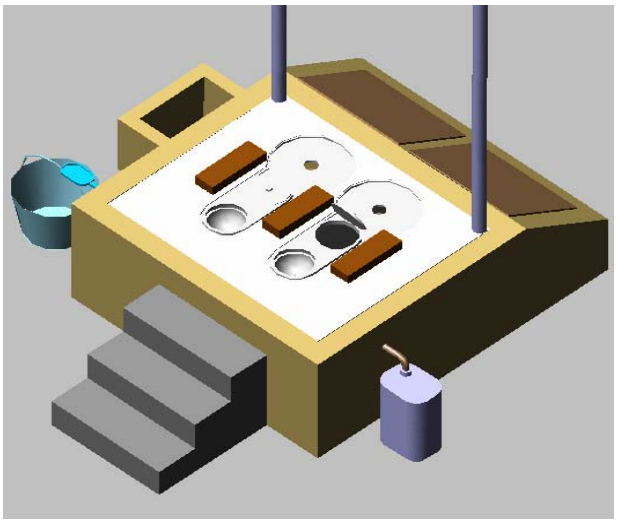
Proto Type Engineering Design of Eco-Toilet

Action Research on Ecological Alternatives in Sanitation in Difficult Areas of Bangladesh
(A GOB-UNICEF Project)



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Submitted to
DPHE and UNICEF-Bangladesh

By

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In association with

SPACE

Content

1.0 Introduction

UNICEF and Department of Public Health and Engineering (DPHE) are jointly implementing **Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B)**, the largest intensive hygiene, sanitation and water quality improvement project in 120 Upazilas and 31 Pourashavas in 31 districts targeting 30 million people, in two phases during a five-year implementation period, 2007-2011. The project is to support communities, and particularly the poorest in those communities, un-served and under-served areas, to adopt appropriate hygiene practices which reduce their exposure to diarrhoeal and other water & hygiene-related diseases. The present implementation phase (2007-2009) covers 68 Upazilas in 19 districts (including 300 Paras in 8 Upazilas of three Chittagong Hill Tracts districts) and which is founded a community-based approached.

Bangladesh made significant progress in achieving Millennium Development Goals (MDGs), including sanitation (MDG Target 7.9). Access to improved sanitation increased to 39.2% of the population in 2006 MICS, BBS) and 41.9% in 2007 (DHS). Time series data analysis suggests that increasing urban coverage from 57.8% in 2006 to (target) 70.0% in 2015 is perhaps achievable but achieving the rural target - 58.0% by 2015 from 31.9% in 2006 is difficult if not impossible. The greatest challenge for the Government vis-à-vis DPHE is not only to expedite the coverage but also make sure that it is sustainable. In this context, it is of strategic importance that different options are considered to address the different living and geographical conditions particularly in the difficult or sensitive areas, such as, urban slums (limited land and high population density) and rural remote & isolated areas as well as both the rural and urban areas that are vulnerable to natural disasters, e.g., flood (45% of the country's total area).

- *Urban sanitation is still a big challenge*. With sewerage system (only in parts of Dhaka city) and septic tanks (largely used in urban centers) discharging into open water bodies, the urban sanitation scenario falls far behind hygienic sanitation coverage in true sense. The ever growing slum population in the cities and secondary towns has further compounded the situation. The slum population, constituting about one-third of urban population are virtually excluded from the municipal services, namely, sanitation because the slums are not recognized by law. Open defecation is a common practice, which contributes to water contamination resulting in various water borne diseases – affecting non-slum dwellers as well. The few pit latrines that have been constructed in the few slums is neither safe nor hygienic, since these are single pit latrines and they are not appropriately distanced from water point.

- *Sanitation in difficult areas is a much bigger problem*. In water scarce areas, such as, Barind region of Rajshahi and the hill districts of Chittagong, people break water seal due to lack of water for flushing the latrine. In the high water table and flood prone areas, the low land and haor areas, it is difficult to install new latrine pits every six months. Thus, all are suffering from unavailability of technologies appropriate for those varying hydro-geologic and physical conditions.

In this back drop, SHEWA-B project envisaged the need for initiatives to try out an action research on ecological sanitation in the context of congested urban slums and haor areas; high water table areas and water crisis regions like Chittagong hill tracts and barind region.

Considering the drawbacks of current sanitation technologies (re: varying local conditions), ecological sanitation has an apparent strong potential to address gaps in sanitation and sustainable scaling-up. The concept of eco-sanitation has been developed to set up system(s) to human waste disposal, retrieve and re-use the nutrients from human waste, and reduces use of water. It is a three-step process dealing with human excreta, containment, sanitization and recycling. In practice, eco-sanitation includes options such as flush-free (and odor-free) urinals, separation toilets for urine and feces, dry and composting toilets, dehydration devices for composting of feces, use of feces or excreta for the

generation of biogas, vacuum sewers and flush systems operating on minimal amounts of water etc.

The hardware of eco-sanitation technologies has been developed in some parts of the world, including both developed and developing countries. Eco-toilet design has to be further modified to fit to the local conditions, if it has to be made acceptable by the people in Bangladesh. Appropriate facilities are to be designed and mass-manufactured, to be made available and affordable, and various solutions - combinations of technologies and modules - need to be found for different social and economic contexts. From technical point of view eco-san is quite feasible in Bangladesh because of favorable climate. There are specific areas where this may be more appropriate. For example, land is very scarce in urban slums and haor areas where people live under sprawling condition. It may also be appropriate in areas where water is scarce such as hill areas/barind region, because eco-san latrines do not need flushing water.

Considering the drawbacks of current sanitation technologies (re: varying local conditions), ecological sanitation has an apparent strong potential to address gaps in sanitation and sustainable scaling-up. And SHEWA-B project envisaged the need for initiatives to try out an action research on ecological sanitation in difficult areas of Bangladesh. The project is being implemented by Practical Action Bangladesh as leading organization in association with Bangladesh Association for Social Advancement (BASA), Society for People's Action in Change and Equity (SPACE) and Commitment Consultants.

2.0 General Design Considerations

The study considered the following conditions in the development of eco-toilet construction designs:

- It could be constructed outside or inside the house.
- Avoid places that are submerged by flood water.
- The lower chamber or the substructure could be elevated to place the containers of excreta.
- The lower chamber should be properly enclosed to minimize infestation of insects and prevent the feces from getting wet.
- It should be provided with enough ventilation.
- It should be provided with access doors for easy retrieval of wastes and maintenance purposes
- Reinforced concrete slab should be preferred. Any other form of flooring materials is also acceptable.
- Any available and appropriate materials could be used for the walls, doors, windows and roof
- There should be a Urine-Diversion bowl and a provision for anal washing.
- It should be wide enough to contain the necessary fixtures and facilities.
- The space should be comfortable enough for the users.
- There should be a separate container for urine and feces and provision for safe discharge of anal cleansing
- The ash/lime or any other absorbent materials should be always available inside or near the toilet.
- There should be a provision for hand washing inside or outside the toilet.
- There should be design provisions to address the special needs of women, children, and disabled people.

2.1.1 Structure

Superstructure

(i) Roofing:

- any impermeable material that could withstand wind and water pressures
- Rice/wheat straw
- C.I. sheets
- Concrete

(ii) Floor:

- concrete
- tiled floor
- epoxy painted concrete
- wood planks (should be properly secured and impermeable)

(iii) Walls:

- bamboo
- Rice/wheat straw
- Brick
- hollow blocks/cement block
- Concrete
- GI sheets
- fiber board
- wood of any material (as long as durable)
- reinforced concrete

2.1.2 Site selection

The followings are major consideration for site selection

- Construct toilet near to house (preferable attached).
- Avoid places where it could be flooded.
- It should be provided with enough ventilation.
- Backside of the toilet should be at South direction
- The space should be comfortable enough
- should be a separate container for urine and faeces

3.0 Typical design of Eco toilet

Eco toilet safely recycles excreta resources (plant nutrients and organic matter) to crop production in such a way that the use of non-renewable resources is minimised. Instead of polluting the environment, human urine and feces are used to improve soil structure and supply nutrients.

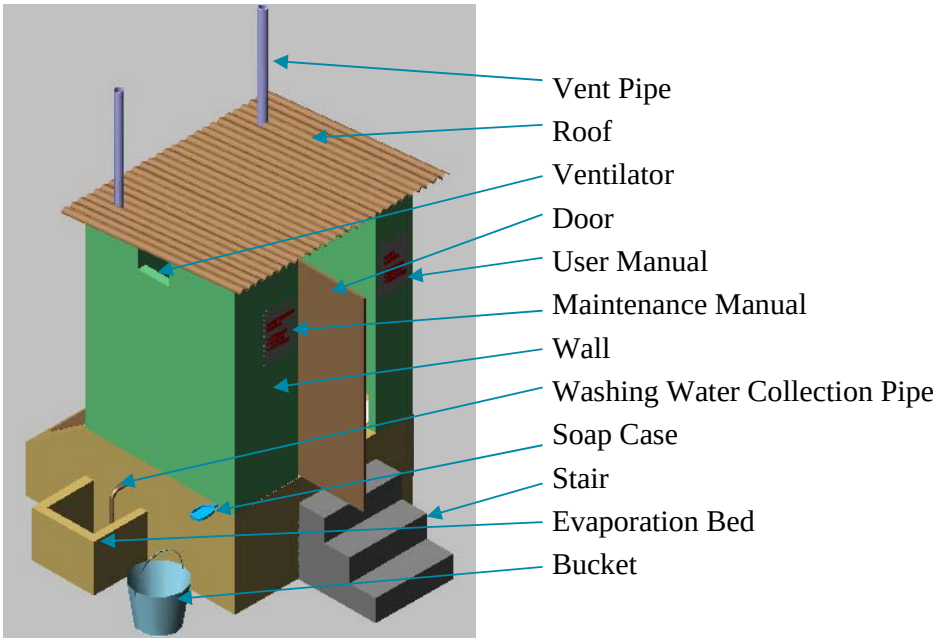


Figure: Outside View

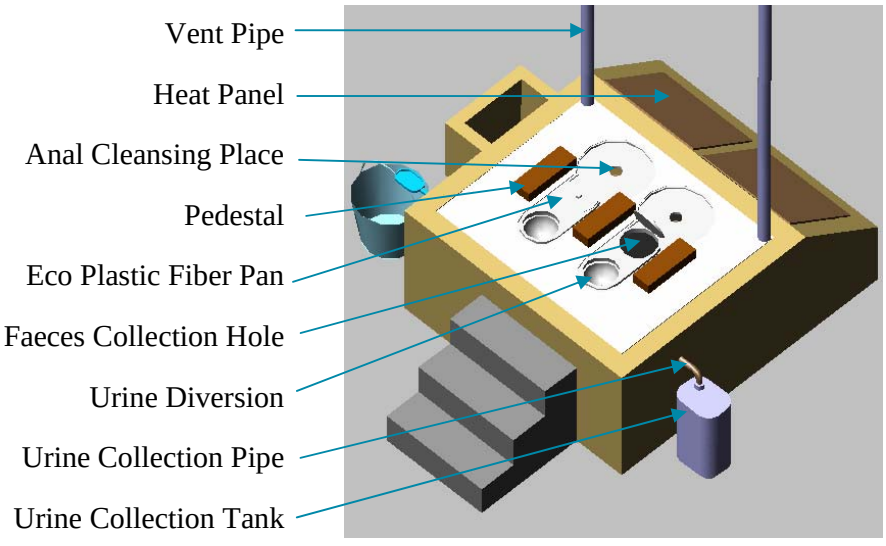


Figure: Internal Components

4.0 Design basics

The approach to developing designs has been Participatory Technology Development (PTD). In addition to our previous work experience in the area of eco-/sanitation, the (target) beneficiaries and stakeholder groups including the Local Government Institutions (LGIs), DPHE and UNICEF field staff were consulted to improve the understanding of local conditions and preferences of the potential users. Accordingly, 11 designs have been developed, particularly in consideration of the following factors:

A. For Hilly Areas:
- Land Slide
- Flash Flood

B. For Barind track:
- Uneven land
- Clayey soil

C. For Flood Prone area:
- Flood level
- Flood duration
- Rail fall
- Loamy soil

D. For Slum area:
- Land Scarcity
- Problem in use of EcoSan product
- Problem in cost sharing

E. For Haor area:
- Long time (6-9 months) water logging
- Flood Level may be 4-5 feet.

Other criteria which have been also considered:
- Individual site condition.
- Material availability.
- Cost sharing

5.0 Suitability of Proposed Options

Toilet Option	Hilly	Barind Track	Flood Prone	Slum	Haor
Fixed Chamber System Using Plastic Fiber Pan	✓	✓	✓	✓	✓
Movable Plastic Drum System Using Plastic Fiber Pan (Single Pan)	✓	✓		✓	
Movable Plastic Drum System Using High Commode (Single Pan)	✓	✓			
Fixed Chamber System Using Modified Traditional Eco Pan	✓	✓	✓	✓	✓
Fixed Chamber System Using Traditional Eco Pan	✓	✓	✓		✓
Movable Plastic Drum System Using Traditional Eco Pan	✓	✓			
Elevated Movable Plastic Drum System with RCC Column			✓		✓
Single Pit Urine Diversion Toilet	✓	✓		✓	
Twin Pit Urine Diversion Toilet	✓	✓	✓	✓	✓
Waste Concern Model using Urine Diversion Pan	✓	✓	✓	✓	✓
Community Based Urine Diversion Toilet with Biogas Plant	✓	✓	✓	✓	✓
Suitable option depending on site	**10**	**10**	**7**	**7**	**7**

6.0 Details Engineering Designs and 3D views

The eleven prototype design has developed on the basis of different geo- hydrological needs:

Option 1 : Fixed Chamber System using Plastic Fiber Pan

Option 2 : Movable Plastic Drum System Using Plastic Fiber Pan (Single Pan)

Option 3 : Movable Plastic Drum System Using High Commode (Single Pan)

Option 4 : Fixed Chamber System Using Modified Traditional Eco Pan

Option 5 : Fixed Chamber System Using Traditional Eco Pan

Option 6 : Movable Plastic Drum System Using Traditional Eco Pan

Option 7 : Elevated Movable Plastic Drum System with RCC Column

Option 8 : Single Pit Urine Diversion Toilet

Option 9 : Twin Pit Urine Diversion Toilet using Urine Diversion Pan

Option 10 : Waste Concern Model using Urine Diversion Pan

Option 11 : Community Based Urine Diversion

Option 1: Fixed Chamber System Using Plastic Fiber Pan

Characteristics

- Two plastic fiber ecopans (alternate use in six month interval), Ecopan separates the faeces, urine, and anal cleansing water
- Two fixed chamber (brick made) for faeces storage.
- Dark black painted GI sheet is used as the heat panel on back of the chamber, Heat panel facilitate the drying of faeces and moisture reduction ensuring heat trapping from sunlight.
- Two vent pipes from two corners are used to remove the odor from the toilet.
- Require 33 square feet of area.
- Substructure should be made of brick.
- Construction cost BDT 12819.00 for brick structure (substructure cost BDT 8369.00) and Cost BDT 11219.00, if superstructure made by Bamboo.

