to 0.40m spacing, hanging type micro sprinkler nozzle (four-way take off assembly) for very fine water particles (foggers & mister) to be fixed in PE pipe of diameter 16mm and fittings & accessories @ 5%. Note: The above list of material is indicative list for 500 sqm structure area. The material may increase/decrease based on the size of structure.
21.	Footpath	1m wide and 10 cm thick footpaths should be provided in the centre (length x width) & made of cement concrete ratio of 1:2:4.
22.	Curtain wall/Apron	22 cm brick wall of 1m height (24 cm below and 80 cm above ground level on all the four sides. The wall needs to be plastered and water proofing cement with 1:6 ratio. Provision to be made for opening & closing of ventilation
	Note: Optional items –system in case of power failure	
23.	Curtain and insect screen	Roll up UV _tabilized 200 micron transparent plastic film as curtain need to be provided upto height 3.0 meter on all side having automatic type motor operated crank mechanism system. However provision for manual opening and closing of curtains need also be provided.40 mesh insect proof net (UV _tabilized) of equitant size need to be fixed inside the curtain. Anti – flapping strip is suggested to insure smooth functioning of curtain.

## Technical specifications of Insect Net House

S.N.	Item	Specification
01	Structure	Flat/Dome shape Shade/Insect Net House
	Size	According to requirement
	Shape	As per design
	Withstand to wind velocity	Structure may be design to withstand wind velocity upto 104 Km/hr, 120 km/ hour per hrs in high wind velocity zone.
	Foundation	2mm thickness GI Pipes compatible with columns, length 1.2m
	Main Column	Size 76 OD, Thickness 2 mm,
	Purlins	Purlin GI pipes – size 48/43 OD/thickness 2 mm, length – 4 m .Purlin members – 33/32mm OD/2mm thickness,
	Corner/Hockey	Size 60 OD, Thickness 2 mm, Wt. per length 0.15 kg, length-0.15 m
	Four Way Pipe Couplers	Size 42 OD, Thickness 2 mm, Wt. per length 0.15 kg, length-0.15 m
	Five Way Pipe Couplers	Size 42 OD, Wt. per length 2.30 kg, Thickness 2 mm, length-0.15 m
	Nut Bolts	Size 3/8"
	Grid Size	4x4, 8x4, 4x6 (m) with 2 mtr hockey on 4 side
	Gable length	4.0 m
	Centre Height	Flat Structure – 4m Hut/dome type structure – centre height – 4.5 to 5m, side height – 3m with 48mm truss, 33mm truss member and 42mm purlin
2.	Aluminum Profile	C type GI profile to fix shade net to the structure by means of self-tapping screws. Weight of GI profile is 280-300 gm/meter. Self-Drilling Screw be fixed on profile every 40 cm along the full length of the profile
3.	Spring Insert	A coated spring is preferable compared to cold galvanized spring as a coated spring transfer less heat to the plastic and thus enhances the life of the plastic If we are using GI spring it is better to use a two inch strip of new poly film to be placed over the main plastic in the profile and then lock it with GI profile. This will help in longer life of the plastic as the rusted spring will not directly come in contact with the main plastic. Wire material should be high carbon spring steel with spring action
4	Covering material	40 mesh insect net
5	Door	Polycarbonate/polythene sheet door with 1 m widths and 2m height and another door of 1m x 2m Box section frame is embedded inside for the strength.
6	Anti- Room	Anti-room of size 4mx 3m attached to net house
7	civil work/foundation	Cement concrete 1:2:4 block of size 40 cm x 40cm, 90 cm for embedding vertical poll/pipe of shade net, subject to revision as per requirement of site.
8	Overall slop	1 to 1.5%
9	APRON	Use of APRON upto 1 mtr height stitched with insect net / shade net
10	Drip irrigation and fogging system	Drip irrigation and fogging system as per area of the structure.
11	Trellising System	i) Base wire 8 mm or GI Pipe 60 mm OD, 2 mm thick
		ii) Trellising wire 3 mm steel or 2 mm gear wire
		iii) Supporting wire 4 mm steel or 3 mm gear wire
12	Optional	Aluminum Screen Shade Net 35 to 65% minimum 75 GSM to 90 GSM plastic as top is dome top.

