



Assessment of Urine-Diversion Dehydration Toilet Designs
with Respect to Construction Materials Used and Associated Costs
Version 1, December 2nd, 2008



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by Dipl. Ing. Martin Wafler

on behalf of German Technical Cooperation Agency (GTZ)



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by Dipl. Ing. Martin Wafler

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ABBREVIATIONS

| | |
|-----------|---|
| AC | Asbestos Cement |
| BOQ | Bill of Quantity |
| CBB | Country Burned Brick |
| CHB..... | Cement Hollow Block |
| CM..... | Cement Mortar |
| CT..... | Composting Toilet |
| ESF | Ecosan Services Foundation (Indian NGO) |
| FC..... | Ferro Cement |
| FRP | Fibre-Reinforced Plastic |
| NGO | Non-Governmental Organisation |
| PCC..... | Plain Cement Concrete |
| PVC | Polyvinyl Chloride |
| RCC..... | Reinforced Cement Concrete |
| RRSM..... | Random Rubble Stone Masonry |
| SLF | Slab Foundation |
| STF..... | Strip Foundation |
| UDD..... | Urine-Diversion Dehydration |

1 OBJECTIVES OF THIS BROCHURE

Various organisations and individuals, amongst them Ecosan Services Foundation (ESF), a Pune-based NGO (non-governmental organisation), are implementing Urine-Diversion Dehydration (UDD) Toilets in India.

The objective of this paper is to assess different UDD-toilet designs with respect to the construction materials used (e.g. country burned bricks, cement hollow blocks, ferro cement, etc.) and their associated construction costs. Optimization and cost estimates are based upon the assessment of various designs of UDD-toilets applied in India and bills of quantity (BOQ).

2 INTRODUCTION

2.1 Urine-Diversion Dehydration Toilets vs. Composting Toilets

In India UDD-toilets are sometimes referred to as „composting toilets” (CT). This is misleading as UDD-toilets and CTs operate in slightly different ways.

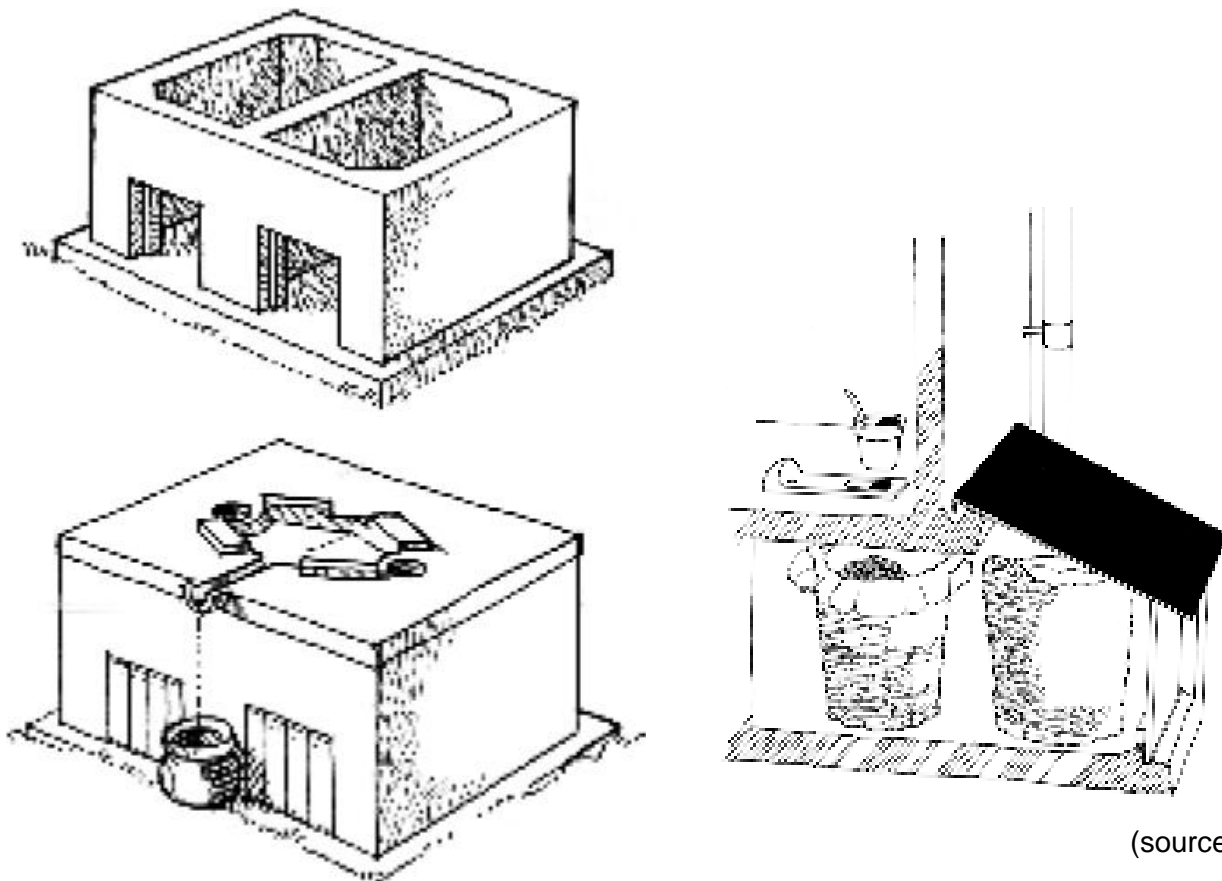
Urine-Diversion Dehydration Toilets:

UDD-toilets divert all liquids (i.e. urine and anal cleansing water, if applicable) from the faeces to keep the processing chamber contents dry. Adding wood ash, lime, etc. after each defecation helps in lowering moisture content and raise the pH. The system thus creates conditions of dryness, raised pH and time for pathogen die-off [1].

Composting Toilets:

In composting toilets human faeces, or in some cases faeces plus urine (and anal cleansing water), are deposited in a processing chamber along with organic household and garden refuse and bulking agents (straw, peat moss, wood shavings, twigs, etc.).

A variety of organisms in the pile break down the solid into humus – just as eventually happens to all organic materials in the natural environment. Temperature, airflow, moisture, carbon materials and other factors are controlled to varying degrees to promote optimal conditions for decomposition. After a certain retention time (normally 6 to 8 months) the partly decomposed material can be moved to a garden compost or an eco-station for secondary processing through high temperature composting [1].



(source: [1])

figure 1: Conceptual sketches of a Double-Vault UDD-toilet (left-hand side) and a Single-Vault UDD-toilet with moveable containers (right-hand side)

2.2 Urine-Diversion Dehydration Toilets

UDD-toilets make use of desiccation (dehydration) processes for the hygienically safe on-site treatment of human excreta. Therefore, if wet anal cleansing habits should prevail in a community, anal cleansing water must be diverted (e.g. by providing a separate washbowl) for practical reasons (figure 2).

There are two distinct types of UDD-toilets viz., Double-Vault UDD-toilets (figure 1, left-hand side) and Single-Vault UDD-toilets (figure 1, right-hand side). In order to facilitate collection of the finished “compost” (desiccated faeces and cover material), the former ones are designed to operate in batches whilst the latter ones provide only one collection cum storage compartment for containment of faeces. Therefore, secondary storage or other types of treatment (e.g. co-composting, etc.) have to be planned for.

In general, UDD-toilets are built entirely above ground to provide for easy access to the processing chambers which are placed on a solid floor of concrete, bricks or clay and the floor is built up to at least 10 cm above ground so that heavy rains do not flood it [1].

2.2.1 Double-Vault Urine-Diversion Dehydration Toilets

Present-day designs of Double-Vault UDD-toilets are based on the Vietnamese Double-Vault Dry Toilet, which was developed in the 1960s by local authorities [1]. Adapted to local needs and climatic conditions (e.g. toilet seats, anal cleansing water diversion, etc.), Double-Vault UDD-toilets have been introduced, amongst other countries, in Bangladesh, China, Ecuador, El Salvador, Guatemala, India, Mexico, the Philippines, South Africa, Sweden, Vietnam, Yemen, but also cold-climate countries such as Mongolia, Nepal and Romania as cost-effective sanitation component in rural, peri-urban and urban settings.

With Double-Vault UDD-toilets faecal matter is collected and stored in twin pit compartments, which are used alternately. Daily deposits are made into one of the compartments. After each use, a handful of cover material (wood ash, saw dust, soil, etc.) is sprinkled over the faeces to absorb moisture and help in speeding up the dehydration process. When "full" (which should take roughly one year), the respective compartment is sealed while the other compartment is put in use. The storage time is counted from the date of the last faecal matter contribution to a compartment, and should be at least 6 months to one year to provide sufficient time for desiccation and hygienization.



(source: UNESCO-IHE) (photo: M. Waffler)

(photo: ESF)

figure 2: Different solutions for source-separate collection of urine, faeces and anal cleansing water: provision of separate wash bowl (left hand side), squatting pan made from PVC or FRP with integrated wash bowl (centre) and pan made from ceramic with separate or integrated wash bowl (right hand side)

Urine and anal cleansing water must be diverted for practical reasons; urine may be collected separately and be applied as nitrogen-rich liquid fertilizer to agricultural land, and water used for anal cleansing may be infiltrated locally into the soil. The finished “compost” can be applied to agricultural land as a soil amendment in order to increase the organic matter content, improve the water-holding capacity and increase the availability of nutrients.