Engineering Design of Option 1

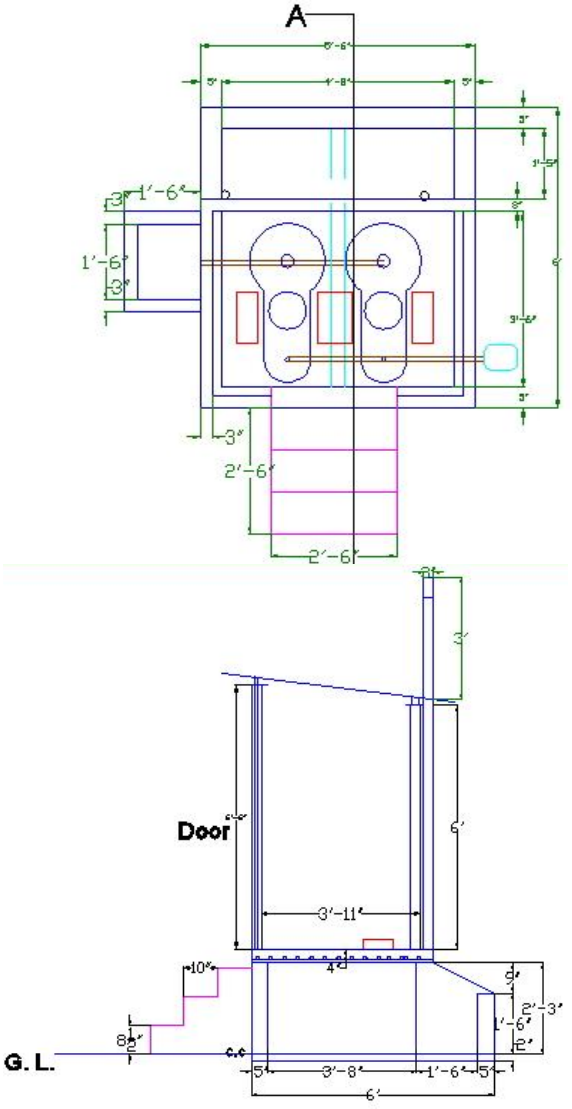
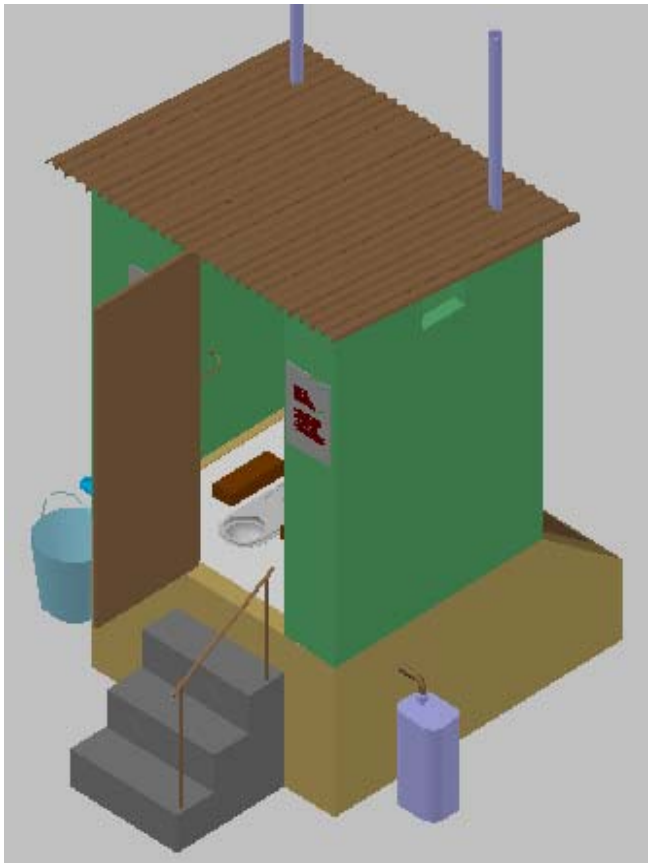
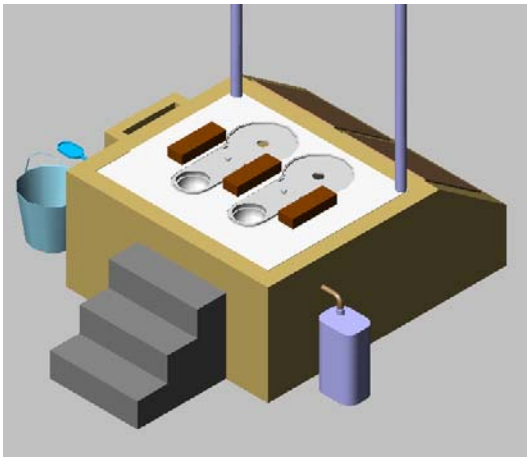


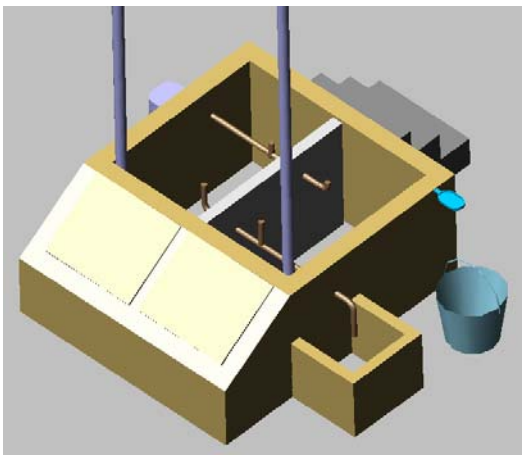
Fig: Section A-A

3-D View of Option 1



3D view of Sub structure





Option 2: Movable Drum System Using Plastic Fiber Pan (Single Pan)

Characteristics

- One plastic fiber ecopan is used (Ecopan will separate the faeces, urine and anal cleansing water)
- Two plastic drums are used instead of fixed chamber (alternate use in six month interval)
- Two vent pipes in two corners have been used to remove the odor from the toilet
- No heat panel is used as faeces store in drum,
- A back door is provided for taking in and out of the plastic drum
- Require 25 square feet of area.
- Bamboo/Mud or other available materials can be us for Substructure of the toilet
- Construction cost BDT 12156.00 for brick structure (substructure cost BDT 7766.00) and
- Cost BDT 10616.00, if superstructure made by Bamboo.

Engineering Design of option 2

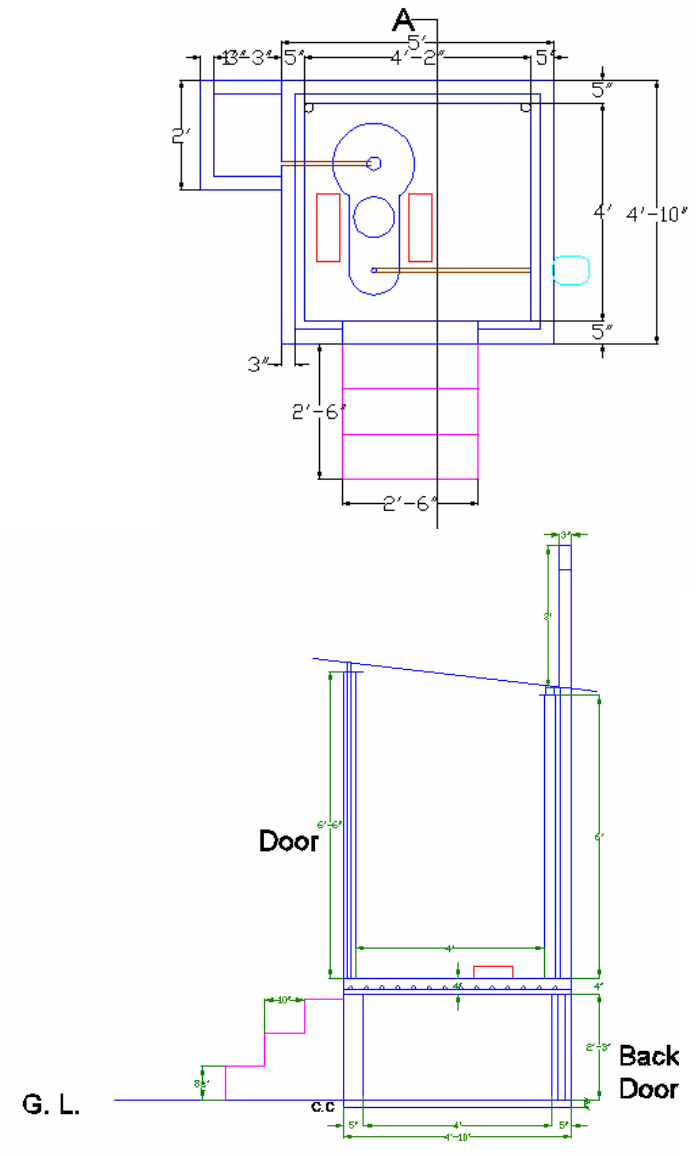
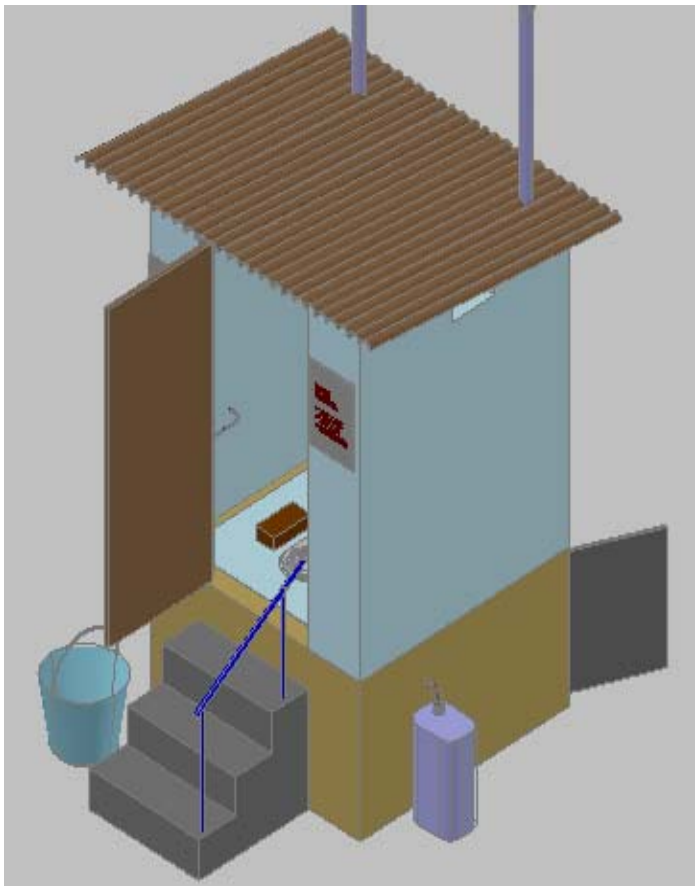
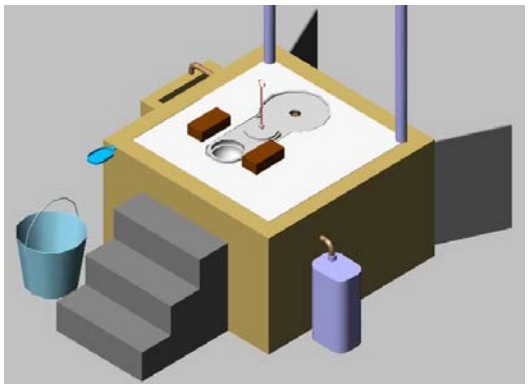


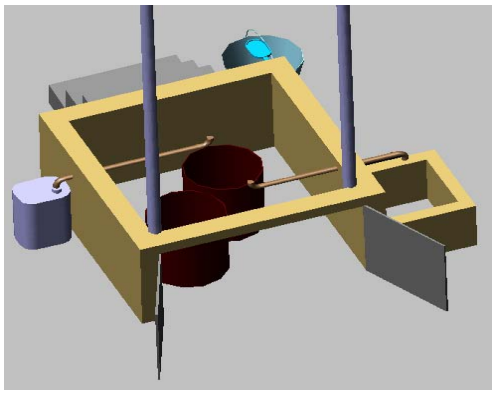
Fig: Section A-A

3D View of option 2



3D View of Super Structure



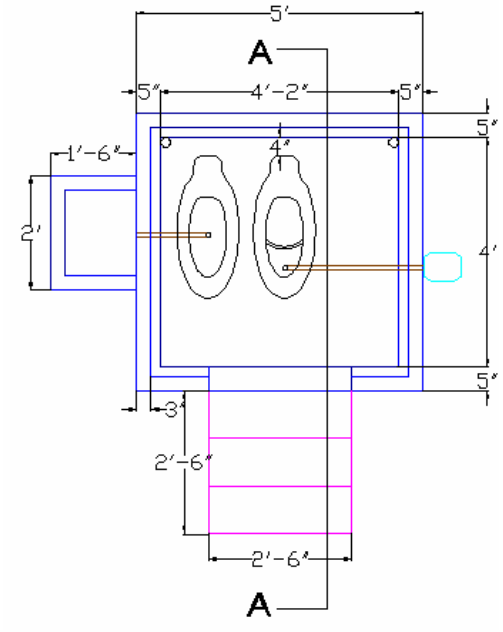


Option 3: Movable Drum System Using High Commode (Single Pan)

Characteristics

- Two special type of high commode is used. One commode uses to divert the urine and collect faeces on drum, another for anal cleansing.
- Two plastic drums are used instead of fixed chamber (alternate use in six month interval).
- Two vent pipes from two corners are used to remove the odor from the toilet.
- No heat panel will be used as faeces store in drum.
- A back door is provided for taking in and out of the plastic drum instead of heat panel.
- Area required to construct is 25 sq feet.
- Construction cost BDT 13146.00 for brick structure (substructure cost BDT 8696.00) and
- Cost BDT 11196.00, if superstructure made by Bamboo.
- Bamboo/Mud or other available materials can be us for Substructure of the toilet.