### Technical specifications of Tubular Structures with cable purlins Net House

S.N	Item	Indicative Specifications
1.	Structure	Tubular Structures with cable purlins Net House
2.	Size	According to requirement
3.	Shape	As per design
4.	Withstand to wind velocity	Structure may be design to withstand wind velocity upto 104 Km/hr 120 km/hour per hrs in high wind velocity zone.
5.	Main Column	Exterior corner 76 OD, 2.65 mm thick, height of pole 4m Exterior side/peripheral column 76 OD, 2.65 mm thick, height of pole 4m Interior column 60 OD, 2mm thick, height of pole 5 m i.e. (4 mtr. above ground level+1 mtr. below ground level)
6.	Balcony	3.5 mtr. Supported with 6mm thick anchor cable
7.	Trellis System	8mm thick (1/19) main cable at both gable ends/sides 4 mm thick base cable and 3 mm thick trellising twisted cable (4mm thickness if twisted wire thickness included) as supporting cable along with trellising chain and trellising chain holder.
8.	Clamps	Clamps-triple wire connector, 6mm thick wire cable clamp
9.	Nut Bolts	Tighten bolt 3/8", 120 mm; Tighten bolt 3/8", 90 mm; Tighten bolt 3/8", 100 mm, Eye bolt 3/8", 120mm
10.	Spacing	5 x 8 mtr., spacing 4 x 5 mtr. at both outer sides
11.	Centre Height	4.0 mtr. in case of flat structure.
12.	Accessories	Cable hold small plate, cable hold large plate, 3" pipe plastic cup, 2" pipe plastic cup, 14mm iron pins, screen red rolls, screen pipe housing, net niddles, net oval connectors, net hook connectors, simes
13.	Insect Proof Net & Shade Net	40 mesh insect net shade net on roof, 40 mesh anti-insect net at sides
14.	Entrance & anti room	Entrance – G.I. frame with poly carbonate sheet 2m x 2m size hinged type with locking arrangement. (Anti room of size 2m x 4m x 2m with double door and covering of insect net/shade net, with provision of entry and exist for tractor), 50 mm PCC flooring over 75 mm thick sub base.
15.	Foundation	Outer anchor: 1.8 mtr length anchor with 1 mtr depth PCC of CM ratio (1:2:4) of 45 cm diameter. Outer pole: 50 cm length, 25 mm dia. Bent iron pin/rod in 0.5 mtr depth PCC of CM ratio (1:2:4) of 45 cm diameter. Intermediate pole: in a pit of 45 cm dia, the pole is inserted 1 mtr. Deep, rested on plates for foundation and is placed in 25 cm thick PCC of CM ratio 1:2:4
16.	Iron accessories for foundation	Anchor, bent iron pin/rod, inner column base angles/foundation plates for intermediate poles
17.	Drip irrigation and Fogging system	Drip irrigation and Fogging system as per area of the structure.
18.	Optional	Aluminium Screen Shade Net 35 to 65% minimum 75 GSM to 90 GSM plastic as top is dome top.