Advantages and limitations of Double-Vault UDD-toilets are summarized in table 1.

table 1: Advantages and limitations of Double-Vault UDD-toilets

| Advantages: | Limitations: |
|---|---|
| <ul style="list-style-type: none"> • suitable for hard rock soil areas, high ground water levels and areas prone to flooding; • no contamination of groundwater sources due to contained processing of human faeces | <ul style="list-style-type: none"> • increased surface area for construction of toilet (compared to Single-Vault UDD-toilet); • possibility of smell if too much liquid (urine, anal cleansing water, etc.) enters the processing compartment |

table 2: Advantages and limitations of Single-Vault UDD-toilets with moveable containers

| Advantages: | Limitations: |
|--|--|
| <ul style="list-style-type: none"> • suitable for hard rock soil areas, high ground water levels and areas prone to flooding; • no contamination of groundwater sources due to contained processing of human faeces; • reduced construction costs (compared to Double-Vault UDD-toilets); • more flexible than Double-Vault UDD-toilets in the communal setting; | <ul style="list-style-type: none"> • regular shifting of containers; • transport of unsanitised human excreta to secondary storage and/or processing site; • possibility of smell if too much liquid (urine, anal cleansing water, etc.) enters the processing compartment; |

2.2.2 Single-Vault UDD-toilets

Single-Vault UDD-toilets, unlike Double-Vault UDD-toilets, provide only one collection cum storage compartment for containment of faeces. Therefore, secondary storage or other types of treatment (e.g. co-composting, etc.) are necessary. The most common design of Single-Vault UDD-toilets is to provide moveable containers. Urine and anal cleansing water diversion is equally important for Single-Vault UDD-toilets as for dehydration toilets with twin compartments.

Advantages and limitations of Single-Vault UDD-toilets are summarized in table 2.

3 BASIC DESIGN ASSUMPTIONS

With Double-Vault UDD-toilets the required volume of each processing compartment depends upon the anticipated number of users, specific storage capacity (i.e. volume of faeces excreted and cover material spent per person per day) and the desired resting period. Specific storage capacity may vary from place to place due to the different amount of faeces excreted and kind and amount of cover material used.

The minimum clear inner dimensions (i.e. length, width, height) of a single processing compartment are set with 1.15, 0.60 and 0.6 metres, respectively. But, depending on the nominal size of construction materials used, actual dimensions of compartments (especially the height) may vary.

Processing compartment volumes of ca. 400 litres provide for a storage time of at least 6 months from the date of the last faecal matter contribution to a compartment if a family of 4 to 5 heads uses the UDD-toilet on a regular basis.

4 CHARACTERISTICS OF DIFFERENT BUILDING MATERIALS AND TECHNOLOGIES

4.1 Strip foundation vs. slab foundation

Two footing types, viz. strip foundations (STF) and slab foundations (SLF) have been assessed. With strip foundations 2 different construction materials are considered (i.e. country burned brick masonry and random rubble stone masonry).

4.1.1 Brick masonry foundation in cement mortar

50 cm wide and 38 cm deep footing trenches have to be excavated for a 35 cm wide country burned brick (CBB) foundation in cement mortar (CM). A trench depth of 38 cm will provide for a 15 cm high Murum layer (at the base) and a 25 cm high brick foundation.

4.1.2 Random rubble stone masonry foundation in cement or mud mortar

Random rubble masonry is extensively used as foundation at places where stones are readily available and an 18" (45 cm) foundation base is adequate for most soils and single or double storey buildings [2].

40 cm wide and 50 cm deep footing trenches are excavated for a 40 cm wide random rubble stone masonry (RRSM) foundation in cement or mud mortar.

4.1.3 Plain cement concrete slab foundation

The area to be excavated for providing a slab foundation has to exceed the projected outer dimension of the superstructure of the toilet by 10 cm on all sides. Excavation has to be done to a depth of 15 cm. The excavated area is filled with Murum (15 cm height) on top of which the plain cement concrete (PCC) slab is cast in-situ. The size of the PCC slab must exceed the projected outer dimension of the superstructure of the toilet by at least 5 cm on all sides. The height of the PCC slab is set with 10 cm.

4.2 Country burned brick masonry vs. cement hollow block masonry, Ferro Cement and sun-dried Adobe bricks

For construction of the processing chambers and the superstructure four main construction materials are considered (i.e. country burned bricks, cement hollow blocks, Ferro Cement and sun-dried Adobe bricks).

4.2.1 Single-brick masonry in cement mortar

With CBB having nominal size of ca. 230 x 110 x 70 mm (9" x 4" x 3"), single-brick masonry walls have a nominal thickness of 230 mm.

4.2.2 Half-brick masonry in cement mortar

Half-brick masonry walls have a nominal thickness of 110 mm using CBB having a nominal size of ca. 230 x 110 x 70 mm (9" x 4" x 3").

4.2.3 Cement hollow block masonry in cement mortar

Cement hollow blocks (CHB) come in different sizes (e.g. 290 x 100 x 190 mm, 290 x 150 x 190 mm, 290 x 200 x 190 mm, 390 x 100 x 190 mm, 390 x 150 x 190 mm, 390 x 200 x 190 mm, etc.). Nominal size of CHBs considered in construction of the UDD-toilet is ca. 290 x 100 x 190 mm.



(source: <http://www.dancement.co.in/>)

figure 3: Cement hollow block (left-hand side) and cement solid block (right-hand side)

4.2.4 Ferro Cement

Ferro cement is basically a 3:1 sand and cement mixture with chicken wire used as rebar.

4.2.5 Sun-dried mud brick masonry in mud mortar

Earth has always been the most widely used material for building in India and is a part of its culture. Traditionally, mud wall construction varies enormously with topography, climatic conditions and needs of different regions. The common methods used for earth construction are cob, wattle and daub, rammed earth, adobes or “sun-dried mud bricks” and cut blocks.

table 3: Composition of soils that make good adobe brick

| Soil Texture Name | Sand [%] | Clay [%] | Silt [%] |
|-------------------|----------|----------|----------|
| Loamy Sand | 70 to 85 | 0 to 15 | 0 to 30 |
| Sandy Loam | 50 to 70 | 15 to 20 | 0 to 30 |
| Sandy Clay Loam | 50 to 70 | 20 to 30 | 0 to 30 |

(source: adopted from [3])

Adobe bricks are made of native soil and possibly an organic additive. Desirable soils for brick making are those classified as loamy sands, sandy loams or sandy clay loams. These textural names are given to soils that contain sand, clay, and silt within the ranges of percentages shown in table 3.

Cement, slaked or un-slaked lime, straw, cow dung, gum arabic, sugar and molasses, oil plant juices and bitumen are commonly used stabilisers in adobe production. A special point about cement, lime or oil (e.g. coconut oil) stabilisers is that you may need hardly any stabiliser from the strength and stability point of view, but your mud may easily absorb any dampness or moisture. So in such cases very often only a small amount of stabiliser is enough to prevent this damp absorption [4].

Walls must be plastered for protection from rain and erosion. Experience has revealed that a first layer, with a sand/clay mortar at a 3:1 proportion is best. Its thickness should be just enough to have a flat surface. Then, a finishing coat with a lime mortar (lime/sand = 2:1) is applied with a thickness not exceeding 2 mm [5].

4.3 “Fixed covers” vs. “removable covers”

For sealing the processing compartments two different approaches have been considered. “Fixed covers” come as brick or hollow block masonry and have to be “broken” to get access to the processing compartment (e.g. for removing the finished “compost”), while “removable covers” are non-destructively removable, for e.g. emptying purposes.

4.4 Urine-diversion squatting pan and washbowl

The centrepiece of any UDD-toilet is the urine-diversion pan/pedestal and in case of wet anal cleansing habits an additional washbowl allowing for the diversion of cleansing water.

4.5 Door, jalties and ventilation system

Doorframes are not actually required and avoiding them considerably reduces the cost of timber. The simplest and cost effective door can be made either of a galvanized plain steel sheet fixed on a frame of vertical and horizontal battens or of vertical planks held together with horizontal or diagonal battens. This can be carried by ‘holdfast’ carried into the wall [2].

Pre-cast cement concrete “windows” (so-called jalties) shall provide for light and ventilation of the cubicle.

Each processing compartment must be equipped with a straight ventilation pipe ($\varnothing \geq 110$ mm) that runs above the roof (at least 50 cm), is screened against flies and capped against rain. To avoid that the roof leaks during the rainy season, the vent pipes shall not be installed inside the cubicle but be attached to the outside wall. Like this, they do not penetrate the roof.

5 BRIEF DESCRIPTION OF DIFFERENT UDD-TOILET DESIGNS

Classification of designs is first of all based upon the main construction material (i.e. the construction material of the processing compartments and the superstructure) and secondly upon the kind and type of footing (e.g. PCC slab foundation, RRSM strip foundation, brick masonry strip foundation, etc.).

5.1 Design 1 – Cement hollow block masonry atop slab foundation

Footing:

The footing is made from a 10 cm thick PCC slab that is cast in-situ atop a 15 cm thick layer of Murum. The top of the PCC slab shall protrude at least 10 cm above the surrounding ground, thus preventing stagnant water from entering the processing compartments.

Processing compartments:

The processing compartments are made from 10 cm (4") wide CHBs and provide a volume of ca. 0.4 m³ (i.e. 400 litres) each. The clear length, width and height of each compartment are 1.15, 0.60 and 0.60 metres, respectively.

The elevated squatting platform is made from a pre-cast 7.5 cm (3") reinforced cement concrete (RCC) slab that is fixed atop the processing compartment walls.

The openings for removal of the desiccated material are sealed with CHB masonry. The cover has to be broken for removal of the material and redone again afterwards in order to prevent insects and rainwater from entering the processing compartments. Mud mortar may be used instead of cement mortar.