Engineering Design of option 3



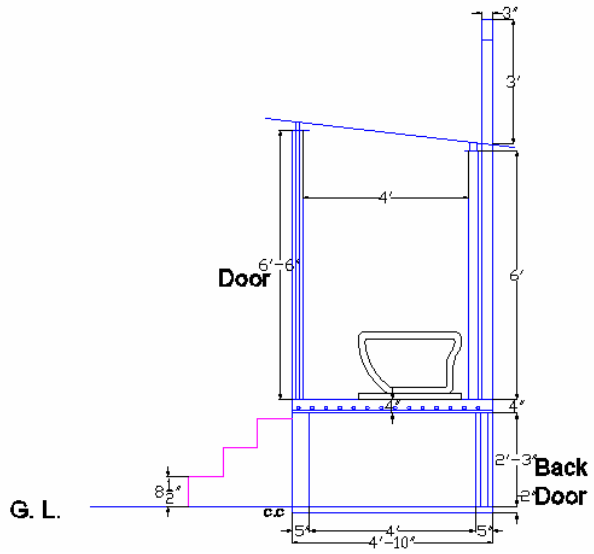
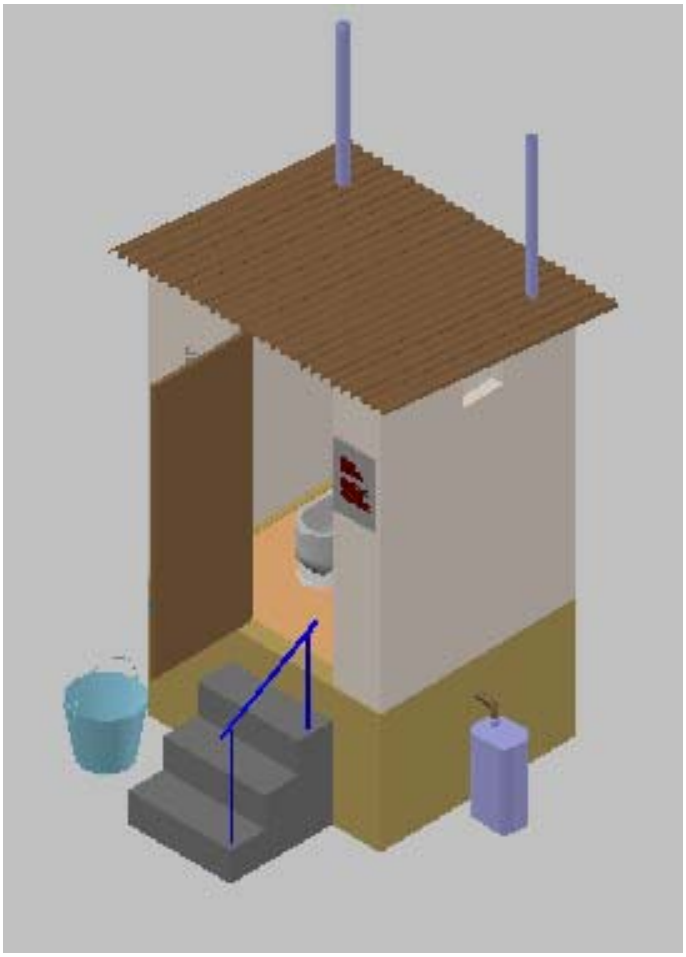
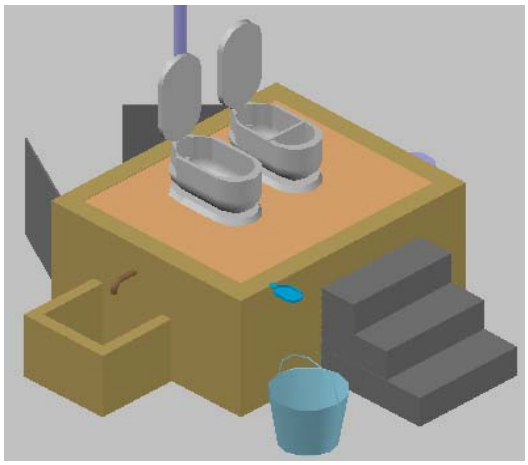


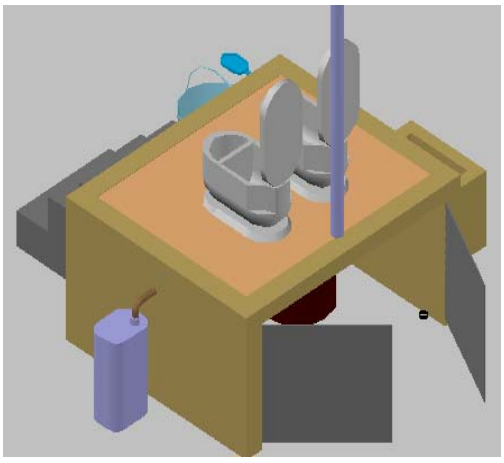
Fig: Section A-A

3D view of Option 3



3D view of Substructure





Option 4: Fixed Chamber System Using Modified Traditional Eco Pan

Characteristics

- Option modified from traditional ecopan introduced by BARD.
- Slab on PL (plinth level) constructed such a way which provides facilities for urinal separation and faces.
- Anal cleansing facility is provided back instead of middle of the slab (it reduce the space requirement).
- Two pans and two fixed chamber is used.
- Two vent pipes in two corners are used removing the odor from the toilet.
- Dark black painted GI sheet is used as the heat panel on back of the chamber.
- Option requires 33 square feet of area.
- Substructure should be made on brick.
- Construction cost BDT 11679.00 for brick structure (substructure cost BDT 7229.00) and
- Cost BDT 10079.00, if superstructure made by Bamboo.

Engineering Design of Option 4

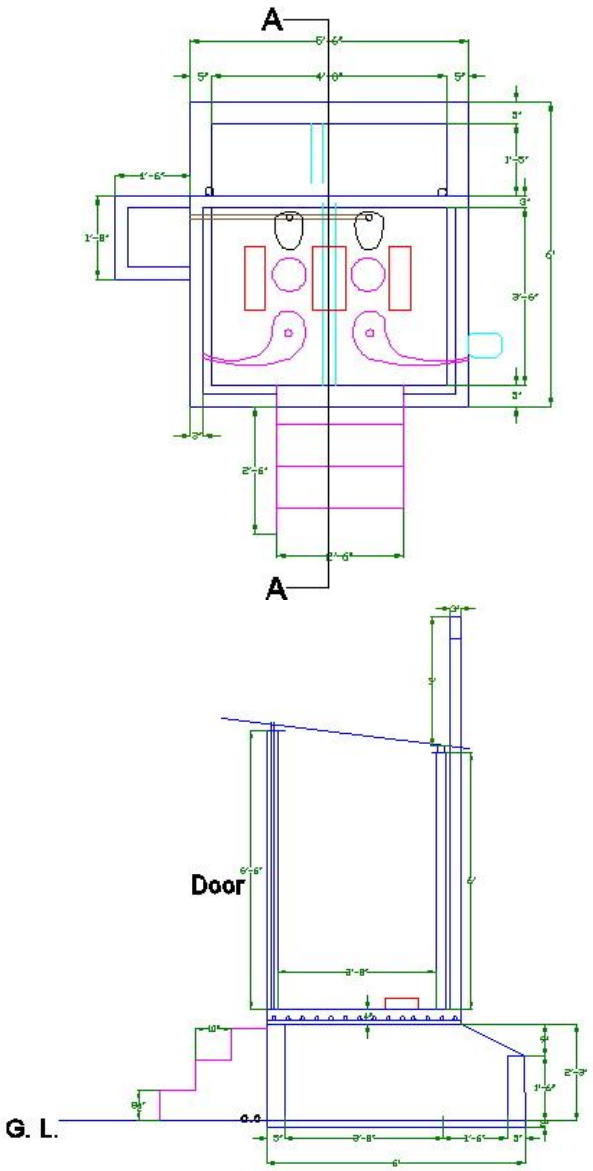
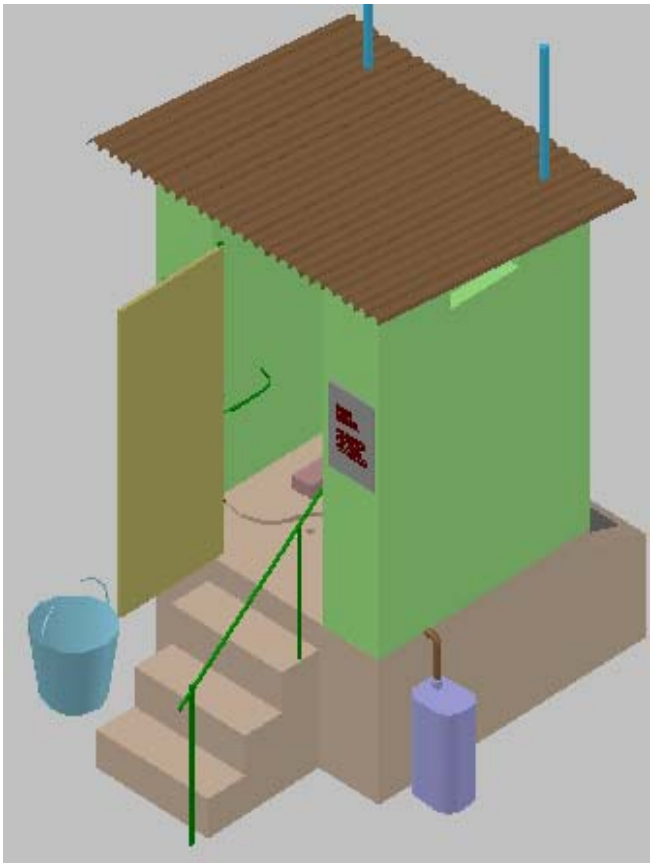
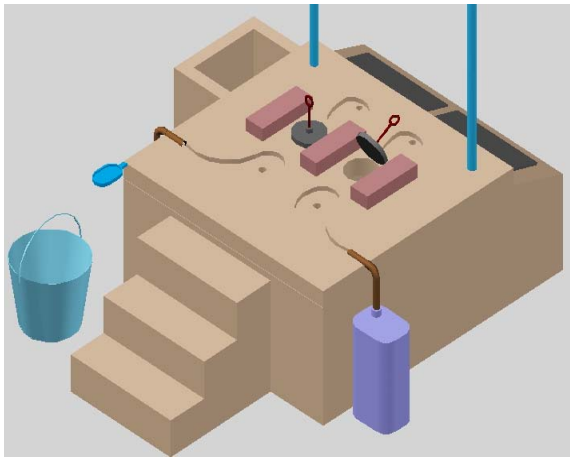


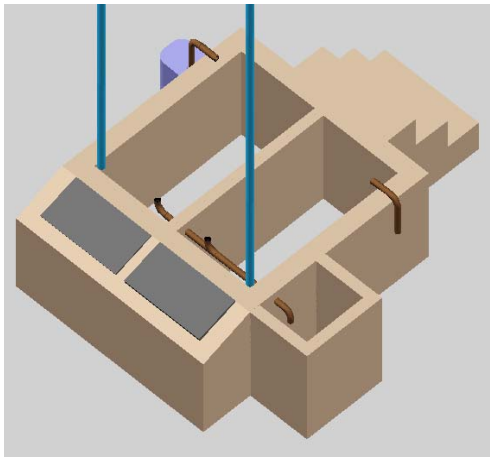
Fig: Section A-A

3D view of option 4



3D view of substructure





Option 5: Fixed Chamber System Using Traditional Eco-Pan

Characteristics

- Traditional eco-toilet.
- Slab on PL (plinth level) constructed such a way which provides facilities for urinal separation and faces.
- Anal cleansing facility is provided middle of the slab two pans and two fixed chamber is used.
- Two vent pipes in two corners are used removing the odor from the toilet.
- Dark black painted GI sheet is used as the heat panel on back of the chamber.
- Option requires 35 square feet of area.
- Substructure should be made on brick.
- Construction cost BDT 12279.00 for brick structure (substructure cost BDT 7789.00) and Cost BDT 10639.00, if superstructure made by Bamboo.

Engineering Design of Option 5

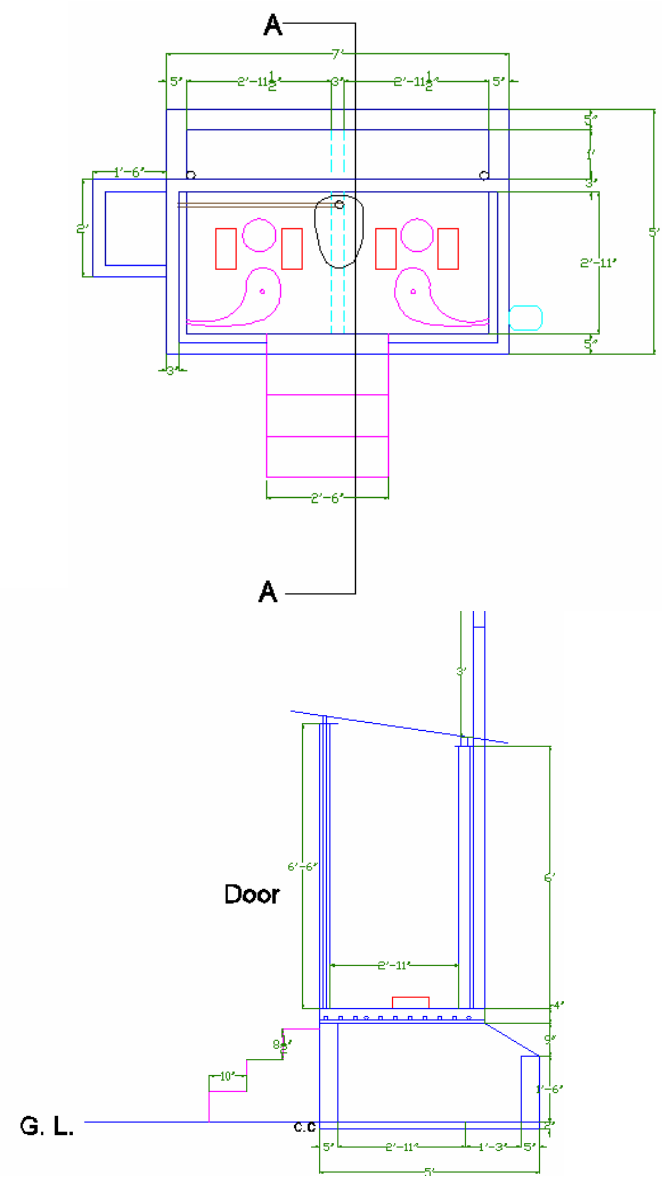
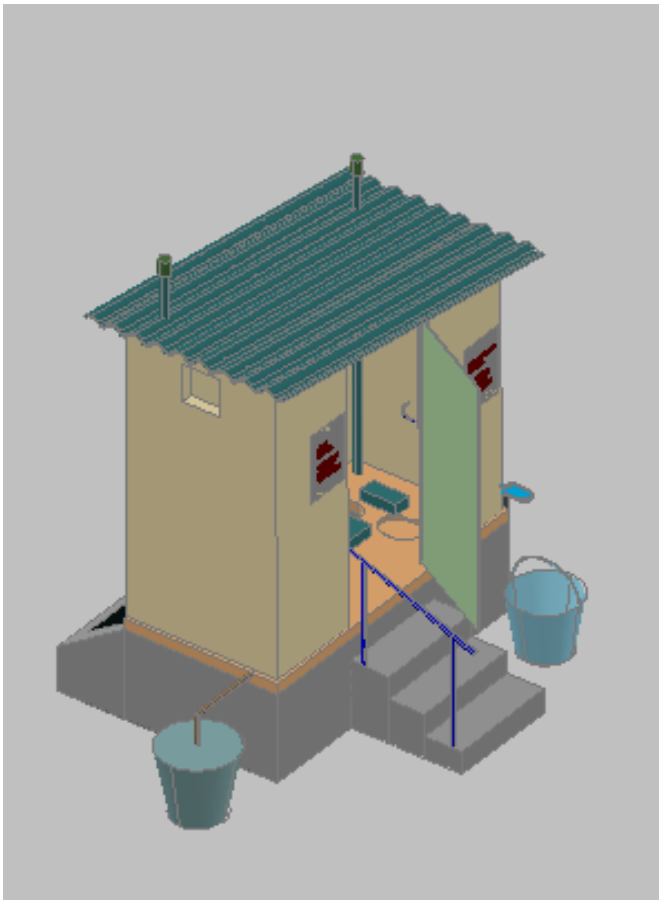
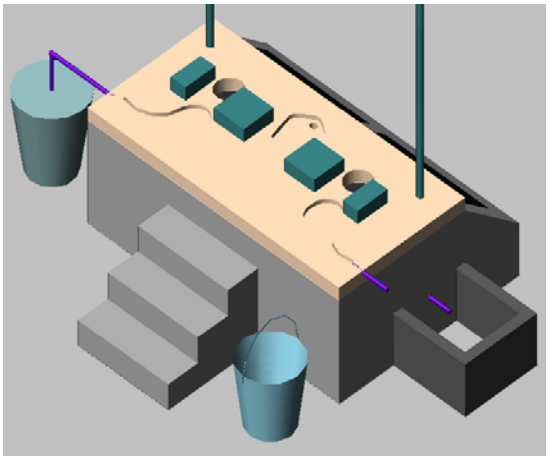


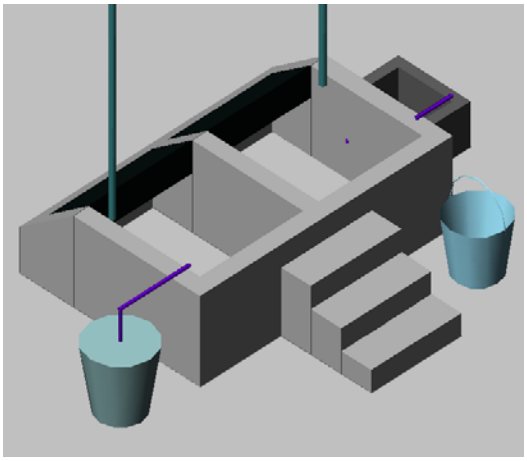
Fig: Section A-A

3D view of option 5



3D view of sub structure





Option 6: Movable Plastic Drum System Using Traditional Eco-Pan

Characteristics

- Option modified from traditional ecopan introduced by BARD.
- Slab on PL (plinth level) constructed such a way which provides facilities for urinal separation and faces.
- Anal cleansing facility is provided back instead of middle of the slab (it reduce the space requirement).
- Two pans and two movable drums are used.
- Two vent pipes in two corners are used removing the odor from the toilet.
- A back door is provided for taking in and out of the plastic drum instead of heat panel.
- Option requires 25 square feet of area.
- Construction cost BDT 12436.00 for brick structure (substructure cost BDT 7946.00) and Cost BDT 10796.00, if superstructure made by Bamboo.
- Bamboo/Mud or other available materials can be us for Substructure of the toilet.