**Technical Specifications of Walk in Tunnels (5 mtr Height)**

<b>Sr. No.</b>	<b>Component/ Intervention</b>	<b>Specifications</b>
<b>A</b>	<b>Particulars</b>	
	<b>Structure</b>	WIT
1.	Area Proposed approximate (sqm)	400 to 600
2.	Length of Tunnel (mtr)	Upto 60
3.	Width of Tunnel (mtr)	8-10
4.	Center height (mtr)	5
5.	Distance between 2 arches (mtr)	4
6.	Height of side curtain (mtr)	2.5
7.	Bottom Apron (mtr)	0.5 mtr
<b>B</b>	<b>Name of the parts</b>	
8.	Foundation stub OD/mm	60/2
9.	Column OD/mm	76/2
10.	Bottom Chord OD/mm	48/2
11.	Arches with W bracings OD/mm	48/2
12.	Purlins OD/mm	42/2
13.	Clamps and nut bolts	As per requirement
14.	Cross bracings	4 nos. & 42/2
15.	W-Bracing OD/mm	33/2
<b>C</b>	<b>Entry Room</b>	
16.	Entry room size mtr x mtr	3 x 2 x 2.5
17.	No of doors	2
18.	Door Size	1.2 x 2
19.	Frame of door (ISA four side to cover the gap below the door)	G.I.
20.	Part of door	Square pipe with poly carbonated sheet/Bakelite sheet 5 mm
21.	Flooring	Bricks flooring with 15 mm thick plaster
<b>Sr. No.</b>	<b>Component/ Intervention</b>	<b>Specifications</b>
<b>D</b>	<b>Profiles and springs</b>	
22.	Profile	GI Profile- 300gr per running mtr
23.	Zigzag spring insert	High carbon steel wire repeated action, 2.3 mm dia, GI
<b>E</b>	<b>Polyfilm</b>	
24.	Multi-layered Polythene sheet	Fixed Properties – 200 micron thick, UV stabilized, Thermic, diffused, Anti dust Anti drip. Optional Property- Anti Sulphur for the crops where sulphur consumption is high For ex – rose cultivation (As per farmer choice)
	<b>Nets</b>	
25.	Insect net to both sides Mesh	40 mesh, UV Stabilized, 2.5 m width (height)
<b>F</b>	<b>Specific Requirements</b>	
26.	Foundations (cm x cm x cm)	Telescopic type. The column size to be 40 cm x 40 cm x 80 cm depth of CC 1:2:4 ratio properly compacted over 10 cm layer of 1:8:16. Two hold fast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.
27.	Bottom apron (micron)	UV stabilized woven polythene 160 GSM and a height of 0-5/0-6 m above ground and 50 cm buried below ground with 25 mm role up curtain.
28.	Side wall curtain (mm)	Insect net 40 mesh fixed and polythene movable fitted to curtain pipe with plastic/GI clamps and rolling curtain with 25 mm supported by GI guard 20 mm OD pipes 2 mm thick on corridor pipes

<b>G</b>	<b>MI Component (To be got executed by shortlisted firm from MI empaneled firms in the State)</b>	
<b>1.</b>	<b>Drip System</b>	
i.	(PVC 50 mm x 6 kg/cm <sup>2</sup> )	18 mtr
ii.	LLDPE Lateral line CL-2 16mm	75 mtr
iii.	(16mm, 1.3 to 2.4 LPH @ 30-40 cm CL2)	600 mtr to 610 mtr
iv.	Ball Valve 50 mm (Teflon Seal, Plain)	1 Nos.
v.	Sub-main Flush Valve 40 mm	2 nos.
vi.	Sub-main line for Flushing 40 mm, 6kg	20 mtr
<b>2.</b>	<b>Filteration Unit</b>	
i.	Disc filter 25 m3/hr	1 nos.
ii.	Ventury injector complete Assembly 1 inch	1 nos.
iii.	Air Release Valve Assembly 1”	1 nos.
	Any other item	as per requirement

Remark: Sand filter/hydro cyclone filter is mandatory for structures/no. of units having area more than 2000 sqm.