Neither the inner nor the outer walls of the processing compartments are plastered.

Staircase:

The steps leading to the elevated squatting platform are made from cement solid blocks (CSB, nominal size: 290 x 100 x 190 mm) in cement mortar.

Superstructure (cubicle, door, roof, etc.):

The superstructure, which is 180 to 190 cm in height, is made from 10 cm (4") wide CHBs. Neither the inner nor the outer walls are plastered.

Two jalties provide for light and ventilation of the cubicle.

The door is made from a galvanized plain steel sheet (75 x 180 cm) that is fixed on a wooden frame. The frame is made of wooden battens (50 x 25 mm) and its outer dimensions are 175 by 70 cm.

The roof is made from 2 corrugated asbestos cement (AC) sheets (105 x 150 cm, each) that are fixed between pairs of horizontally laid bamboo sticks (about 5 cm in diameter). The lower bamboo sticks are fixed to the superstructure with steel bar hoops (Ø 6 mm), while the upper sticks are tied to the lower ones using ropes.

Other hardware:

A prefabricated fibre-reinforced plastic (FRP) urine-diversion squatting pan and washbowl are installed for collection of urine in a 20 litres plastic tank and diversion of cleansing water to a planted infiltration bed.

A wall-mounted washbasin is provided inside the toilet for proper washing hands after using the same. The greywater from the washbasin is drained to the same infiltration bed as the cleansing water.

Two buckets (ca. 10 litres capacity, each) are provided inside the toilet. The first is used for storage of cover material that is sprinkled over the faeces after defecation in order to absorb moisture and help in speeding up the dehydration process, the second for storage of water.

5.2 Design 2 – Ferro cement arched superstructure atop cement hollow block masonry processing compartment and slab foundation

Footing:

Refer to chapter 5.1.

Processing compartments:

Refer to chapter 5.1.

Staircase:

Refer to chapter 5.1.

Superstructure (cubicle, door, roof, etc.):

Drawing inspiration from the so called ArchLoo (refer to [6], [7]), a V.I.P. latrine featuring a superstructure in the shape of an inverted catenary arch (i.e. a shape that under equal load distribution is under pure compression), a UDD-toilet superstructure made from FC and allowing for wall thicknesses that can be as low as 25mm has been designed.

The Archloo superstructure is produced by draping (stapling) coarse hessian between two catenary forms (e.g. the front and rear wall of the toilet or two wooden forms). This hessian is then painted with a thin slurry, and then a thin layer of plaster is added. Up to 3 layers of plaster are added, allowing drying time (4 - 7hrs) between layers. Once the outside layer has gone off, the structure is already self supporting, and the wooden forms can be removed [6].

Otherwise, refer to chapter 5.1.

Other hardware:

Refer to chapter 5.1.

5.3 Design 3 – Bamboo superstructure atop cement hollow block masonry and slab foundation

Footing:

Refer to chapter 5.1.

Processing compartments:

Refer to chapter 5.1.

Superstructure (cubicle, door, roof, etc.):

The superstructure and the roof is made from bamboo sticks that are tied together to act as supports for bamboo mats.

Using a plastic tarpaulin, the roof can be rendered waterproof in rainy season.

The door is made from a bamboo mat that is fixed on a wooden frame.

Other hardware:

Refer to chapter 5.1.

5.4 Design 4 – Cement hollow block masonry atop random rubble stone masonry foundation

Footing:

The footing is made from 40 cm wide and 50 cm deep RRSM. The floors of the processing compartments are made from 10 cm thick PCC slabs that are cast in-situ atop 15 cm thick layers of Murum. The top of the PCC slab shall protrude at least 10 cm above the surrounding ground, thus preventing stagnant water from entering the processing compartments.

Processing compartments:

Due to the actual height of the CHBs (see chapter 4.2.3) the clear height of the processing compartments is ca. 0.70 metres.

Otherwise, refer to chapter 5.1.

Staircase:

Refer to chapter 5.1.

Superstructure (cubicle, door, roof, etc.):

Refer to chapter 5.1.

Other hardware:

Refer to chapter 5.1.

5.5 Design 5 – Country burned brick masonry atop slab foundation

Footing:

Refer to chapter 5.1.

Processing compartments:

The processing compartments are made from single-brick masonry (i.e. 23 cm or 9" width) and provide a volume of ca. 0.4 m³ (i.e. 400 litres) each. The clear length, width and height of each compartment are 1.15, 0.60 and 0.60 metres, respectively.

The openings for removal of the desiccated material are sealed with CBB masonry. The cover has to be broken for removal of the material and redone again afterwards in order to prevent insects and rainwater from entering the processing compartments. Mud mortar may be used instead of cement mortar.

Both, the inner and the outer walls of the processing compartments have to be plastered (average thickness of the plaster is set with 4 mm).

Staircase:

The steps leading to the elevated squatting platform are made from CBB in cement mortar.

Superstructure (cubicle, door, roof, etc.):

The superstructure, which is 180 to 190 cm in height, is made half-brick masonry (i.e. 11 cm or 4" width) and the roof is made from 2 corrugated AC sheets (105 x 250 cm, each).

Otherwise, refer to chapter 5.1.

Other hardware:

Refer to chapter 5.1.

5.6 Design 6 – Country burned brick masonry arched superstructure atop country burned brick masonry processing compartment and slab foundation

Footing:

Refer to chapter 5.1.

Processing compartments:

Refer to chapter 5.5.

Staircase:

Refer to chapter 5.5.

Superstructure (cubicle, door, roof, etc.):

Refer to chapter 5.2, but construction material is country burned bricks.

Other hardware:

Refer to chapter 5.1.

5.7 Design 7 – Country burned brick masonry atop brick masonry foundation

Footing:

The footing is made from 35 cm wide and 38 cm deep CBB masonry. The floors of the processing compartments are made from 10 cm thick PCC slabs that are cast in-situ atop 15 cm thick layers of Murum. The top of the PCC slab shall protrude at least 10 cm above the surrounding ground, thus preventing stagnant water from entering the processing compartments.

Processing compartments:

Refer to chapter 5.5.

Staircase:

Refer to chapter 5.5.

Superstructure (cubicle, door, roof, etc.):

Refer to chapter 5.5.

Other hardware:

Refer to chapter 5.1.

5.8 Design 8 – Adobe masonry atop country burned brick masonry processing compartment and brick masonry foundation

Footing:

Refer to chapter 5.7

Processing compartments:

Refer to chapter 5.7

Staircase:

Refer to chapter 5.7

Superstructure (cubicle, door, roof, etc.):

The superstructure, which is 180 to 190 cm in height, is made from adobes of ca. 330 x 150 x 100 mm (13" x 6" x 4") nominal size. Inner and outer walls are plastered for protection from rain and erosion. A first layer, with a sand/clay mortar at a 3:1 proportion is used to provide for a flat surface (average thickness of the plaster is set with 6 mm). Then, a finishing coat with a lime mortar (lime/sand = 2:1) is applied with a thickness not exceeding 2 mm (refer to chapter 4.2.4.).

The roof is made from 2 corrugated AC sheets (105 x 250 cm, each).

Other hardware:

Refer to chapter 5.1.

5.9 Design 9 – Adobe masonry atop random rubble stone masonry foundation

Footing:

The footing is made from 40 cm wide and 50 cm deep RRS in mud mortar. The floors of the processing compartments are made from a 5 cm thick mud layer atop 15 cm thick layers of Murum. The top of the mud slab shall protrude at least 10 cm above the surrounding ground, thus preventing stagnant water from entering the processing compartments.

Processing compartments:

The processing compartments are made from adobes of 9" x 9" x 4" nominal size laid in mud mortar and provide a volume of ca. 0.4 m³ (i.e. 400 litres) each. The clear length, width and height of each compartment are 1.15, 0.60 and 0.60 metres, respectively.

The openings for removal of the desiccated material are sealed with mud brick masonry. The cover has to be broken for removal of the material and redone again afterwards in order to prevent insects and rainwater from entering the processing compartments.

Both, the inner and the outer walls of the processing compartments have to be plastered (refer to chapter 4.2.4.).

Superstructure (cubicle, door, roof, etc.):

The elevated squatting platform is made from stouts, locally available sticks (e.g. bamboo, etc.), laid in a crosswise manner. The sticks are then covered with mud.

The door is made from a bamboo mat fixed on a wooden frame.

Otherwise, refer to chapter 5.8.

Other hardware:

Refer to chapter 5.1.

6 COST ESTIMATES

Cost estimates for the above-described designs are based upon BOQ and common costs for construction materials to be paid in Pune, Maharashtra, in November 2008. The findings are summarized in figure 4 to figure 12.