Engineering Design of Option 6

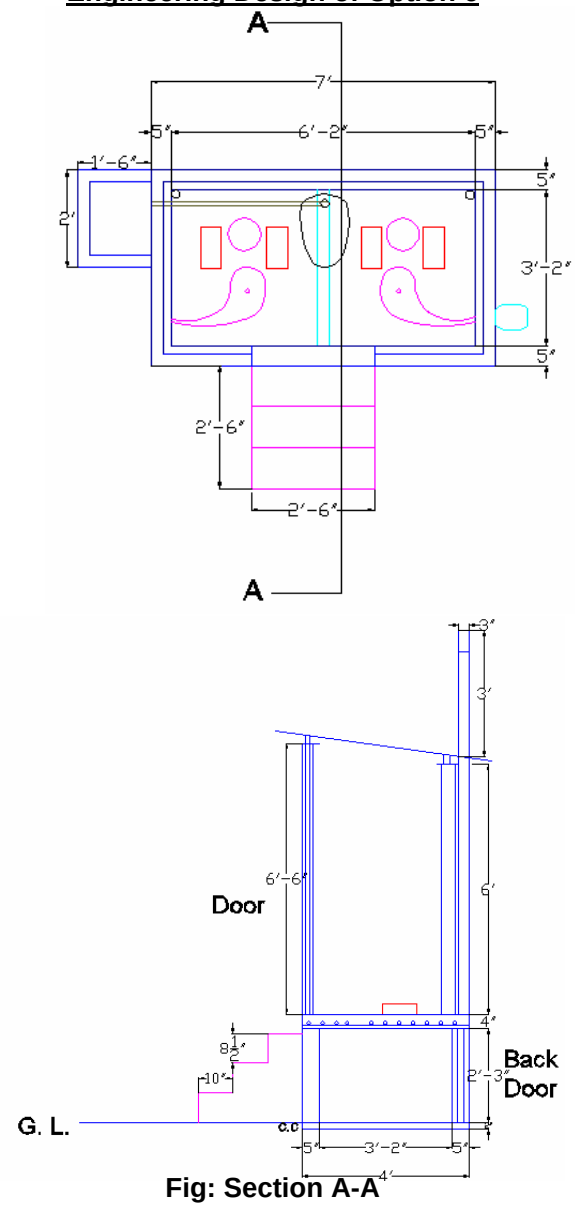
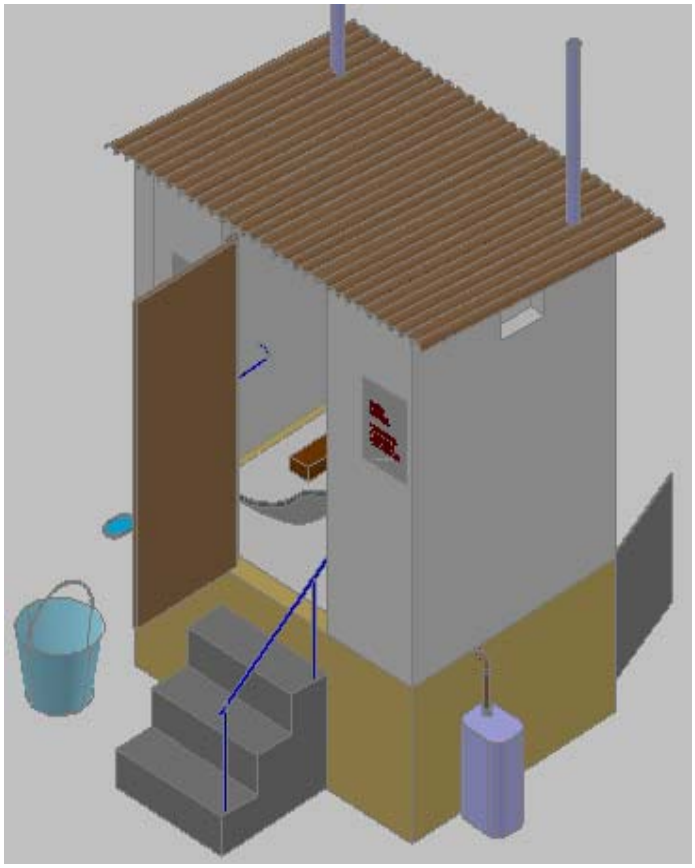
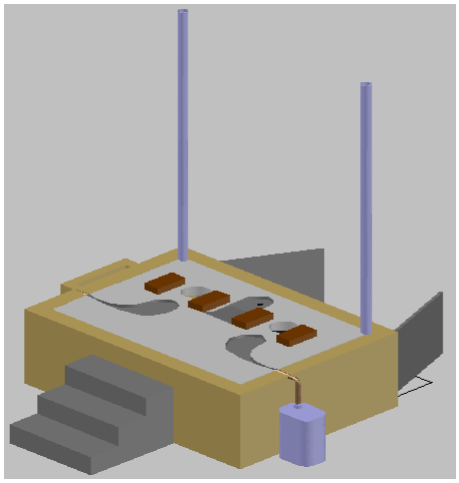


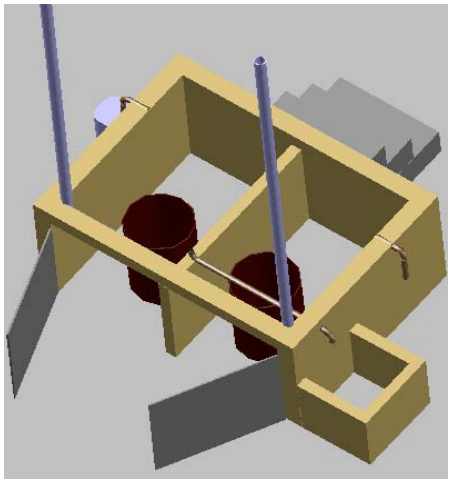
Fig: Section A-A

3D view of option 6



3D view of substructure



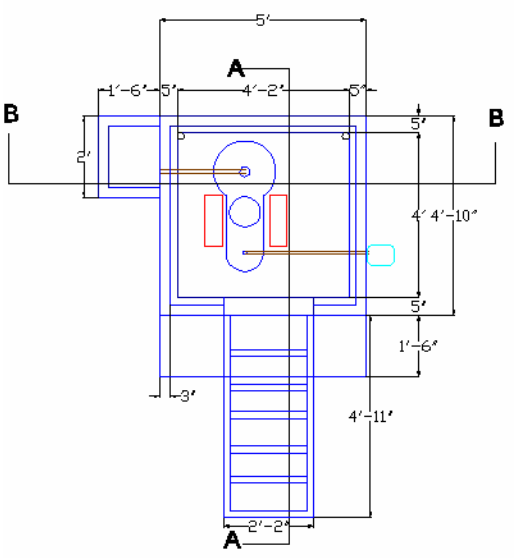


Option 7: Elevated Movable Plastic Drum System with RCC Column

Characteristics

- Option specially designed for haor and flood prone area
- The toilet has an elevated platform by R.C.C column and slab.
- One plastic fiber ecopan and two movable plastic drum is used
- One ladder is provided to reach the elevated platform from ground level.
- No heat panel is used
- A back door provided for taking in and out of the plastic drum instead of heat panel
- This option requires 25 square feet of area.
- Entire structure made by brick and concrete
- Construction cost BDT 17500.00 for brick structure (substructure cost BDT 13110.00) and Cost BDT 15960.00, if superstructure made by Bamboo.

Engineering Design of Option 7



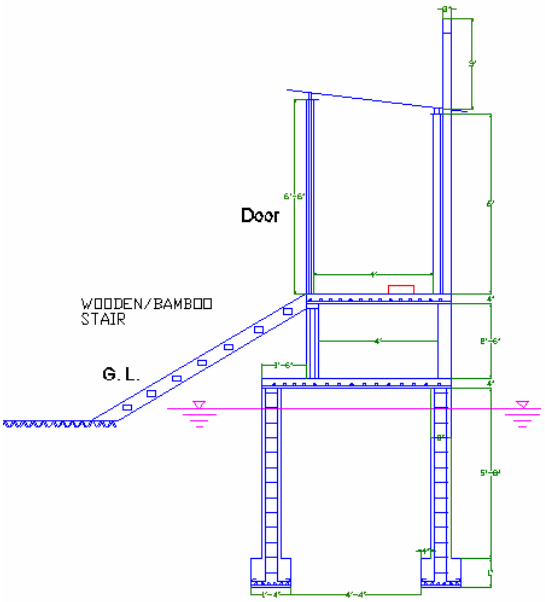


Fig: Section A-A

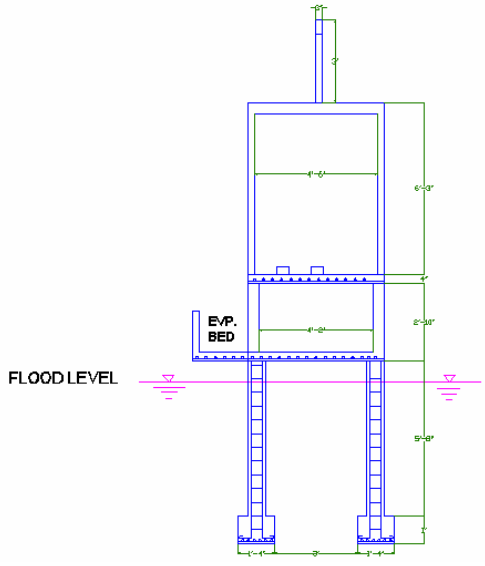
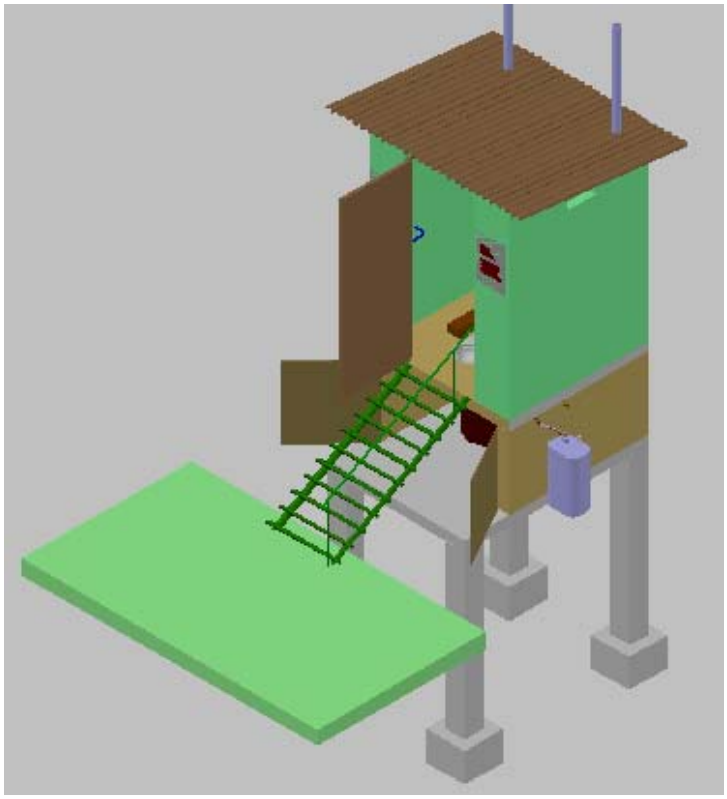
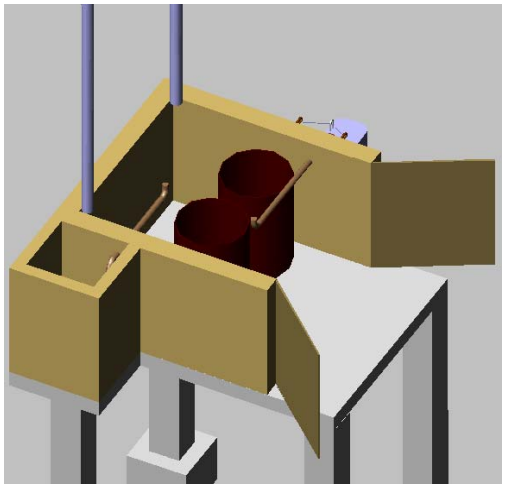


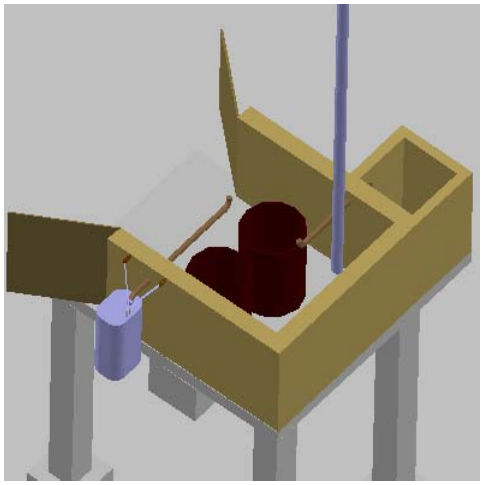
Fig: Section B-B

3D View of option 7



3D view of substructure





Option 8: Single Pit Urine Diversion Toilet

Characteristics

- By definition, it can not be said eco toilet.
- Option specially designed with minimum cost for the poor people.
- One urine diversion pan with water sealing component is used.
- One special pan provides facilities for separation urine and faeces.
- No separate facilities for anal cleansing.
- Faeces and anal cleansing water will go directly to the ring pit (05 nos).
- Vent is provided at the middle of the toilet.
- Urine will go to the urine pot through separate pipeline.
- This option requires 12 square feet of area.
- Cost BDT 5405.00 for bamboo made super-structure.