**Technical Specifications of Walk in Tunnels (3.5 mtr Height)**

Sr. No.	Component/ Intervention	Specifications
<b>A</b>	<b>Particulars</b>	
	Structure	WIT
1.	Area Proposed approximate (sqm)	400 to 600
2.	Length of Tunnel (mtr)	Upto 60
3.	Width of Tunnel (mtr)	8-10
4.	Center height (mtr)	3.5
5.	Distance between 2 arches (mtr)	4-5
6.	Height of side curtain (mtr)	2
7.	Bottom Apron (mtr)	0.5 mtr
<b>B</b>	<b>Name of the parts</b>	
8.	Foundation stub OD/mm	48/2
9.	Column OD/mm	60/2
10.	Bottom Chord OD/mm	48/2
11.	Arches with W bracings OD/mm	43/2
12.	Purlins OD/mm	43/2
13.	Clamps and nut bolts	As per requirement
14.	Cross bracings	4 nos. & 33/2
15.	W-Bracing OD/mm	33/2
<b>C</b>	<b>Entry Room</b>	
16.	Entry room size mtr x mtr	2 x 2/ 3 x 2/ 3 x 3
17.	No of doors	2
18.	Door Size	1.2 x 2
19.	Frame of door (ISA four side to cover the gap below the door)	G.I.
20.	Part of door	Aluminium sheet/Poly carbonate, sheet 5 mm thick
21.	Flooring	Bricks flooring with 15 mm thick plaster
<b>D</b>	<b>Profiles and springs</b>	
22.	Profile	GI Profile- 300gr per running mtr or Aluminium Profile-200-225gr per running mtr
23.	Zigzag spring insert	High carbon steel wire repeated action, 2.3 mm dia, GI
<b>E</b>	<b>Polyfilm</b>	
24.	Multi-layered Polythene sheet	Fixed Properties – 200 micron thick, UV stabilized, Thermic, diffused, Anti dust Anti drip. Optional Property- IR Reflective Cooling, Anti Sulpher for the crops where sulphur consumption is high For ex – rose cultivation (As per farmer choice)
	<b>Nets</b>	
25.	Insect net to both sides Mesh	40/50 mesh, UV Stabilized, 2 m width (height)
<b>F</b>	<b>Specific Requirements</b>	
26.	Foundations (cm x cm x cm)	Telescopic type. The column size to be 45 cm x 45 cm x 60 cm depth of CC 1:2:4 ratio properly compacted over 10 cm layer of 1:8:16. Two hold fast to be used in perpendicular direction at 20 cm apart in concrete starting from 20 cm from base.
27.	Bottom apron (micron)	UV stabilized woven polythene 160 GSM and a height of 0-5/0-6 m above ground and 50 cm buried below ground
28.	Side wall curtain (mm)	Insect net 40/50 mesh fixed and polythene movable fitted to curtain pipe with plastic/GI clamps and supported by GI guard 20/22 mm OD pipes 2-0 mm thick on corridor pipes

Sr. No.	Component/ Intervention	Specifications
<b>G</b>	<b>MI Component (To be got executed by shortlisted firm from MI empaneled firms in the State)</b>	
	<b>Drip System</b>	
i	(PVC 50 mm x 6 kg/cm <sup>2</sup> )	18 mtr
ii	LLDPE Lateral line CL-2 16mm	16 mtr
iii	(16mm, 1.3 to 2.4 LPH @ 30-40 cm CL2)	450 mtr to 550 mtr
iv	Ball Valve 50 mm (Teflon Seal, Plain)	1 Nos.
v	Sub-main Flush Valve 40 mm	2 nos.
vi	Sub-main line for Flushing 40 mm, 6 kg	20 mtr
	<b>Filteration Unit</b>	
i	Disc filter 25 m3/hr	1 nos.
ii	Ventury injector complete Assembly 1 inch	1 nos.
iii	Air Release Valve Assembly 1"	1 nos.
iv	Any other item	as per requirement

The farmer constructs the structure on its own, in such cases the design and specification should be as per NCPAH norms and guidelines or any other approved source. In such case the entire responsibility of quality and durability of structure revert with farmer.

The alternate specification may be accepted if it has been approved by recognized structure engineering institution. In such cases the approved copy of structure must be attached with application form further quality and durability of structure shall be responsibility of firm and farmer must agree to the firm design and specification.