A brief summary of construction materials/technologies applied with the different designs is summarized in table 4.

table 4: Summary of construction details

| Design | Foundation | Processing Compartment | Superstructure |
|---------------|-----------------------|-------------------------------|-----------------------|
| Design 1 | P.C.C. Slab | Cement Hollow Blocks | Cement Hollow Blocks |
| Design 2 | P.C.C. Slab | Cement Hollow Blocks | Arched Ferro Cement |
| Design 3 | P.C.C. Slab | Cement Hollow Blocks | Bamboo Mats |
| Design 4 | Rubble Stone | Cement Hollow Blocks | Cement Hollow Blocks |
| Design 5 | P.C.C. Slab | Country Burned Bricks | Country Burned Bricks |
| Design 6 | P.C.C. Slab | Country Burned Bricks | Arched C. B. Bricks |
| Design 7 | Country Burned Bricks | Country Burned Bricks | Country Burned Bricks |
| Design 8 | Country Burned Bricks | Country Burned Bricks | Adobe |
| Design 9 | Adobe | Adobe | Adobe |

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m3 | | | | |
| Excavation | 1.00 | m3/m3 | 0.40 | m3 | 80.00 | 32.00 |
| Murum | 0.40 | m3 | | | | |
| Murum | 1.05 | m3/m3 | 0.42 | m3 | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m3 | | | | |
| Cement | 161.95 | kg/m3 | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m3/m3 | 0.11 | m3 | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m3/m3 | 0.22 | m3 | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m2 | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0069 | m3/m2 | | | | |
| Cement | 382.33 | kg/m3 | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m3/m3 | 0.03 | m3 | 1,060.00 | 32.00 |
| R.C.C. Slab (1:2:4) | 0.15 | m3 | | | | |
| Cement | 308.53 | kg/m3 | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m3/m3 | 0.07 | m3 | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m3/m3 | 0.13 | m3 | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m3 | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m2 | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0069 | m3/m2 | | | | |
| Cement | 382.33 | kg/m3 | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m3/m3 | 0.01 | m3 | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8.70 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100) | 16.67 | No/m2 | 145 | No | 22.00 | 3,190.00 |
| Mortar (1:4) | 0.0069 | m3/m2 | | | | |
| Cement | 382.33 | kg/m3 | 30 | kg | 5.30 | 159.00 |
| Sand | 1,070 | m3/m3 | 0.08 | m3 | 1,060.00 | 85.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m3 | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m2 | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies (300 x 450 mm) | | | 2 | No | 110.00 | 220.00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3.0 | m | 130.00 | 390.00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 2 | No | 100.00 | 200.00 |
| Steel Bar Hinges (6 mm dia.) | | | 1.0 | kg | 41.00 | 41.00 |
| Subtotal Superstructure | | | | | | 4,846.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m3 | | | | |
| Excavation | 1.00 | m3/m3 | 0.06 | m3 | 80.00 | 5.00 |
| Murum | 0.06 | m3 | | | | |
| Murum | 1.05 | m3/m3 | 0.06 | m3 | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m3 | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | 382.33 | kg/m3 | 8 | kg | 5.30 | 42.00 |
| Cement | 1,070 | m3/m3 | 0.02 | m3 | 1,060.00 | 21.00 |
| Sand | | | | | | |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | 8 | days | 150.00 | 1,200.00 |
| Subtotal Labour | | | | | | 2,400.00 |
| Grand Total | | | | | | 14,087.00 |

figure 4: Cost estimate for "Design 1"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|--------------------------------|----------|----------------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.40 | m ³ | 80.00 | 32.00 |
| Murum | 0.40 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.42 | m ³ | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m ³ | | | | |
| Cement | 161.95 | kg/m ³ | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m ³ /m ³ | 0.11 | m ³ | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m ³ /m ³ | 0.22 | m ³ | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0089 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m ³ /m ³ | 0.03 | m ³ | 1,060.00 | 32.00 |
| R.C.C. slab (12:4) | 0.15 | m ³ | | | | |
| Cement | 308.53 | kg/m ³ | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m ³ /m ³ | 0.07 | m ³ | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m ³ /m ³ | 0.13 | m ³ | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m ³ | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0089 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m ³ /m ³ | 0.01 | m ³ | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.60 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 60 | No | 22.00 | 1,320.00 |
| Mortar (1:4) | 0.0089 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 12 | kg | 5.30 | 64.00 |
| Sand | 1,070 | m ³ /m ³ | 0.03 | m ³ | 1,060.00 | 32.00 |
| Water | 191 | l/m ³ | 6 | l | 0.00 | 0.00 |
| Ferro Cement (1:3) | 0.16 | m ³ | | | | |
| Cement | 493.03 | kg/m ³ | 79 | kg | 5.30 | 419.00 |
| Sand | 1,070 | m ³ /m ³ | 0.17 | m ³ | 1,060.00 | 180.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m ³ | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m ² | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies | | | 1 | No | 110.00 | 110.00 |
| Subtotal Superstructure | | | | | | 2,686.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.06 | m ³ | 80.00 | 5.00 |
| Murum | 0.06 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.06 | m ³ | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m ³ | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | | | | | | |
| Cement | 382.33 | kg/m ³ | 8 | kg | 5.30 | 42.00 |
| Sand | 1,070 | m ³ /m ³ | 0.02 | m ³ | 1,060.00 | 21.00 |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | | | | |
| Unskilled | | | 10 | days | 150.00 | 1,500.00 |
| Subtotal Labour | | | | | | 2,700.00 |
| Grand Total | | | | | | 12,227.00 |

figure 5: Cost estimate for "Design 2"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,40 | m3 | 80,00 | 32,00 |
| Murum | 0,40 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,42 | m3 | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m3/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m3/m3 | 0,22 | m3 | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m3/m3 | 0,03 | m3 | 1.060,00 | 32,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m3/m3 | 0,07 | m3 | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m3/m3 | 0,13 | m3 | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m3 | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| Bamboo Mats (130 x 180 cm) | | | 7 | No | 200,00 | 1.400,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 13 | No | 100,00 | 1.300,00 |
| Subtotal Superstructure | | | | | | 2.700,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m3 | | | | |
| Cement | 382,33 | kg/m3 | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 11.941,00 |

figure 6: Cost estimate for "Design 3"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,96 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,96 | m ³ | 80,00 | 77,00 |
| Murum | 0,09 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,09 | m ³ | 200,00 | 18,00 |
| Random Rubble Masonry | | | | | | |
| Rubble Masonry | 0,87 | m ³ | | | | |
| Stones | 1,05 | m ³ /m ³ | 0,91 | m ³ | 400,00 | 364,00 |
| Mortar (1:4) | 0,3 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 100 | kg | 5,30 | 530,00 |
| Sand | 1,070 | m ³ /m ³ | 0,28 | m ³ | 1,060,00 | 297,00 |
| P.C.C. (1:4:8) | 0,15 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 24 | kg | 5,30 | 127,00 |
| Sand | 0,470 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,14 | m ³ | 530,00 | 74,00 |
| Subtotal Foundation | | | | | | 1.561,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 4,20 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 70 | No | 22,00 | 1.540,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 14 | kg | 5,30 | 74,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1,060,00 | 42,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,84 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 14 | No | 22,00 | 308,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 3 | kg | 5,30 | 16,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1,060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 3.424,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8,70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 145 | No | 22,00 | 3.190,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 30 | kg | 5,30 | 159,00 |
| Sand | 1,070 | m ³ /m ³ | 0,08 | m ³ | 1,060,00 | 85,00 |
| Water | 191 | l/m ³ | 15 | l | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3,0 | m | 130,00 | 390,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 2 | No | 100,00 | 200,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,0 | kg | 41,00 | 41,00 |
| Subtotal Superstructure | | | | | | 4.846,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| 4" (290x190x100) Solid Block Masonry | | | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1,060,00 | 21,00 |
| Subtotal Staircase | | | | | | 797,00 |
| 5. Other hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 150,00 | 150,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| skilled | | | 4 | days | 300,00 | 1.200,00 |
| unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 15.548,00 |

figure 7: Cost estimate for "Design 4"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|--------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,57 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,57 | m ³ | 80,00 | 46,00 |
| Murum | 0,57 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,6 | m ³ | 200,00 | 120,00 |
| P.C.C. (1:4:8) | 0,34 | m³ | | | | |
| Cement | 161,95 | kg/m ³ | 55 | kg | 5,20 | 282,00 |
| Sand | 0,470 | m ³ /m ³ | 0,16 | m ³ | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,32 | m ³ | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,83 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m ³ /m ³ | 0,22 | m ³ | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m³ | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC T-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | 11,00 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 563 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | 0,09 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ /m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm, 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| Brick Work (Single Brick) | 0,17 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 16.361,00 |

figure 8: Cost estimate for "Design 5"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] | |
|---|--------------|-----------|----------|-------|-----------------------|------------------|--------|
| 1. Foundation | | | | | | | |
| Excavation | 0,57 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,57 | m3 | 80,00 | 46,00 | |
| Murum | 0,57 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,6 | m3 | 200,00 | 120,00 | |
| P.C.C. (1:4:8) | 0,34 | m3 | | | | | |
| Cement | 161,95 | kg/m3 | 55 | kg | 5,30 | 292,00 | |
| Sand | 0,470 | m3/m3 | 0,16 | m3 | 1.060,00 | 170,00 | |
| Aggregate | 0,95 | m3/m3 | 0,32 | m3 | 530,00 | 170,00 | |
| Subtotal Foundation | | | | | | 798,00 | |
| 2. Processing Compartment | | | | | | | |
| Brick Work (Single Brick) | 0,83 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 378 | No | 3,50 | 1.323,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 78 | kg | 5,30 | 413,00 | |
| Sand | 1,070 | m3/m3 | 0,22 | m3 | 1.060,00 | 233,00 | |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 | |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 | |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 | |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 | |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 | |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 | |
| Plaster (1:3) | 0,04 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Ventilation System | | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 | |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 | |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 | |
| Subtotal Processing Compartment | | | | | | 4.023,00 | |
| 3. Superstructure | | | | | | | |
| Brick Work (Half Brick) | 12,50 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 663 | No | 3,50 | 2.321,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 110 | kg | 5,30 | 583,00 | |
| Sand | 1,070 | m3/m3 | 0,31 | m3 | 1.060,00 | 329,00 | |
| Plaster (1:3) | 0,08 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 39 | kg | 5,30 | 207,00 | |
| Sand | 1,070 | m3/m3 | 0,09 | m3 | 1.060,00 | 95,00 | |
| Door | | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | | |
| Jalies | | | | 2 | No | 110,00 | 220,00 |
| Subtotal Superstructure | | | | | | 4.316,00 | |
| 4. Staircase | | | | | | | |
| Excavation | 0,06 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 | |
| Murum | 0,06 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 | |
| Brick Work (Single Brick) | 0,17 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Plaster (1:3) | 0,01 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 | |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 | |
| Subtotal Staircase | | | | | | 452,00 | |
| 5. Other Hardware | | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 | |
| Washbasin | | | 1 | No | 160,00 | 160,00 | |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 | |
| Urine Collection Container (20 l) | | | 3 | No | 250,00 | 750,00 | |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 | |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 | |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 | |
| Subtotal Other Hardware | | | | | | 2.770,00 | |
| 6. Labour | | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 | |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 | |
| Subtotal Labour | | | | | | 3.600,00 | |
| Grand Total | | | | | | 15.959,00 | |