Engineering Design of Option 8

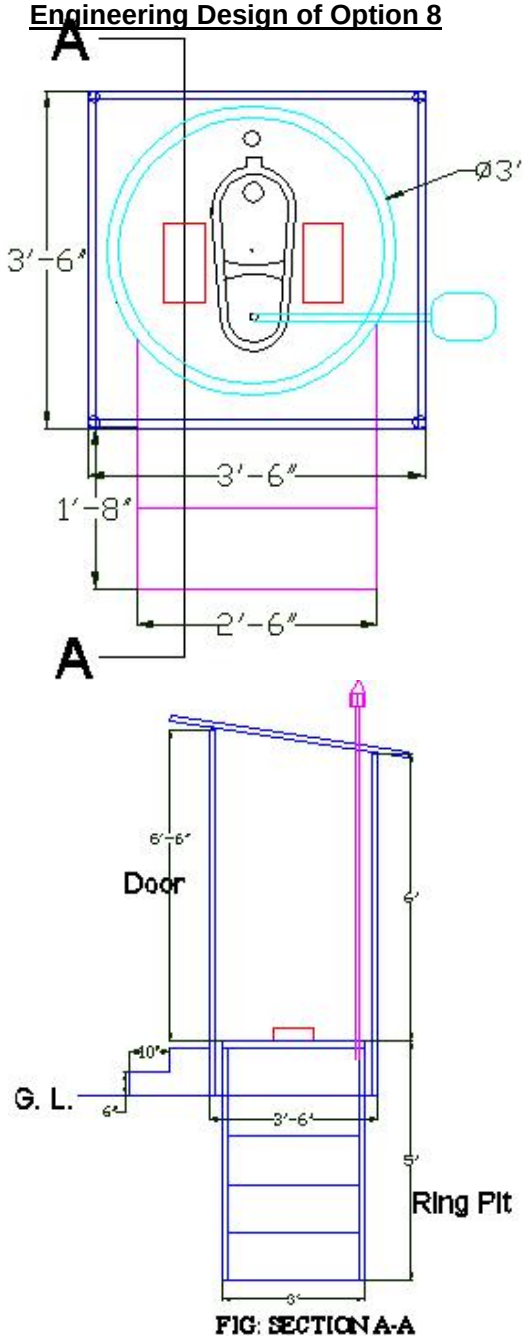
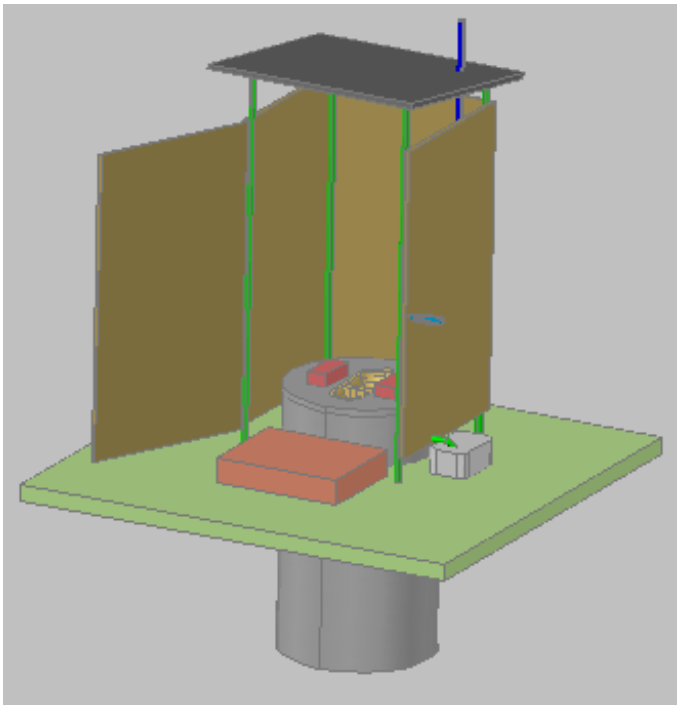
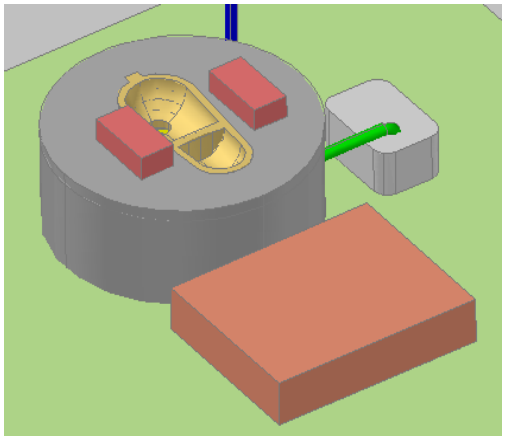


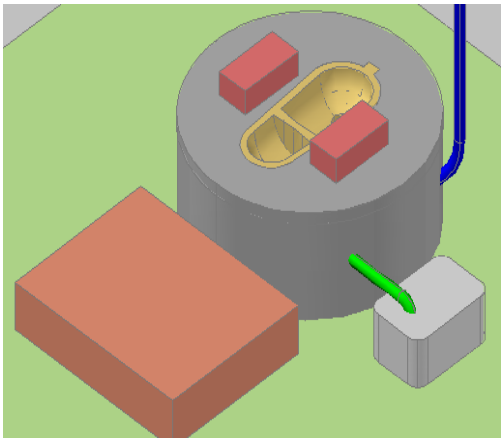
FIG: SECTION A-A

3D view of Option 8



3D view of Substructure



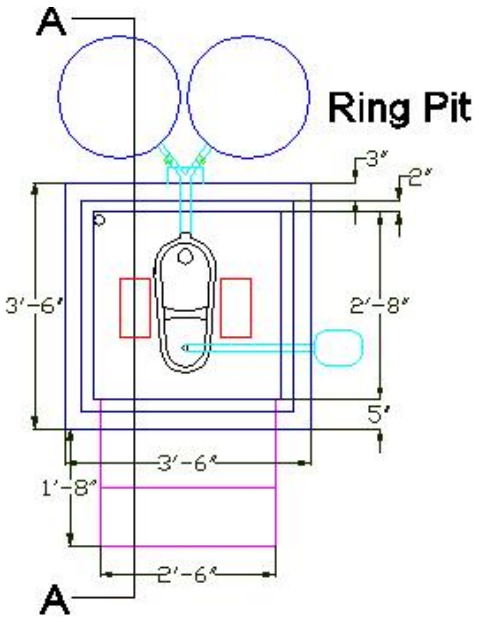


Option 9: Twin Pit Urine Diversion Toilet

Characteristics

- Popularly known as twin pit but little modification that is one special pan provides facilities for separation urine and faeces with water sealing component.
- One urine diversion pan is used for this option.
- No separate facilities for anal cleansing.
- Faeces and anal cleansing water will go directly to the ring pit (10 nos).
- Two ring pits is used alternately in six month interval after filling of one.
- The area required to construct this option is 25 sq feet.
- Construction cost BDT 11200.00 for brick structure (substructure cost BDT 7600.00) and Cost BDT 9220.00, if superstructure made by Bamboo.

Engineering Design of Option 9



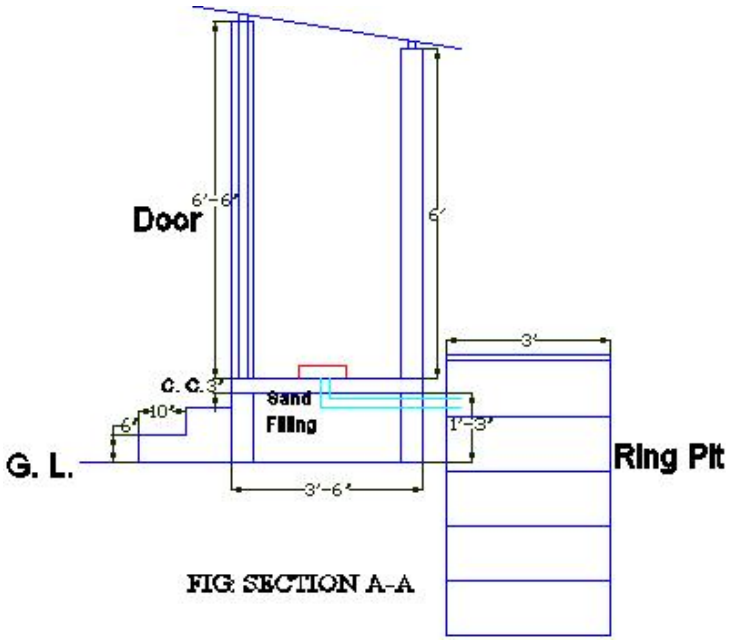
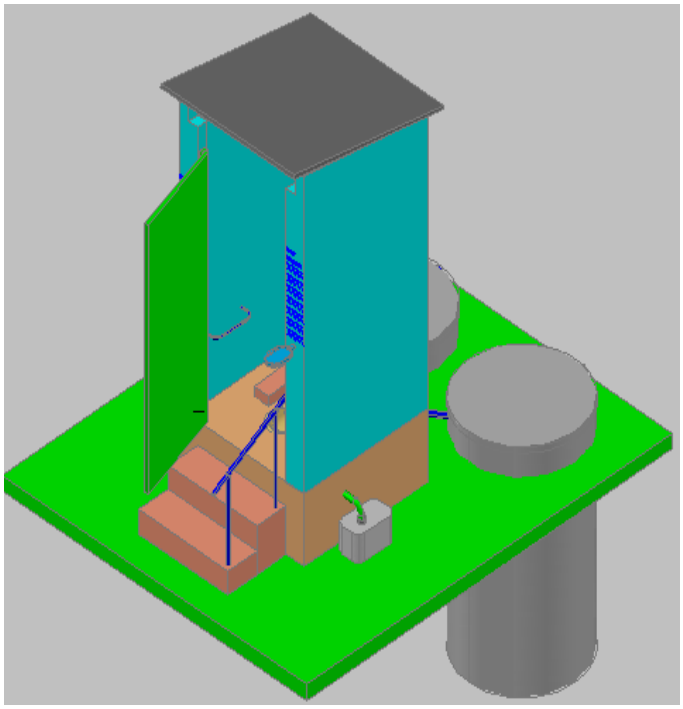
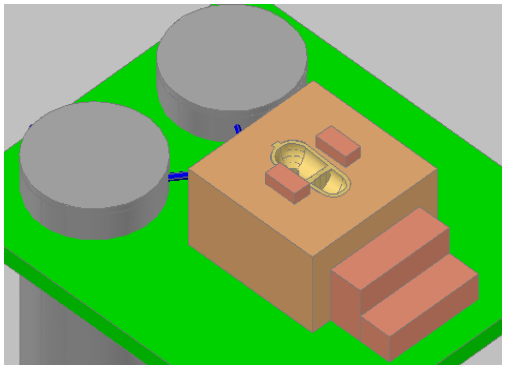


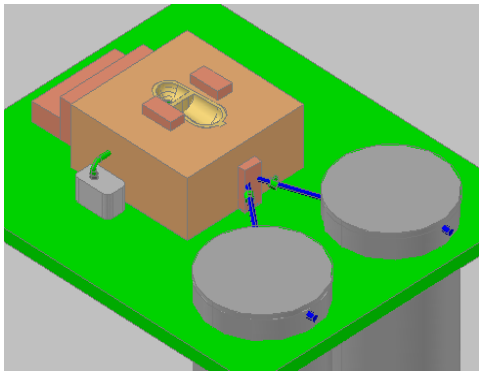
FIG: SECTION A-A

3D view of Option 9



3D view of Substructure





Option 10: Waste Concern Model using Urine Diversion Pan

Characteristics

- UNICEF designed implemented by waste concern.
- Urine will go directly to the urine container by separate pipeline
- Faeces and anal cleansing water goes to the sub-structure chamber.
- Anal cleansing water goes to soak pit through a filter media
- Faces will remain upon on the filter media
- Heat panel is used.
- The area required to construct this option is 30 sq feet.