figure 9: Cost estimate for "Design 6"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|----------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | | | | | | |
| Excavation | 1,28 | m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | | | | | | |
| Murum | 0,66 | m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 136,00 |
| P.C.C. (1:4:8) | | | | | | |
| Cement | 161,95 | kg/m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,98 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Water | 191 | l/m3 | 3 | l | 0,00 | 0,00 |
| Plaster (1:3) | | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 583 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m3/m3 | 0,27 | m3 | 1.060,00 | 286,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,09 | m3 | 44 | kg | 5,30 | 233,00 |
| Sand | 493,03 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,05 | m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | | | | | | |
| Murum | 0,05 | m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,01 | m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 493,03 | kg/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 17.636,00 |

figure 10: Cost estimate for "Design 7"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | 0,66 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 138,00 |
| R.C.C. (1:4:8) | 0,17 | m3 | | | | |
| Cement | 181,95 | kg/m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,11 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft. long) | | | 2 | No | 300,00 | 600,00 |
| PVC T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,13 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,04 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 149,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.674,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 14.942,00 |

figure 11: Cost estimate for "Design 8"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|-----------|--------------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,61 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,61 | m3 | 80,00 | 49,00 |
| Murum | 0,81 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,85 | m3 | 200,00 | 170,00 |
| Mud Plaster (3:1) | 0,18 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,14 | m3 | 1.060,00 | 148,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,05 | m3 | 0,00 | 0,00 |
| Subtotal Foundation | | | | | | 367,00 |
| 2. Processing Compartment | | | | | | |
| Adobe Brick Work (6") | 0,86 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,43 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,30 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,13 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,05 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,02 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Slab | | | | | | |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 15 | No | 100,00 | 1.500,00 |
| Mud Plaster (3:1) | 0,16 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,12 | m3 | 1.060,00 | 127,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC Tee-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.469,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,14 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,05 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A. C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.685,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Adobe Brick Work (6") | 0,17 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,09 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,06 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,08 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,06 | m3 | 1.060,00 | 64,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,01 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,00 | m3 | 0,00 | 0,00 |
| Subtotal Staircase | | | | | | 78,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 11.319,00 |

figure 12: Cost estimate for "Design 9"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.40 | m ³ | 80.00 | 32.00 |
| Murum | 0.40 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.42 | m ³ | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m ³ | | | | |
| Cement | 161.95 | kg/m ³ | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m ³ /m ³ | 0.11 | m ³ | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m ³ /m ³ | 0.22 | m ³ | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m ³ /m ³ | 0.03 | m ³ | 1,060.00 | 32.00 |
| R.C.C. Slab (1:2:4) | 0.15 | m ³ | | | | |
| Cement | 308.53 | kg/m ³ | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m ³ /m ³ | 0.07 | m ³ | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m ³ /m ³ | 0.13 | m ³ | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m ³ | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m ³ /m ³ | 0.01 | m ³ | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8.70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100) | 16.67 | No/m ² | 145 | No | 22.00 | 3,190.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 30 | kg | 5.30 | 159.00 |
| Sand | 1,070 | m ³ /m ³ | 0.08 | m ³ | 1,060.00 | 85.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m ³ | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m ² | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies (300 x 450 mm) | | | 2 | No | 110.00 | 220.00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3.0 | m | 130.00 | 390.00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 2 | No | 100.00 | 200.00 |
| Steel Bar Hinges (6 mm dia.) | | | 1.0 | kg | 41.00 | 41.00 |
| Subtotal Superstructure | | | | | | 4,846.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.06 | m ³ | 80.00 | 5.00 |
| Murum | 0.06 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.06 | m ³ | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m ³ | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 8 | kg | 5.30 | 42.00 |
| Sand | 1,070 | m ³ /m ³ | 0.02 | m ³ | 1,060.00 | 21.00 |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | 8 | days | 150.00 | 1,200.00 |
| Subtotal Labour | | | | | | 2,400.00 |
| Grand Total | | | | | | 14,087.00 |

figure 4: Cost estimate for "Design 1"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|--------------------------------|----------|----------------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,40 | m ³ | 80,00 | 32,00 |
| Murum | 0,40 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,42 | m ³ | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m ³ /m ³ | 0,11 | m ³ | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,22 | m ³ | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| R.C.C. slab (12:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,60 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 60 | No | 22,00 | 1.320,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 12 | kg | 5,30 | 64,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| Water | 191 | l/m ³ | 6 | l | 0,00 | 0,00 |
| Ferro Cement (1:3) | 0,16 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 79 | kg | 5,30 | 419,00 |
| Sand | 1,070 | m ³ /m ³ | 0,17 | m ³ | 1.060,00 | 180,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 1 | No | 110,00 | 110,00 |
| Subtotal Superstructure | | | | | | 2.686,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0,02 | m ³ | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | | | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | | | | |
| Unskilled | | | 10 | days | 150,00 | 1.500,00 |
| Subtotal Labour | | | | | | 2.700,00 |
| Grand Total | | | | | | 12.227,00 |

figure 5: Cost estimate for "Design 2"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,40 | m3 | 80,00 | 32,00 |
| Murum | 0,40 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,42 | m3 | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m3/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m3/m3 | 0,22 | m3 | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m3/m3 | 0,03 | m3 | 1.060,00 | 32,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m3/m3 | 0,07 | m3 | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m3/m3 | 0,13 | m3 | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m3 | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| Bamboo Mats (130 x 180 cm) | | | 7 | No | 200,00 | 1.400,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 13 | No | 100,00 | 1.300,00 |
| Subtotal Superstructure | | | | | | 2.700,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m3 | | | | |
| Cement | 382,33 | kg/m3 | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 11.941,00 |

figure 6: Cost estimate for "Design 3"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,96 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,96 | m ³ | 80,00 | 77,00 |
| Murum | 0,09 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,09 | m ³ | 200,00 | 18,00 |
| Random Rubble Masonry | | | | | | |
| Rubble Masonry | 0,87 | m ³ | | | | |
| Stones | 1,05 | m ³ /m ³ | 0,91 | m ³ | 400,00 | 364,00 |
| Mortar (1:4) | 0,3 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 100 | kg | 5,30 | 530,00 |
| Sand | 1,070 | m ³ /m ³ | 0,28 | m ³ | 1,060,00 | 297,00 |
| P.C.C. (1:4:8) | 0,15 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 24 | kg | 5,30 | 127,00 |
| Sand | 0,470 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,14 | m ³ | 530,00 | 74,00 |
| Subtotal Foundation | | | | | | 1.561,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 4,20 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 70 | No | 22,00 | 1.540,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 14 | kg | 5,30 | 74,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1,060,00 | 42,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,84 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 14 | No | 22,00 | 308,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 3 | kg | 5,30 | 16,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1,060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 3.424,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8,70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 145 | No | 22,00 | 3.190,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 30 | kg | 5,30 | 159,00 |
| Sand | 1,070 | m ³ /m ³ | 0,08 | m ³ | 1,060,00 | 85,00 |
| Water | 191 | l/m ³ | 15 | l | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3,0 | m | 130,00 | 390,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 2 | No | 100,00 | 200,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,0 | kg | 41,00 | 41,00 |
| Subtotal Superstructure | | | | | | 4.846,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| 4" (290x190x100) Solid Block Masonry | | | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1,060,00 | 21,00 |
| Subtotal Staircase | | | | | | 797,00 |
| 5. Other hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 150,00 | 150,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Staircase | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| skilled | | | 4 | days | 300,00 | 1.200,00 |
| unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 15.548,00 |

figure 7: Cost estimate for "Design 4"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|--------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,57 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,57 | m ³ | 80,00 | 46,00 |
| Murum | 0,57 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,6 | m ³ | 200,00 | 120,00 |
| P.C.C. (1:4:8) | 0,34 | m³ | | | | |
| Cement | 161,95 | kg/m ³ | 55 | kg | 5,20 | 282,00 |
| Sand | 0,470 | m ³ /m ³ | 0,16 | m ³ | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,32 | m ³ | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,83 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m ³ /m ³ | 0,22 | m ³ | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m³ | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC T-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | 11,00 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 563 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | 0,09 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ /m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5,6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm, 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| Brick Work (Single Brick) | 0,17 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 16.361,00 |