Engineering Design of Option 10

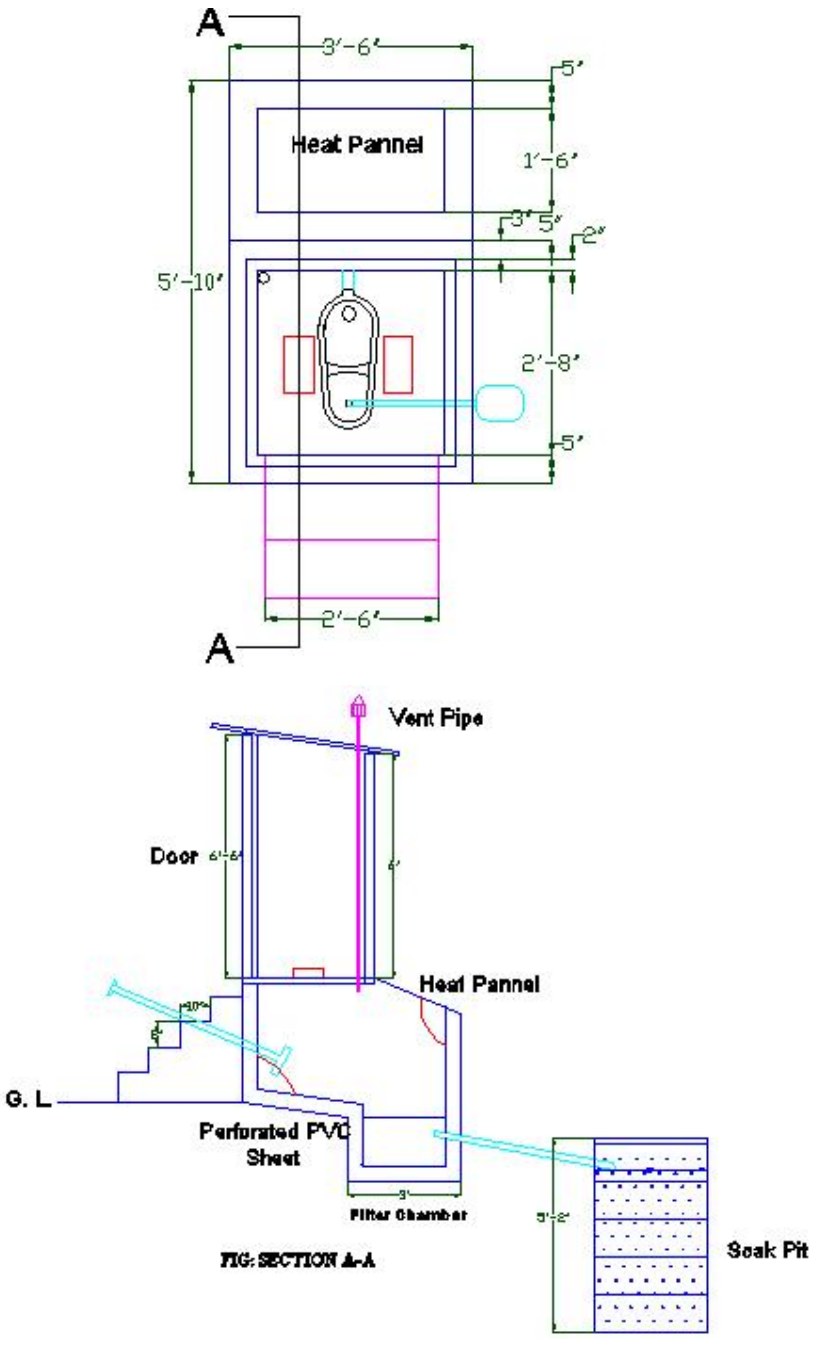


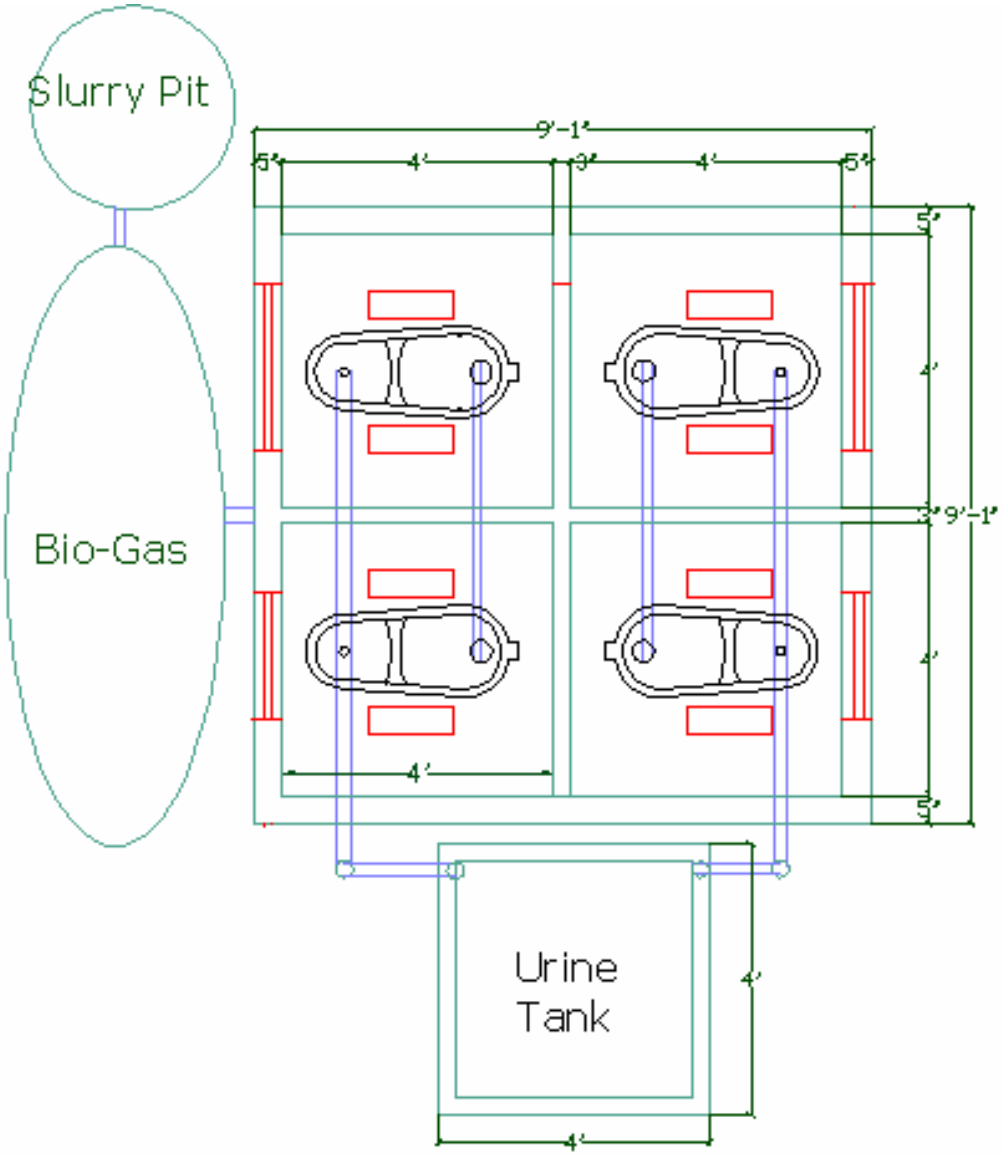
FIG: SECTION A-A

Option 11: Community Based Urine Diversion Toilet with Biogas Plant

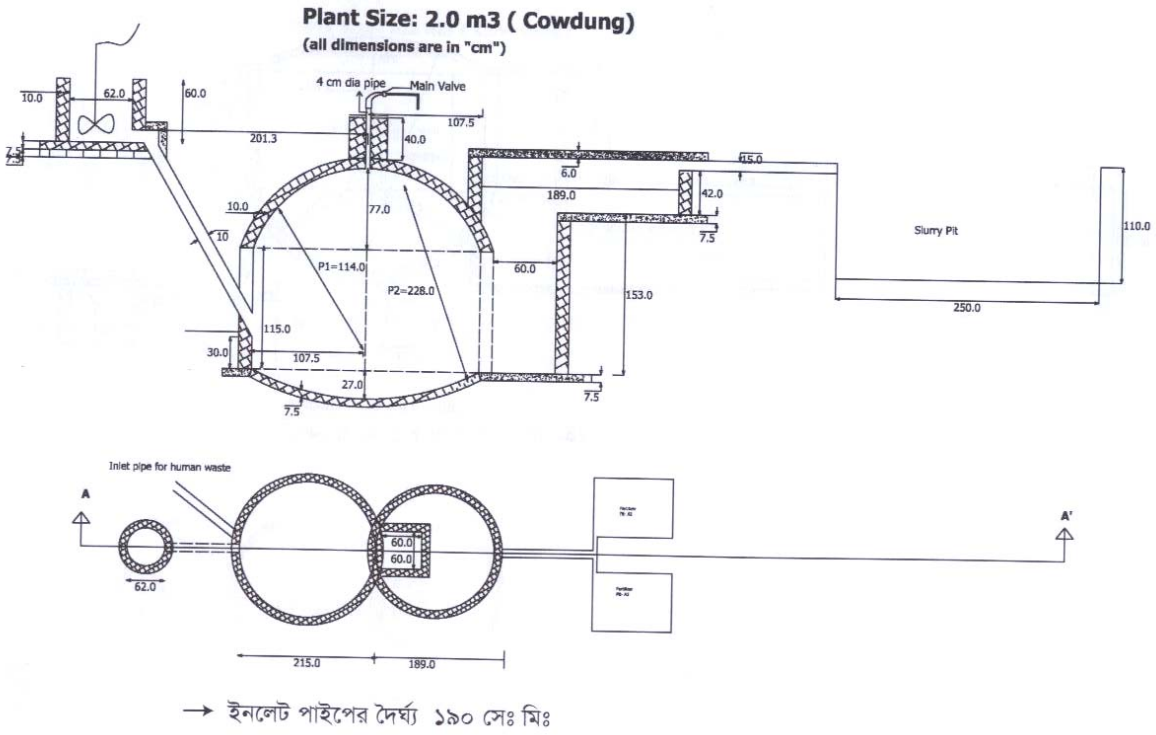
Characteristics

- Community based with biogas facilities
- Design consists of four urine diversion toilet.
- Urine of all toilets goes to the underground urine tank by a common pipeline system
- Faces and anal cleansing water goes to the Biogas inlet chamber by common pipeline
- Decomposed sludge materials is deposited to the slurry pit
- A sock pit facility is also provided.
- The area required to construct this option is 30 sq feet.
- Construction cost BDT 89225.00.

Engineering Design of Option 11



Layout of Bio-gas Plant



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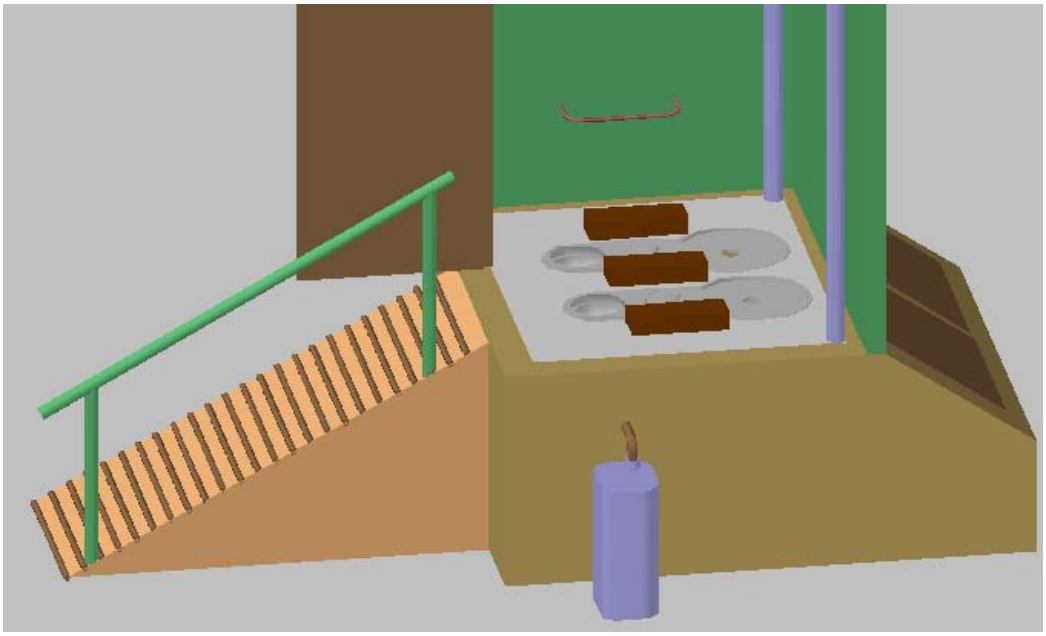
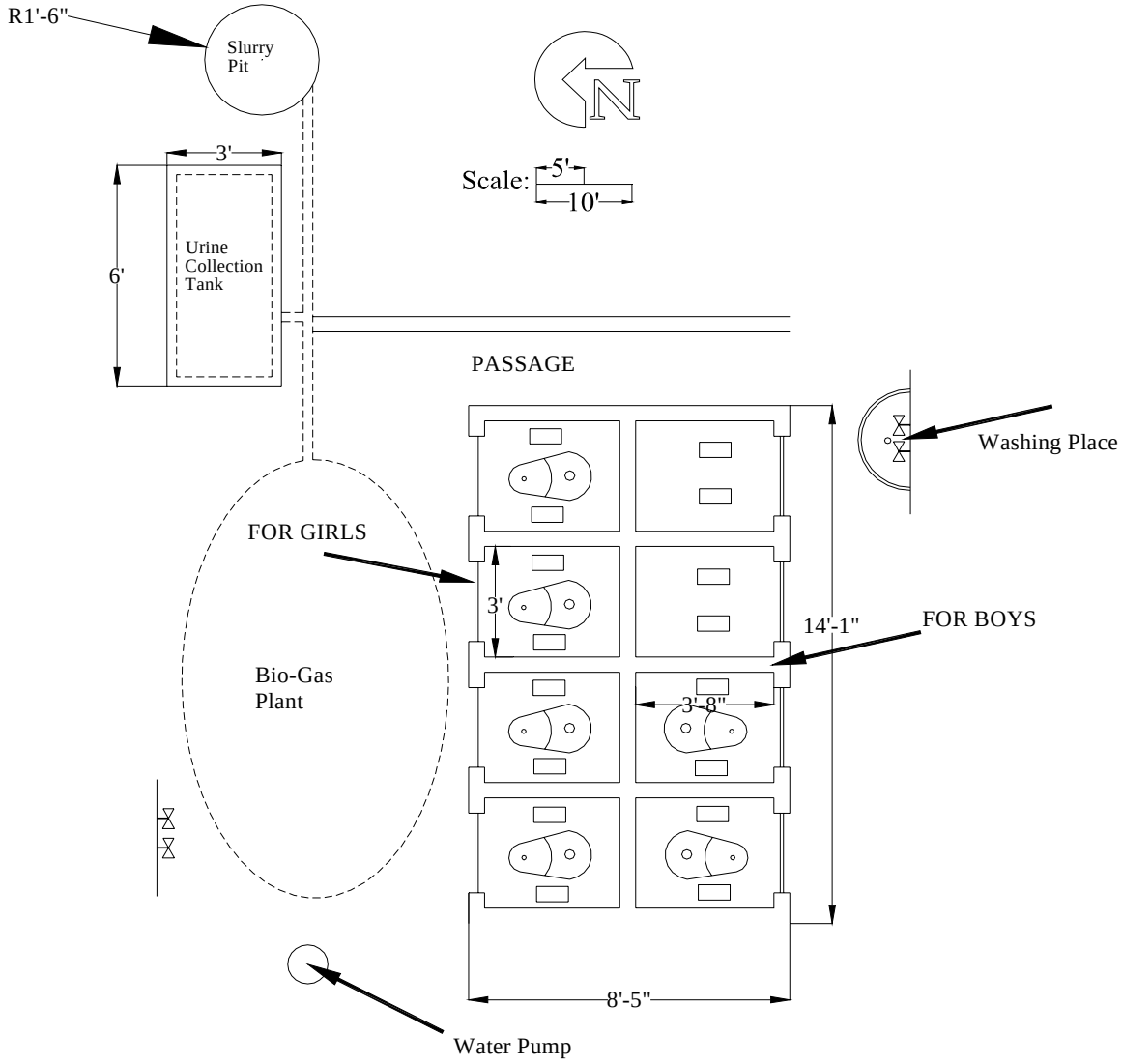
Option addressing Women Special need, Disable issue and Child Friendly

The stair of the toilet has been made sloppy with a railing instead of strip (tread and rise); it will reduce the probability of accident in time of access to the eco-toilet and also provide an access for wheel chair for disable people. There is a handle has been provided in the wall near of the pedestal to make easy movement for anal cleansing and urination. The pedestal size has been increased to 15 inch from 10 inch which will help for moving backward for anal cleansing. Women should use anal cleansing place for urination and anal washing during their menstrual period because this water will directly go to the evaporation bed which will make them free form shy feelings. The face of the women should be behind the door (that means turning to the back wall) in time of using the toilet during menstrual period. This type of criteria has been shown in every design options.



7.0 Design of School Sanitation Block



Proposed Layout

Components:

1. Urine Diversion Toilet- 6 nos. and Urinal- 2 nos.
2. Bio- gas Plant
3. Water Pump and Motor
4. Water Tank
5. Washing Basin

Fig: 3D View without Roof Slab

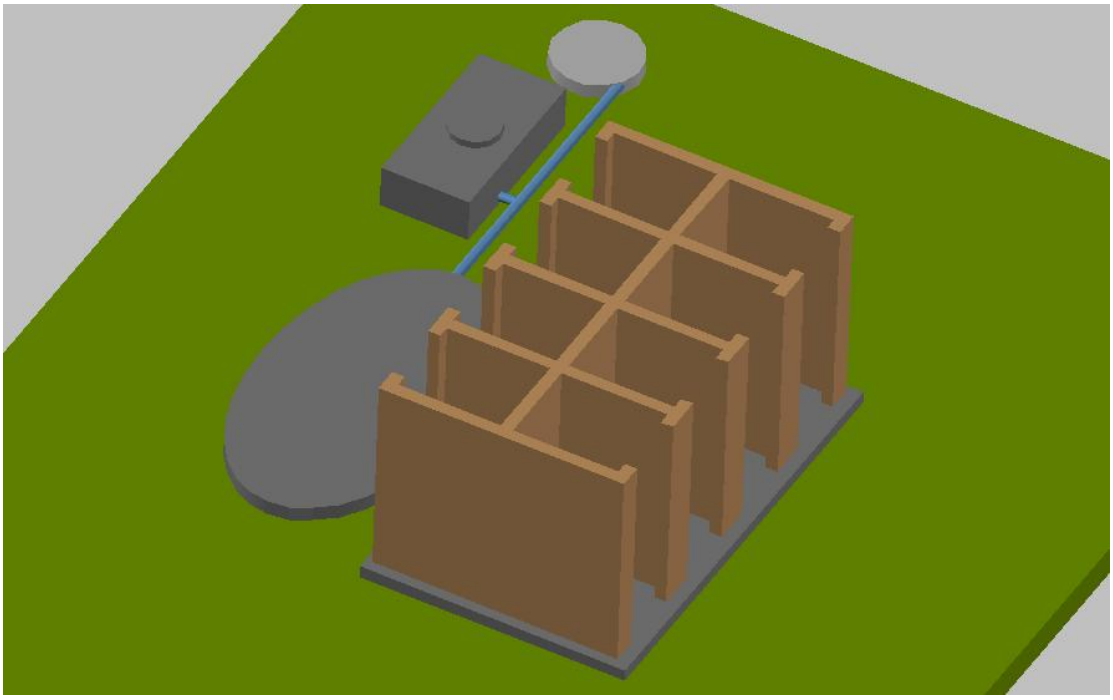
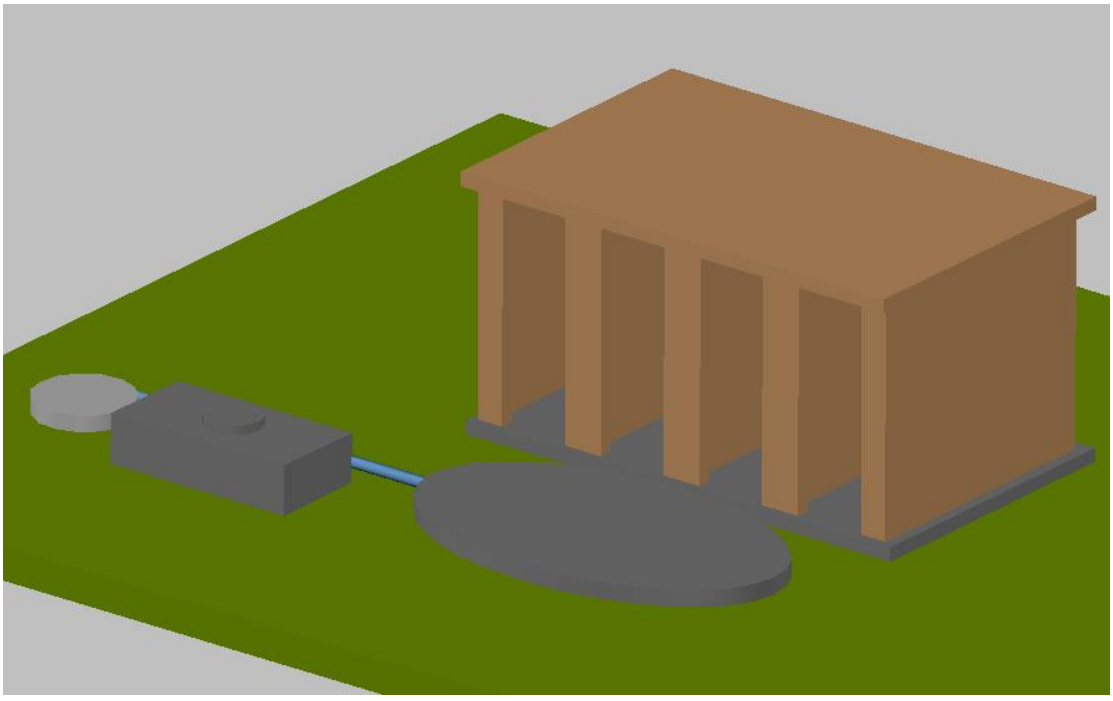