figure 8: Cost estimate for "Design 5"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] | |
|---|--------------|-----------|----------|-------|-----------------------|------------------|--------|
| 1. Foundation | | | | | | | |
| Excavation | 0,57 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,57 | m3 | 80,00 | 46,00 | |
| Murum | 0,57 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,6 | m3 | 200,00 | 120,00 | |
| P.C.C. (1:4:8) | 0,34 | m3 | | | | | |
| Cement | 161,95 | kg/m3 | 55 | kg | 5,30 | 292,00 | |
| Sand | 0,470 | m3/m3 | 0,16 | m3 | 1.060,00 | 170,00 | |
| Aggregate | 0,95 | m3/m3 | 0,32 | m3 | 530,00 | 170,00 | |
| Subtotal Foundation | | | | | | 798,00 | |
| 2. Processing Compartment | | | | | | | |
| Brick Work (Single Brick) | 0,83 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 378 | No | 3,50 | 1.323,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 78 | kg | 5,30 | 413,00 | |
| Sand | 1,070 | m3/m3 | 0,22 | m3 | 1.060,00 | 233,00 | |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 | |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 | |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 | |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 | |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 | |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 | |
| Plaster (1:3) | 0,04 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Ventilation System | | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 | |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 | |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 | |
| Subtotal Processing Compartment | | | | | | 4.023,00 | |
| 3. Superstructure | | | | | | | |
| Brick Work (Half Brick) | 12,50 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 663 | No | 3,50 | 2.321,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 110 | kg | 5,30 | 583,00 | |
| Sand | 1,070 | m3/m3 | 0,31 | m3 | 1.060,00 | 329,00 | |
| Plaster (1:3) | 0,08 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 39 | kg | 5,30 | 207,00 | |
| Sand | 1,070 | m3/m3 | 0,09 | m3 | 1.060,00 | 95,00 | |
| Door | | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | | |
| Jalies | | | | 2 | No | 110,00 | 220,00 |
| Subtotal Superstructure | | | | | | 4.316,00 | |
| 4. Staircase | | | | | | | |
| Excavation | 0,06 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 | |
| Murum | 0,06 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 | |
| Brick Work (Single Brick) | 0,17 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Plaster (1:3) | 0,01 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 | |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 | |
| Subtotal Staircase | | | | | | 452,00 | |
| 5. Other Hardware | | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 | |
| Washbasin | | | 1 | No | 160,00 | 160,00 | |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 | |
| Urine Collection Container (20 l) | | | 3 | No | 250,00 | 750,00 | |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 | |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 | |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 | |
| Subtotal Other Hardware | | | | | | 2.770,00 | |
| 6. Labour | | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 | |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 | |
| Subtotal Labour | | | | | | 3.600,00 | |
| Grand Total | | | | | | 15.959,00 | |

figure 9: Cost estimate for "Design 6"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|----------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | | | | | | |
| Excavation | 1,28 | m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | | | | | | |
| Murum | 0,66 | m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 136,00 |
| P.C.C. (1:4:8) | | | | | | |
| Cement | 0,17 | m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 161,95 | kg/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,97 | m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 455 | No./m3 | 91 | kg | 5,30 | 482,00 |
| Cement | 0,246 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| Sand | 382,33 | kg/m3 | | | | |
| Sand | 1,070 | m3/m3 | | | | |
| R.C.C. Slab (1:2:4) | | | | | | |
| Cement | 0,23 | m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 308,53 | kg/m3 | 0,1 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,98 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,72 | m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 53 | No./m2 | 6 | kg | 5,30 | 32,00 |
| Cement | 0,023 | m3/m2 | 0,02 | m3 | 1.060,00 | 21,00 |
| Sand | 382,33 | kg/m3 | 3 | l | 0,00 | 0,00 |
| Water | 1,070 | m3/m3 | | | | |
| Plaster (1:3) | | | | | | |
| Cement | 0,04 | m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 493,03 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 11,00 | m2 | 583 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 53 | No./m2 | 97 | kg | 5,30 | 514,00 |
| Cement | 0,023 | m3/m2 | 0,27 | m3 | 1.060,00 | 286,00 |
| Sand | 382,33 | kg/m3 | | | | |
| Sand | 1,070 | m3/m3 | | | | |
| Plaster (1:3) | | | | | | |
| Cement | 0,09 | m3 | 44 | kg | 5,30 | 233,00 |
| Sand | 493,03 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,05 | m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | | | | | | |
| Murum | 0,05 | m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,17 | m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 455 | No./m3 | 16 | kg | 5,30 | 85,00 |
| Cement | 0,246 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Sand | 382,33 | kg/m3 | | | | |
| Sand | 1,070 | m3/m3 | | | | |
| Plaster (1:3) | | | | | | |
| Cement | 0,01 | m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 493,03 | kg/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 17.636,00 |

figure 10: Cost estimate for "Design 7"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 1,28 | m ³ | 80,00 | 102,00 |
| Murum | 0,66 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,69 | m ³ | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m ³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m ³ /m ³ | 0,13 | m ³ | 1.060,00 | 138,00 |
| R.C.C. (1:4:8) | 0,17 | m ³ | | | | |
| Cement | 181,95 | kg/m ³ | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m ³ /m ³ | 0,08 | m ³ | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,16 | m ³ | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m ³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m ³ /m ³ | 0,26 | m ³ | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,11 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m ² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft. long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m ³ | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m ³ /m ³ | 1,23 | m ³ | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m ³ /m ³ | 0,86 | m ³ | 0,00 | 0,00 |
| Dung | 0,15 | m ³ /m ³ | 0,37 | m ³ | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,13 | m ³ | | | | |
| Sand | 0,75 | kg/m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Clayey Soil | 0,25 | m ³ /m ³ | 0,03 | m ³ | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,04 | m ³ | | | | |
| Lime | 0,67 | kg/m ³ | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m ³ /m ³ | 0,01 | m ³ | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 149,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.674,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m ³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 14.942,00 |

figure 11: Cost estimate for "Design 8"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|-----------|--------------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,61 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,61 | m3 | 80,00 | 49,00 |
| Murum | 0,81 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,85 | m3 | 200,00 | 170,00 |
| Mud Plaster (3:1) | 0,18 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,14 | m3 | 1.060,00 | 148,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,05 | m3 | 0,00 | 0,00 |
| Subtotal Foundation | | | | | | 367,00 |
| 2. Processing Compartment | | | | | | |
| Adobe Brick Work (6") | 0,86 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,43 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,30 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,13 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,05 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,02 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Slab | | | | | | |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 15 | No | 100,00 | 1.500,00 |
| Mud Plaster (3:1) | 0,16 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,12 | m3 | 1.060,00 | 127,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC Tee-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.469,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,14 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,05 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A. C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.685,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Adobe Brick Work (6") | 0,17 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,09 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,06 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,08 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,06 | m3 | 1.060,00 | 64,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,01 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,00 | m3 | 0,00 | 0,00 |
| Subtotal Staircase | | | | | | 78,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 11.319,00 |

figure 12: Cost estimate for "Design 9"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.40 | m ³ | 80.00 | 32.00 |
| Murum | 0.40 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.42 | m ³ | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m ³ | | | | |
| Cement | 161.95 | kg/m ³ | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m ³ /m ³ | 0.11 | m ³ | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m ³ /m ³ | 0.22 | m ³ | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m ³ /m ³ | 0.03 | m ³ | 1,060.00 | 32.00 |
| R.C.C. Slab (1:2:4) | 0.15 | m ³ | | | | |
| Cement | 308.53 | kg/m ³ | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m ³ /m ³ | 0.07 | m ³ | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m ³ /m ³ | 0.13 | m ³ | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m ³ | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m ³ /m ³ | 0.01 | m ³ | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8.70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100) | 16.67 | No/m ² | 145 | No | 22.00 | 3,190.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 30 | kg | 5.30 | 159.00 |
| Sand | 1,070 | m ³ /m ³ | 0.08 | m ³ | 1,060.00 | 85.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m ³ | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m ² | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies (300 x 450 mm) | | | 2 | No | 110.00 | 220.00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3.0 | m | 130.00 | 390.00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 2 | No | 100.00 | 200.00 |
| Steel Bar Hinges (6 mm dia.) | | | 1.0 | kg | 41.00 | 41.00 |
| Subtotal Superstructure | | | | | | 4,846.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.06 | m ³ | 80.00 | 5.00 |
| Murum | 0.06 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.06 | m ³ | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m ³ | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 8 | kg | 5.30 | 42.00 |
| Sand | 1,070 | m ³ /m ³ | 0.02 | m ³ | 1,060.00 | 21.00 |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | 8 | days | 150.00 | 1,200.00 |
| Subtotal Labour | | | | | | 2,400.00 |
| Grand Total | | | | | | 14,087.00 |

figure 4: Cost estimate for "Design 1"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|--------------------------------|----------|----------------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,40 | m ³ | 80,00 | 32,00 |
| Murum | 0,40 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,42 | m ³ | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m ³ /m ³ | 0,11 | m ³ | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,22 | m ³ | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| R.C.C. slab (12:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,60 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 60 | No | 22,00 | 1.320,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 12 | kg | 5,30 | 64,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| Water | 191 | l/m ³ | 6 | l | 0,00 | 0,00 |
| Ferro Cement (1:3) | 0,16 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 79 | kg | 5,30 | 419,00 |
| Sand | 1,070 | m ³ /m ³ | 0,17 | m ³ | 1.060,00 | 180,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 1 | No | 110,00 | 110,00 |
| Subtotal Superstructure | | | | | | 2.686,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0,02 | m ³ | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | | | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | | | | |
| Unskilled | | | 10 | days | 150,00 | 1.500,00 |
| Subtotal Labour | | | | | | 2.700,00 |
| Grand Total | | | | | | 12.227,00 |

figure 5: Cost estimate for "Design 2"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,40 | m3 | 80,00 | 32,00 |
| Murum | 0,40 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,42 | m3 | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m3/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m3/m3 | 0,22 | m3 | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m3/m3 | 0,03 | m3 | 1.060,00 | 32,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m3/m3 | 0,07 | m3 | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m3/m3 | 0,13 | m3 | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m3 | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| Bamboo Mats (130 x 180 cm) | | | 7 | No | 200,00 | 1.400,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 13 | No | 100,00 | 1.300,00 |
| Subtotal Superstructure | | | | | | 2.700,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m3 | | | | |
| Cement | 382,33 | kg/m3 | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 11.941,00 |

figure 6: Cost estimate for "Design 3"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,96 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,96 | m ³ | 80,00 | 77,00 |
| Murum | 0,09 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,09 | m ³ | 200,00 | 18,00 |
| Random Rubble Masonry | | | | | | |
| Rubble Masonry | 0,87 | m ³ | | | | |
| Stones | 1,05 | m ³ /m ³ | 0,91 | m ³ | 400,00 | 364,00 |
| Mortar (1:4) | 0,3 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 100 | kg | 5,30 | 530,00 |
| Sand | 1,070 | m ³ /m ³ | 0,28 | m ³ | 1,060,00 | 297,00 |
| P.C.C. (1:4:8) | 0,15 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 24 | kg | 5,30 | 127,00 |
| Sand | 0,470 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,14 | m ³ | 530,00 | 74,00 |
| Subtotal Foundation | | | | | | 1.561,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 4,20 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 70 | No | 22,00 | 1.540,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 14 | kg | 5,30 | 74,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1,060,00 | 42,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,84 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 14 | No | 22,00 | 308,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 3 | kg | 5,30 | 16,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1,060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 3.424,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8,70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 145 | No | 22,00 | 3.190,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 30 | kg | 5,30 | 159,00 |
| Sand | 1,070 | m ³ /m ³ | 0,08 | m ³ | 1,060,00 | 85,00 |
| Water | 191 | l/m ³ | 15 | l | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3,0 | m | 130,00 | 390,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 2 | No | 100,00 | 200,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,0 | kg | 41,00 | 41,00 |
| Subtotal Superstructure | | | | | | 4.846,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| 4" (290x190x100) Solid Block Masonry | | | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1,060,00 | 21,00 |
| Subtotal Staircase | | | | | | 797,00 |
| 5. Other hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Staircase | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| skilled | | | 4 | days | 300,00 | 1.200,00 |
| unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 15.548,00 |

figure 7: Cost estimate for "Design 4"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|--------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,57 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,57 | m ³ | 80,00 | 46,00 |
| Murum | 0,57 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,6 | m ³ | 200,00 | 120,00 |
| P.C.C. (1:4:8) | 0,34 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 55 | kg | 5,30 | 292,00 |
| Sand | 0,470 | m ³ /m ³ | 0,16 | m ³ | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,32 | m ³ | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,83 | m ³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m ³ /m ³ | 0,22 | m ³ | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m ² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC T-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | 11,00 | m ² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 563 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | 0,09 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ /m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm, 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| Brick Work (Single Brick) | 0,17 | m ³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 16.361,00 |

figure 8: Cost estimate for "Design 5"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] | |
|---|--------------|-----------|----------|-------|-----------------------|------------------|--------|
| 1. Foundation | | | | | | | |
| Excavation | 0,57 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,57 | m3 | 80,00 | 46,00 | |
| Murum | 0,57 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,6 | m3 | 200,00 | 120,00 | |
| P.C.C. (1:4:8) | 0,34 | m3 | | | | | |
| Cement | 161,95 | kg/m3 | 55 | kg | 5,30 | 292,00 | |
| Sand | 0,470 | m3/m3 | 0,16 | m3 | 1.060,00 | 170,00 | |
| Aggregate | 0,95 | m3/m3 | 0,32 | m3 | 530,00 | 170,00 | |
| Subtotal Foundation | | | | | | 798,00 | |
| 2. Processing Compartment | | | | | | | |
| Brick Work (Single Brick) | 0,83 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 378 | No | 3,50 | 1.323,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 78 | kg | 5,30 | 413,00 | |
| Sand | 1,070 | m3/m3 | 0,22 | m3 | 1.060,00 | 233,00 | |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 | |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 | |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 | |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 | |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 | |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 | |
| Plaster (1:3) | 0,04 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Ventilation System | | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 | |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 | |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 | |
| Subtotal Processing Compartment | | | | | | 4.023,00 | |
| 3. Superstructure | | | | | | | |
| Brick Work (Half Brick) | 12,50 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 663 | No | 3,50 | 2.321,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 110 | kg | 5,30 | 583,00 | |
| Sand | 1,070 | m3/m3 | 0,31 | m3 | 1.060,00 | 329,00 | |
| Plaster (1:3) | 0,08 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 39 | kg | 5,30 | 207,00 | |
| Sand | 1,070 | m3/m3 | 0,09 | m3 | 1.060,00 | 95,00 | |
| Door | | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | | |
| Jalies | | | | 2 | No | 110,00 | 220,00 |
| Subtotal Superstructure | | | | | | 4.316,00 | |
| 4. Staircase | | | | | | | |
| Excavation | 0,06 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 | |
| Murum | 0,06 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 | |
| Brick Work (Single Brick) | 0,17 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Plaster (1:3) | 0,01 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 | |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 | |
| Subtotal Staircase | | | | | | 452,00 | |
| 5. Other Hardware | | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 | |
| Washbasin | | | 1 | No | 160,00 | 160,00 | |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 | |
| Urine Collection Container (20 l) | | | 3 | No | 250,00 | 750,00 | |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 | |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 | |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 | |
| Subtotal Other Hardware | | | | | | 2.770,00 | |
| 6. Labour | | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 | |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 | |
| Subtotal Labour | | | | | | 3.600,00 | |
| Grand Total | | | | | | 15.959,00 | |

figure 9: Cost estimate for "Design 6"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|----------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | | | | | | |
| Excavation | 1,28 | m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | | | | | | |
| Murum | 0,66 | m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 136,00 |
| P.C.C. (1:4:8) | | | | | | |
| Cement | 0,17 | m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 161,95 | kg/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,97 | m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 455 | No./m3 | | | | |
| Cement | 0,246 | m3/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 382,33 | kg/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | | | | | | |
| Cement | 0,23 | m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 308,53 | kg/m3 | 0,1 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,98 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,72 | m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 53 | No./m2 | | | | |
| Cement | 0,023 | m3/m2 | 6 | kg | 5,30 | 32,00 |
| Sand | 382,33 | kg/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Water | 1,070 | m3/m3 | 3 | l | 0,00 | 0,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,04 | m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 493,03 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 11,00 | m2 | 583 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 53 | No./m2 | | | | |
| Cement | 0,023 | m3/m2 | 97 | kg | 5,30 | 514,00 |
| Sand | 382,33 | kg/m3 | 0,27 | m3 | 1.060,00 | 286,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,09 | m3 | 44 | kg | 5,30 | 233,00 |
| Sand | 493,03 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,05 | m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | | | | | | |
| Murum | 0,05 | m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,17 | m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 455 | No./m3 | | | | |
| Cement | 0,246 | m3/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 382,33 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,01 | m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 493,03 | kg/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 17.636,00 |

figure 10: Cost estimate for "Design 7"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | 0,66 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 138,00 |
| R.C.C. (1:4:8) | 0,17 | m3 | | | | |
| Cement | 181,95 | kg/m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,11 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft. long) | | | 2 | No | 300,00 | 600,00 |
| PVC T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,13 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,04 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 149,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.674,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 14.942,00 |

figure 11: Cost estimate for "Design 8"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|-----------|--------------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,61 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,61 | m3 | 80,00 | 49,00 |
| Murum | 0,81 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,85 | m3 | 200,00 | 170,00 |
| Mud Plaster (3:1) | 0,18 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,14 | m3 | 1.060,00 | 148,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,05 | m3 | 0,00 | 0,00 |
| Subtotal Foundation | | | | | | 367,00 |
| 2. Processing Compartment | | | | | | |
| Adobe Brick Work (6") | 0,86 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,43 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,30 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,13 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,05 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,02 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Slab | | | | | | |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 15 | No | 100,00 | 1.500,00 |
| Mud Plaster (3:1) | | | | | | |
| Sand | 0,75 | kg/m3 | 0,12 | m3 | 1.060,00 | 127,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC Tee-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.469,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,14 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,05 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A. C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.685,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Adobe Brick Work (6") | 0,17 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,09 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,06 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,08 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,06 | m3 | 1.060,00 | 64,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,01 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,00 | m3 | 0,00 | 0,00 |
| Subtotal Staircase | | | | | | 78,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 11.319,00 |