Fig: 3D View with Roof Slab



Details BoQ of School Sanitation Block

S/N	Description	Unit of Measure	Quantity of Materials	Unit Rate	Total Cost
Construction Materials					
1	Site preparation		If Necessary		2000.00
2	Filling Sand (FM-0.80 Minimum)	cft	300	12	3600.00
3	Sand (FM-1.8 Minimum)	cft	750	20	15000.00
4	1st Class Bricks	nos.	7000	5	35000.00
5	1st Class Bricks chips	cft	250	45	11250.00
6	Cement	bags	75	360	27000.00
7	M.S. Rod	kg.	450	53	23850.00
8	Tiles	sft	410	43	17630.00
9	Door (Steel)	nos.	8	2500	20000.00
10	Painting (Doors & Wall)				3000.00
11	Sign Board + Nameplate				2000.00
				Sub-total-1	***160330.00***
Sanitary fittings					
1	4" dia PVC pipe	ft	60	40	2400.00
2	4" dia PVC socket	nos.	10	60	600.00
3	4" dia PVC elbow	nos.	10	60	600.00
4	4" dia PVC T socket	nos.	10	90	900.00
5	Water seal set	nos.	6	100	600.00
6	Beeb(Tap) 6 nos. with basin				1500.00
7	Syphon	nos.	6	120	720.00
8	Pan	nos.	6	800	4800.00
				Sub-total-2	***12120.00***
Boring Cost					
1	Water Tank (1000 Litre)	nos.	1	8000	8000.00
2	Motor + Water Pump (1 hp)	nos.	1	9000	9000.00
3	Boring Materials (2" PVC pipe, Filter etc)				9000.00
				Sub-total-3	***26000.00***
Slurry Pit Cost					
1	Ring	nos.	6	250	1500.00
2	Head	nos.	1	300	300.00
3	8" PVC Pipe	ft	15	130	1950.00
4	Labor Charge for Earth Cutting and Fittings	ft	6	120	720.00
				Sub-total-4	***4470.00***
Electricity Cost					
1	Tube Light	nos.	4	260	1040.00
2	Tar, Screw, Switch, Switch Board, Royal Plug etc.				1460.00
				Sub-total-5	***2500.00***
Labor cost					
1	Mason Charge		Contract		25000.00
2	Sanitary Mason Charge		Contract		11000.00

3	Tiles Mason Charge		Contract		5500.00
4	Paint Labor Charge		Contract		4000.00
5	Boring Mason Charge		Contract		5000.00
6	Electrician Charge		Contract		700.00
				Sub-total-6	***51200.00***

Biogas Plant Cost					
1	1st Class Bricks	nos.	1500	5	7500.00
2	Sand (FM-1.8 Minimum)	cft.	100	20	2000.00
3	1st Class Bricks chips	cft.	40	45	1800.00
4	Cement	bags	16	360	5760.00
	M.S. Rod	kg	40	53	2120.00
5	Stove, 6" PVC Pipe, Flexible Pipe, Elbow, Get Valve etc.				2500.00
6	Earthwork		Contract		3000.00
7	Bio-Gas Mason Charge		Contract		6500.00
				Sub-total-7	***31180.00***
Total Amount (Sub-total 1+2+3+4+5+6+7)					**2,87,800.00**

In words: Taka Two Lac Eighty Seven Thousand and Eight Hundred Only.

8.0 Estimated BoQ of different designs

SL No	Name of Options	Total Cost (BDT)
1	Fixed Chamber System Using Plastic Fiber Pan	12819.00
2	Movable Plastic Drum System Using Plastic Fiber Pan (Single Pan)	12156.00
3	Movable Plastic Drum System Using High Commode (Single Pan)	13146.00
4	Fixed Chamber System Using Modified Traditional Eco Pan	11679.00
5	Fixed Chamber System Using Traditional Eco Pan	12279.00
6	Movable Plastic Drum System Using Traditional Eco Pan	12436.00
7	Elevated Movable Plastic Drum System with RCC Column	17500.00
8	Single Pit Urine Diversion Toilet	5,405.00
9	Twin Pit Urine Diversion Toilet using Urine	11200.00
10	Waste Concern Model using Urine Diversion Pan	-
11	Community Based Urine Diversion	89,225.00

Details BoQ of Option 1:

Items	Specification	Unit of Measure	Unit	Unit cost	Amount in TK.
Sub- Structure (Common Items)					
Brick	Second class	nos.	450	4	1,800
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	25	20	500
M.S. Rod	8 mm@ 8″ C/C	kg	8	53	424
Door	2.5´x6´	no.	1	600	600
Back Cover		nos.	2	200	400
Hardware items		-	-	-	200
				Sub total 1	**4,644**
Sanitary Items Cost					
Eco-Pan		nos.	2	700	1,400
Vent Pipe	3″	ft	15	15	225
Cowl	3″	nos.	2	15	30
Pipe(For anal clinging & urine diversion)	1″	ft	10	15	150
Elbow	1″	nos.	3	10	30
Tee	1″	no.	1	10	10
Flexible pipe	1″	meter	1	30	30
Urine Pot	Transparent	no.	1	150	150
				Sub total 2	**2,025**
Labour Cost					
Mason charge		Contract	-	-	1,500
Roof & Door making		Contract	-	-	200
				Sub total 3	**1,700**
				Total (1+2+3)=A	**8,369**

Super- Structure Made by Brick Wall					
Brick	Second class	nos.	290	4	1,160
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	20	20	400
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Paint & White Cement		kg	5	40	200
Paint (Red Oxide)		kg	0.5	240	120
Mason charge		Contract	-	-	1,000
Paint labour charge		Contract	-	-	150
				Sub total 4	**4,450**
				Total Amount (A+4)	**12,819.00**

Super- Structure Made by GI Sheet (Tin)					
GI Sheet	2.5´x6´	nos.	7	350	2,450
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Wood for Batten	2.5˝ x 2.5˝	cft	2	300	600
Piller/Khuti		nos.	4	250	1,000
Hardware Items		-	-	-	200
Carpenter Charge		Contract			600
				Sub total 5	**5,550**
				Total Amount (A+5)	**13,919.00**
Super- Structure Made by Bamboo Fench					
Bamboo Fench	2.5´x6´	nos.	10	200	2,000
Bamboo		nos.	2	150	300
GI Tar		kg	1.5	100	150
Labour Charge		Contract			400
				Sub total 6	**2,850**
				Total Amount (A+6)	**11,219.00**

Super- Structure Made by Mud					
Mud		Van	4	150	600
Rice Husk		Kg	10	20	200
Bamboo Fench for Roof	2.5´x6´	nos.	2	200	400
Bamboo		nos.	2	150	300
Labour Charge		nos.	4	250	1,000
				Sub total 7	**2,500**
				Total Amount (A+7)	**10,869.00**

Details BoQ of Option 2:

Items	Specification	Unit of Measure	Unit	Unit cost	Amount in TK.
Sub- Structure (Common Items)					
Brick	Second class	nos.	335	4	1,340
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	25	20	500
M.S. Rod	8 mm@ 8″ C/C	kg	7	53	371
Back Door	3.5′ x2.25′	nos.	1	500	500
Door	2.5′x6′	no.	1	600	600
Drum		nos.	2	300	600
Hardware items		-	-	-	200
				Sub total 1	**4,831**
Sanitary Items Cost					
Eco-Pan		nos.	1	700	700
Vent Pipe	3″	ft	10	15	150
Cowl	3″	nos.	1	15	15
Pipe(For anal clinging & urine diversion)	1″	ft	10	15	150
Elbow	1″	nos.	3	10	30
Tee	1″	no.	1	10	10
Flexible pipe	1″	meter	1	30	30
Urine Pot	Transparent	no.	1	150	150
				Sub total 2	**1,235**
Labour Cost					
Mason charge		Contract	-	-	1,500
Roof & Door making		Contract	-	-	200
				Sub total 3	**1,700**
				Total (1+2+3)=A	**7,766**

Super- Structure Made by Brick Wall					
Brick	Second class	nos.	275	4	1,100
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	20	20	400
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Paint & White Cement		kg	5	40	200
Paint (Red Oxide)		kg	0.5	240	120
Mason charge		Contract	-	-	1,000
Paint labour charge		Contract	-	-	150
				Sub total 4	**4,390**
				Total Amount (A+4)	**12,156.00**

Super- Structure Made by GI Sheet (Tin)					
GI Sheet	2.5´x6´	nos.	7	350	2,450
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Wood for Batten	2.5˝ x 2.5˝	cft	2	300	600
Piller/Khuti		nos.	4	250	1,000
Hardware Items		-	-	-	200
Carpenter Charge		Contract			600
				Sub total 5	**5,550**
				Total Amount (A+5)	**13,316.00**
Super- Structure Made by Bamboo Fench					
Bamboo Fench	2.5´x6´	nos.	10	200	2,000
Bamboo		nos.	2	150	300
GI Tar		kg	1.5	100	150
Labour Charge		Contract			400
				Sub total 6	**2,850**
				Total Amount (A+6)	**10,616.00**

Super- Structure Made by Mud					
Mud		Van	4	150	600
Rice Husk		Kg	10	20	200
Bamboo Fench for Roof	2.5´x6´	nos.	2	200	400
Bamboo		nos.	2	150	300
Labour Charge		nos.	4	250	1,000
				Sub total 7	**2,500**
				Total Amount (A+7)	**10,266.00**

Details BoQ of Option 3:

Items	Specification	Unit of Measure	Unit	Unit cost	Amount in TK.
Sub- Structure (Common Items)					
Brick	Second class	nos.	370	4	1,480
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	25	20	500
M.S. Rod	8 mm@ 8″ C/C	kg	7	53	371
Back Door	3.5′ x2.25′	nos.	1	500	500
Door	2.5′x6′	no.	1	600	600
Drum		nos.	2	300	600
Hardware items		-	-	-	200
				Sub total 1	**4,971**
Sanitary Items Cost					
Eco-Pan		nos.	2	700	1,400
Vent Pipe	3″	ft	15	15	225
Cowl	3″	nos.	2	15	30
Pipe(For anal clinging & urine diversion)	1″	ft	10	15	150
Elbow	1″	nos.	3	10	30
Tee	1″	no.	1	10	10
Flexible pipe	1″	meter	1	30	30
Urine Pot	Transparent	no.	1	150	150
				Sub total 2	**2,025**
Labour Cost					
Mason charge		Contract	-	-	1,500
Roof & Door making		Contract	-	-	200
				Sub total 3	**1,700**
				Total (1+2+3)=A	**8,696**

Super- Structure Made by Brick Wall					
Brick	Second class	nos.	290	4	1,160
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	20	20	400
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Paint & White Cement		kg	5	40	200
Paint (Red Oxide)		kg	0.5	240	120
Mason charge		Contract	-	-	1,000
Paint labour charge		Contract	-	-	150
				Sub total 4	**4,450**
				Total Amount (A+4)	**13,146.00**

Super- Structure Made by GI Sheet (Tin)					
GI Sheet	2.5´x6´	nos.	7	350	2,450
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Wood for Batten	2.5˝ x 2.5˝	cft	2	300	600
Piller/Khuti		nos.	4	250	1,000
Hardware Items		-	-	-	200
Carpenter Charge		Contract			600
				Sub total 5	**5,550**
				Total Amount (A+5)	**13,316.00**
Super- Structure Made by Bamboo Fench					
Bamboo Fench	2.5´x6´	nos.	10	200	2,000
Bamboo		nos.	2	150	300
GI Tar		kg	1.5	100	150
Labour Charge		Contract			400
				Sub total 6	**2,850**
				Total Amount (A+6)	**11,546.00**

Super- Structure Made by Mud					
Mud		Van	4	150	600
Rice Husk		Kg	10	20	200
Bamboo Fench for Roof	2.5´x6´	nos.	2	200	400
Bamboo		nos.	2	150	300
Labour Charge		nos.	4	250	1,000
				Sub total 7	**2,500**
				Total Amount (A+7)	**11,196.00**

Details BoQ of Option 4:

Items	Specification	Unit of Measure	Unit	Unit cost	Amount in TK.
Sub- Structure (Common Items)					
Brick	Second class	nos.	450	4	1,800
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	25	20	500
M.S. Rod	8 mm@ 8″ C/C	kg	8	53	424
Door	2.5´x6´	no.	1	600	600
Back Cover		nos.	2	200	400
Hardware items		-	-	-	200
				Sub total 1	**4,644**
Sanitary Items Cost					
Pipe for making Pan	8″	ft	1	120	120
Pan Cover		nos.	2	70	140
Vent Pipe	3″	ft	15	15	225
Cowl	3″	nos.	2	15	30
Pipe(For anal clinging & urine diversion)	1″	ft	10	15	150
Elbow	1″	nos.	3	10	30
Tee	1″	no.	1	10	10
Flexible pipe	1″	meter	1	30	30
Urine Pot	Transparent	no.	1	150	150
				Sub total 2	**885**
Labour Cost					
Mason charge		Contract	-	-	1,500
Roof & Door making		Contract	-	-	200
				Sub total 3	**1,700**
				Total (1+2+3)=A	**7,229**

Super- Structure Made by Brick Wall					
Brick	Second class	nos.	290	4	1,160
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	20	20	400
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Paint & White Cement		kg	5	40	200
Paint (Red Oxide)		kg	0.5	240	120
Mason charge		Contract	-	-	1,000
Paint labour charge		Contract	-	-	150
				Sub total 4	**4,450**
				Total Amount (A+4)	**11,679.00**

Super- Structure Made by GI Sheet (Tin)					
GI Sheet	2.5´x6´	nos.	7	350	2,450
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Wood for Batten	2.5˝ x 2.5˝	cft	2	300	600
Piller/Khuti		nos.	4	250	1,000
Hardware Items		-	-	-	200
Carpenter Charge		Contract			600
				Sub total 5	**5,550**
				Total Amount (A+5)	**12,779.00**
Super- Structure Made by Bamboo Fench					
Bamboo Fench	2.5´x6´	nos.	10	200	2,000
Bamboo		nos.	2	150	300
GI Tar		kg	1.5	100	150
Labour Charge		Contract			400
				Sub total 6	**2,850**
				Total Amount (A+6)	**10,079.00**

Super- Structure Made by Mud					
Mud		Van	4	150	600
Rice Husk		Kg	10	20	200
Bamboo Fench for Roof	2.5´x6´	nos.	2	200	400
Bamboo		nos.	2	150	300
Labour Charge		nos.	4	250	1,000
				Sub total 7	**2,500**
				Total Amount (A+7)	**9,729.00**

Details BoQ of Option 5:

Items	Specification	Unit of Measure	Unit	Unit cost	Amount in TK.
Sub- Structure (Common Items)					
Brick	Second class	nos.	500	4	2,000
Cement	Composite	bags	3	360	1,080
Sand	FM=1.2	cft	25	20	500
M.S. Rod	8 mm@ 8″ C/C	kg	8	53	424
Door	2.5´x6´	no.	1	600	600
Back Cover		nos.	2	200	400
Hardware items		-	-	-	200
				Sub total 1	**5,204**
Sanitary Items Cost					
Pipe for making Pan	8″	ft	1	120	120
Pan cover		nos.	2	70	140
Vent Pipe	3″	ft	15	15	225
Cowl	3″	nos.	2	15	30
Pipe(For anal clinging & urine diversion)	1″	ft	10	15	150
Elbow	1″	nos.	3	10	30
Tee	1″	no.	1	10	10
Flexible pipe	1″	meter	1	30	30
Urine Pot	Transparent	no.	1	150	150
				Sub total 2	**885**
Labour Cost					
Mason charge		Contract	-	-	1,500
Roof & Door making		Contract	-	-	200
				Sub total 3	**1,700**
				Total (1+2+3)=A	**7,789**

Super- Structure Made by Brick Wall					
Brick	Second class	nos.	300	4	1,200
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	20	20	400
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Paint & White Cement		kg	5	40	200
Paint (Red Oxide)		kg	0.5	240	120
Mason charge		Contract	-	-	1,000
Paint labour charge		Contract	-	-	150
				Sub total 4	**4,490**
				Total Amount (A+4)	**12,279.00**

Super- Structure Made by GI Sheet (Tin)					
GI Sheet	2.5´x6´	nos.	7	350	2,450
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Wood for Batten	2.5˝ x 2.5˝	cft	2	300	600
Piller/Khuti		nos.	4	250	1,000
Hardware Items		-	-	-	200
Carpenter Charge		Contract			600
				Sub total 5	**5,550**
				Total Amount (A+5)	**13,339.00**
Super- Structure Made by Bamboo Fench					
Bamboo Fench	2.5´x6´	nos.	10	200	2,000
Bamboo		nos.	2	150	300
GI Tar		kg	1.5	100	150
Labour Charge		Contract			400
				Sub total 6	**2,850**
				Total Amount (A+6)	**10,639.00**

Super- Structure Made by Mud					
Mud		Van	4	150	600
Rice Husk		Kg	10	20	200
Bamboo Fench for Roof	2.5´x6´	nos.	2	200	400
Bamboo		nos.	2	150	300
Labour Charge		nos.	4	250	1,000
				Sub total 7	**2,500**
				Total Amount (A+7)	**10,289.00**

Details BoQ of Option 6:

Items	Specification	Unit of Measure	Unit	Unit cost	Amount in TK.
Sub- Structure (Common Items)					
Brick	Second class	nos.	400	4	1,600
Cement	Composite	bags	3	360	1,080
Sand	FM=1.2	cft	25	20	500
M.S. Rod	8 mm@ 8″ C/C	kg	7	53	371
Back Door	3.5′ x2.25′	nos.	1	500	500
Door	2.5′x6′	no.	1	600	600
Drum		nos.	2	300	600
Hardware items		-	-	-	200
				Sub total 1	**5,451**
Sanitary Items Cost					
Pipe for making Pan	8″	ft	1	120	120
Pan Cover		nos.	2	70	140
Vent Pipe	3″	ft	10	15	150
Cowl	3″	nos.	1	15	15
Pipe(For anal clinging & urine diversion)	1″	ft	10	15	150
Elbow	1″	nos.	3	10	30
Tee	1″	no.	1	10	10
Flexible pipe	1″	meter	1	30	30
Urine Pot	Transparent	no.	1	150	150
				Sub total 2	**795**
Labour Cost					
Mason charge		Contract	-	-	1,500
Roof & Door making		Contract	-	-	200
				Sub total 3	**1,700**
				Total (1+2+3)=A	**7,946**

Super- Structure Made by Brick Wall					
Brick	Second class	nos.	300	4	1,200
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	20	20	400
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Paint & White Cement		kg	5	40	200
Paint (Red Oxide)		kg	0.5	240	120
Mason charge		Contract	-	-	1,000
Paint labour charge		Contract	-	-	150
				Sub total 4	**4,490**
				Total Amount (A+4)	**12,436.00**

Super- Structure Made by GI Sheet (Tin)					
GI Sheet	2.5´x6´	nos.	7	350	2,450
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Wood for Batten	2.5˝ x 2.5˝	cft	2	300	600
Piller/Khuti		nos.	4	250	1,000
Hardware Items		-	-	-	200
Carpenter Charge		Contract			600
				Sub total 5	**5,550**
				Total Amount (A+5)	**13,496.00**
Super- Structure Made by Bamboo Fench					
Bamboo Fench	2.5´x6´	nos.	10	200	2,000
Bamboo		nos.	2	150	300
GI Tar		kg	1.5	100	150
Labour Charge		Contract			400
				Sub total 6	**2,850**
				Total Amount (A+6)	**10,796.00**

Super- Structure Made by Mud					
Mud		Van	4	150	600
Rice Husk		Kg	10	20	200
Bamboo Fench for Roof	2.5´x6´	nos.	2	200	400
Bamboo		nos.	2	150	300
Labour Charge		nos.	4	250	1,000
				Sub total 7	**2,500**
				Total Amount (A+7)	**10,446.00**

Details BoQ of Option 7:

Items	Specification	Unit of Measure	Unit	Unit cost	Amount in TK.
Sub- Structure (Common Items)					
Brick	Second class	nos.	270	4	1,080
Cement	Composite	bags	6	360	2,160
Sand	FM=1.2	cft	25	20	500
Khoa	First Class	cft	30	40	1,200
M.S. Rod	8 mm@ 8″ C/C	kg	35	53	1,855
Back Door	3.5′ x2.25′	nos.	1	500	500
Bamboo		nos.	4	120	480
Door	2.5′x6′	no.	1	600	600
Drum		nos.	2	300	600
Hardware items		-	-	-	200
				Sub total 1	**9,175**
Sanitary Items Cost					
Eco-Pan		nos.	1	700	700
Vent Pipe	3″	ft	10	15	150
Cowl	3″	nos.	1	15	15
Pipe(For anal clinging & urine diversion)	1″	ft	10	15	150
Elbow	1″	nos.	3	10	30
Tee	1″	no.	1	10	10
Flexible pipe	1″	meter	1	30	30
Urine Pot	Transparent	no.	1	150	150
				Sub total 2	**1,235**
Labour Cost					
Mason charge		Contract	-	-	2,500
Roof & Door making		Contract	-	-	200
				Sub total 3	**2,700**
				Total (1+2+3)=A	**13,110**

Super- Structure Made by Brick Wall					
Brick	Second class	nos.	275	4	1,100
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	20	20	400
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Paint & White Cement		kg	5	40	200
Paint (Red Oxide)		kg	0.5	240	120
Mason charge		Contract	-	-	1,000
Paint labour charge		Contract	-	-	150
				Sub total 4	**4,390**
				Total Amount (A+4)	**17,500.00**

Super- Structure Made by GI Sheet (Tin)					
GI Sheet	2.5´x6´	nos.	7	350	2,450
G.I Sheet for Roof	2.5´x6´	nos.	2	350	700
Wood for Batten	2.5˝ x 2.5˝	cft	2	300	600
Piller/Khuti		nos.	4	250	1,000
Hardware Items		-	-	-	200
Carpenter Charge		Contract			600
				Sub total 5	**5,550**
				Total Amount (A+5)	**18,660.00**
Super- Structure Made by Bamboo Fench					
Bamboo Fench	2.5´x6´	nos.	10	200	2,000
Bamboo		nos.	2	150	300
GI Tar		kg	1.5	100	150
Labour Charge		Contract			400
				Sub total 6	**2,850**
				Total Amount (A+6)	**15,960.00**

Super- Structure Made by Mud					
Mud		Van	4	150	600
Rice Husk		Kg	10	20	200
Bamboo Fench for Roof	2.5´x6´	nos.	2	200	400
Bamboo		nos.	2	150	300
Labour Charge		nos.	4	250	1,000
				Sub total 7	**2,500**
				Total Amount (A+7)	**15,610.00**

Details BoQ of Option 8:

Items	Specification	Unit of Measure	Unit	Unit cost	Amount in TK.
G.I Sheet for roof	2.5´x9´	nos.	1	500	500
Door	2.5´x6´	no.	1	700	700
GI Tar		kg	2	90	180
Ring Pit	3' Dia	nos.	5	150	750
Labour for Earthwork	L/S				600
Bamboo Fench	2.5' x6'	nos.	6	150	900
Bamboo		nos.	2	120	240
Labour Charge		nos.	2	150	300
				Sub total	**4,170**
Sanitary Items Cost					
Slab with UD Pan		nos.	1	700	700
Vent Pipe	3″	ft	10	15	150
Cowl	3″	nos.	1	15	15
Pipe for urine Diversion	1.5"	ft	10	15	150
Flexible Pipe	1.5"	ft	1	30	30
Elbow	1″	nos.	3	10	30
Tee	1″	no.	1	10	10
Urine Pot	Transparent	no.	1	150	150
				Sub total	**1,235**
				Total (1+2)	**5,405.00**

Details BoQ of Option 9:

Items	Specification	Unit of Measure	Unit	Unit cost	Amount in TK.
Sub-Structure (Common Items)					
Brick	Second Class	nos.	150	4	600
Cement	Composite	Bags	1	360	360
Sand	F.M-1.2	cft	20	20	400
G.I Sheet for Roof	2.5´x9´	nos.	1	500	500
Door	2.5´x6´	no.	1	700	700
Ring Pit (5+5)	3' Dia	nos.	12	150	1,800
Labour for Earthwork	L/S				1,200
Mason Charge		Contract			1,000
				Sub total 1	**6,560**
Sanitary Items Cost					
UD Pan	PAB Model	nos.	1	700	700
Pipe for urine Diversion	ft	ft	10	15	150
Elbow	1″	nos.	3	10	30
Tee	1″	no.	1	10	10
Urine Pot	Transparent	no.	1	150	150
				Sub total 2	**1,040**
				Total (1+2)= A	**7,600.00**

Super-Structure Made by Bamboo Fench					
Bamboo Fench	2.5' x6'	nos.	6	150	900
Bamboo		nos.	2	120	240
GI Tar		Kg	2	90	180
Labour Charge		nos.	2	150	300
				Sub total 3	**1,620**
				Total Amount (A+3)	**9,220.00**
Super- Structure Made by Brick Wall					
Brick	Second class	nos.	225	4	900
Cement	Composite	bags	2	360	720
Sand	FM=1.2	cft	15	20	300
Paint & White Cement		kg	4	40	160
Paint (Red Oxide)		kg	0.5	240	120
Mason charge		Contract	-	-	1,200
Paint labour charge		Contract	-	-	200
				Sub total 4	**3,600**
				Total Amount (A+4)	**11,200.00**
Super- Structure Made by GI Sheet (Tin)					
GI Sheet	2.5´x6´	nos.	6	300	1,800
Wood for Batten	2.5˝ x 2.5˝	cft	1.5	300	450
Piller/Khuti		nos.	4	200	800
Hardware Items		-	-	-	200
Carpenter Charge		Contract			600
				Sub total 5	**3,850**
				Total Amount (A+5)	**11,450.00**

Details BoQ of Option 11

Items	Unit of Measure	Unit	Unit cost	Amount in TK.
Filling Sand (FM-0.80)	cft	150	12	1800.00
Sand (FM-1.2)	cft	200	20	8000.00
Brick (Second Class)	nos.	2500	4.5	11250.00
Cement	bags	30	360	10800.00
Khoa (Brick Chips)	cft	100	40	4000.00
M.S. Rod	kg	100	53	5300.00
Door	nos.	4	700	2800.00
Tube well Installation	L/S	-	-	5000.00
Painting	L/S	-	-	1200.00
			Sub total 1	**40350.00**
Sanitary Items Cost				
3" dia PVC Pipe	ft	30	30	900.00
3" dia PVC Socket	nos.	4	50	200.00
3" dia PVC elbow	nos.	4	50	200.00
3" dia PVC T Socket	nos.	4	50	200.00
Water Seal set	nos.	4	100	400.00
Pan	no.	4	700	2800.00
			Sub total 2	**4700.00**
Slurry Pit Cost				
Ring (3' dia)	nos.	6	200	1200.00
6" PVC Pipe	ft	10	75	750.00
Labour Charge for Earth Cutting and Fittings	nos.	5	120	600.00
			Sub total 3	**2550.00**
Labour Cost				
Mason charge	Contract	-	-	12000.00
Paint Labour Charge	Contract	-	-	1000.00
			Sub total 4	**13000.00**
Biogas Plant Cost				
Sand (FM-1.2)	cft	100	20	2000.00
Brick (Second Class)	nos.	1350	4.5	6075.00
Cement	bags	15	360	5400.00
Khoa (Brick Chips)	cft	40	40	1600.00
M.S. Rod	kg	40	53	2120.00
Stove, 6" PVC Pipe, Flexible Pipe, Elbow, Get Valve etc	L/S			2000.00
Earthwork	Contract			3000.00
Bio-Gas Mason Charge	Contract			6500.00
			Sub total 5	**28695.00**
			Total Amount (1+2+3+4+5)	**89,225.00**
In Word: Eighty Nine Thousand two Hundred Twenty Five Taka Only				

9.0 Working Schedule for Construction of Eco-Toilet

Works	Day
Earthwork, C.C Casting and Brick Wall for Sub Structure	**1**
Plastering and Net Finishing at Sub- Structure, Stair and Evaporation Bed	**1**
Shattering, R.C.C Casting & Brick Wall for Super Structure up to 3 Feet	**1**
Brick Wall for Super Structure up to Roof Level	**1**
Plastering and Net Finishing at Inner & Outer Wall of Super Structure	**1**
Seven Days Interval for Proper Drying of Wall	
Painting (White Cement), Tin and Door Fitting	**1**
Total	**6 days**

10.0 Conclusion

The all designs developed reflect inter/national experience, local conditions and (particularly) user preferences. The designs might require further modifications during demonstration to address any further condition/ need of the users.

An eco toilet design catalogue (including actual BoQ) will be prepared after incorporating all the modifications/changes observed during demonstration at field level.