figure 12: Cost estimate for "Design 9"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.40 | m ³ | 80.00 | 32.00 |
| Murum | 0.40 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.42 | m ³ | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m ³ | | | | |
| Cement | 161.95 | kg/m ³ | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m ³ /m ³ | 0.11 | m ³ | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m ³ /m ³ | 0.22 | m ³ | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m ³ /m ³ | 0.03 | m ³ | 1,060.00 | 32.00 |
| R.C.C. Slab (1:2:4) | 0.15 | m ³ | | | | |
| Cement | 308.53 | kg/m ³ | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m ³ /m ³ | 0.07 | m ³ | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m ³ /m ³ | 0.13 | m ³ | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m ³ | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m ³ /m ³ | 0.01 | m ³ | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8.70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100) | 16.67 | No/m ² | 145 | No | 22.00 | 3,190.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 30 | kg | 5.30 | 159.00 |
| Sand | 1,070 | m ³ /m ³ | 0.08 | m ³ | 1,060.00 | 85.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m ³ | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m ² | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies (300 x 450 mm) | | | 2 | No | 110.00 | 220.00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3.0 | m | 130.00 | 390.00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 2 | No | 100.00 | 200.00 |
| Steel Bar Hinges (6 mm dia.) | | | 1.0 | kg | 41.00 | 41.00 |
| Subtotal Superstructure | | | | | | 4,846.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.06 | m ³ | 80.00 | 5.00 |
| Murum | 0.06 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.06 | m ³ | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m ³ | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 8 | kg | 5.30 | 42.00 |
| Sand | 1,070 | m ³ /m ³ | 0.02 | m ³ | 1,060.00 | 21.00 |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | 8 | days | 150.00 | 1,200.00 |
| Subtotal Labour | | | | | | 2,400.00 |
| Grand Total | | | | | | 14,087.00 |

figure 4: Cost estimate for "Design 1"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,40 | m ³ | 80,00 | 32,00 |
| Murum | 0,40 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,42 | m ³ | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m ³ /m ³ | 0,11 | m ³ | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,22 | m ³ | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| R.C.C. slab (12:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,60 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 60 | No | 22,00 | 1.320,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 12 | kg | 5,30 | 64,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| Water | 191 | l/m ³ | 6 | l | 0,00 | 0,00 |
| Ferro Cement (1:3) | 0,16 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 79 | kg | 5,30 | 419,00 |
| Sand | 1,070 | m ³ /m ³ | 0,17 | m ³ | 1.060,00 | 180,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 1 | No | 110,00 | 110,00 |
| Subtotal Superstructure | | | | | | 2.686,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0,02 | m ³ | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | | | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 10 | days | 150,00 | 1.500,00 |
| Subtotal Labour | | | | | | 2.700,00 |
| Grand Total | | | | | | 12.227,00 |

figure 5: Cost estimate for "Design 2"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,40 | m3 | 80,00 | 32,00 |
| Murum | 0,40 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,42 | m3 | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m3/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m3/m3 | 0,22 | m3 | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m3/m3 | 0,03 | m3 | 1.060,00 | 32,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m3/m3 | 0,07 | m3 | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m3/m3 | 0,13 | m3 | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m3 | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| Bamboo Mats (130 x 180 cm) | | | 7 | No | 200,00 | 1.400,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 13 | No | 100,00 | 1.300,00 |
| Subtotal Superstructure | | | | | | 2.700,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m3 | | | | |
| Cement | 382,33 | kg/m3 | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 11.941,00 |

figure 6: Cost estimate for "Design 3"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,96 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,96 | m ³ | 80,00 | 77,00 |
| Murum | 0,09 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,09 | m ³ | 200,00 | 18,00 |
| Random Rubble Masonry | | | | | | |
| Rubble Masonry | 0,87 | m ³ | | | | |
| Stones | 1,05 | m ³ /m ³ | 0,91 | m ³ | 400,00 | 364,00 |
| Mortar (1:4) | 0,3 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 100 | kg | 5,30 | 530,00 |
| Sand | 1,070 | m ³ /m ³ | 0,28 | m ³ | 1,060,00 | 297,00 |
| P.C.C. (1:4:8) | 0,15 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 24 | kg | 5,30 | 127,00 |
| Sand | 0,470 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,14 | m ³ | 530,00 | 74,00 |
| Subtotal Foundation | | | | | | 1.561,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 4,20 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 70 | No | 22,00 | 1.540,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 14 | kg | 5,30 | 74,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1,060,00 | 42,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,84 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 14 | No | 22,00 | 308,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 3 | kg | 5,30 | 16,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1,060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 3.424,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8,70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 145 | No | 22,00 | 3.190,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 30 | kg | 5,30 | 159,00 |
| Sand | 1,070 | m ³ /m ³ | 0,08 | m ³ | 1,060,00 | 85,00 |
| Water | 191 | l/m ³ | 15 | l | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3,0 | m | 130,00 | 390,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 2 | No | 100,00 | 200,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,0 | kg | 41,00 | 41,00 |
| Subtotal Superstructure | | | | | | 4.846,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| 4" (290x190x100) Solid Block Masonry | | | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1,060,00 | 21,00 |
| Subtotal Staircase | | | | | | 797,00 |
| 5. Other hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Staircase | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| skilled | | | 4 | days | 300,00 | 1.200,00 |
| unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 15.548,00 |

figure 7: Cost estimate for "Design 4"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|--------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,57 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,57 | m ³ | 80,00 | 46,00 |
| Murum | 0,57 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,6 | m ³ | 200,00 | 120,00 |
| P.C.C. (1:4:8) | 0,34 | m³ | | | | |
| Cement | 161,95 | kg/m ³ | 55 | kg | 5,20 | 282,00 |
| Sand | 0,470 | m ³ /m ³ | 0,16 | m ³ | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,32 | m ³ | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,83 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m ³ /m ³ | 0,22 | m ³ | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m³ | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC T-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | 11,00 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 563 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | 0,09 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ /m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5,6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm, 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| Brick Work (Single Brick) | 0,17 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 16.361,00 |

figure 8: Cost estimate for "Design 5"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] | |
|---|--------------|-----------|----------|-------|-----------------------|------------------|--------|
| 1. Foundation | | | | | | | |
| Excavation | 0,57 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,57 | m3 | 80,00 | 46,00 | |
| Murum | 0,57 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,6 | m3 | 200,00 | 120,00 | |
| P.C.C. (1:4:8) | 0,34 | m3 | | | | | |
| Cement | 161,95 | kg/m3 | 55 | kg | 5,30 | 292,00 | |
| Sand | 0,470 | m3/m3 | 0,16 | m3 | 1.060,00 | 170,00 | |
| Aggregate | 0,95 | m3/m3 | 0,32 | m3 | 530,00 | 170,00 | |
| Subtotal Foundation | | | | | | 798,00 | |
| 2. Processing Compartment | | | | | | | |
| Brick Work (Single Brick) | 0,83 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 378 | No | 3,50 | 1.323,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 78 | kg | 5,30 | 413,00 | |
| Sand | 1,070 | m3/m3 | 0,22 | m3 | 1.060,00 | 233,00 | |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 | |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 | |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 | |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 | |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 | |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 | |
| Plaster (1:3) | 0,04 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Ventilation System | | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 | |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 | |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 | |
| Subtotal Processing Compartment | | | | | | 4.023,00 | |
| 3. Superstructure | | | | | | | |
| Brick Work (Half Brick) | 12,50 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 663 | No | 3,50 | 2.321,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 110 | kg | 5,30 | 583,00 | |
| Sand | 1,070 | m3/m3 | 0,31 | m3 | 1.060,00 | 329,00 | |
| Plaster (1:3) | 0,08 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 39 | kg | 5,30 | 207,00 | |
| Sand | 1,070 | m3/m3 | 0,09 | m3 | 1.060,00 | 95,00 | |
| Door | | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | | |
| Jalies | | | | 2 | No | 110,00 | 220,00 |
| Subtotal Superstructure | | | | | | 4.316,00 | |
| 4. Staircase | | | | | | | |
| Excavation | 0,06 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 | |
| Murum | 0,06 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 | |
| Brick Work (Single Brick) | 0,17 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Plaster (1:3) | 0,01 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 | |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 | |
| Subtotal Staircase | | | | | | 452,00 | |
| 5. Other Hardware | | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 | |
| Washbasin | | | 1 | No | 160,00 | 160,00 | |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 | |
| Urine Collection Container (20 l) | | | 3 | No | 250,00 | 750,00 | |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 | |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 | |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 | |
| Subtotal Other Hardware | | | | | | 2.770,00 | |
| 6. Labour | | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 | |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 | |
| Subtotal Labour | | | | | | 3.600,00 | |
| Grand Total | | | | | | 15.959,00 | |

figure 9: Cost estimate for "Design 6"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|----------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | | | | | | |
| Excavation | 1,28 | m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | | | | | | |
| Murum | 0,66 | m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 136,00 |
| P.C.C. (1:4:8) | | | | | | |
| Cement | 0,17 | m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 161,95 | kg/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,97 | m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 455 | No./m3 | | | | |
| Cement | 0,246 | m3/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 382,33 | kg/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | | | | | | |
| Cement | 0,23 | m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 308,53 | kg/m3 | 0,1 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,98 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,72 | m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 53 | No./m2 | | | | |
| Cement | 0,023 | m3/m2 | 6 | kg | 5,30 | 32,00 |
| Sand | 382,33 | kg/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Water | 1,070 | m3/m3 | 3 | l | 0,00 | 0,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,04 | m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 493,03 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 11,00 | m2 | 583 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 53 | No./m2 | | | | |
| Cement | 0,023 | m3/m2 | 97 | kg | 5,30 | 514,00 |
| Sand | 382,33 | kg/m3 | 0,27 | m3 | 1.060,00 | 286,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,09 | m3 | 44 | kg | 5,30 | 233,00 |
| Sand | 493,03 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,05 | m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | | | | | | |
| Murum | 0,05 | m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,17 | m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 455 | No./m3 | | | | |
| Cement | 0,246 | m3/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 382,33 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,01 | m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 493,03 | kg/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 17.636,00 |

figure 10: Cost estimate for "Design 7"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | 0,66 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 138,00 |
| R.C.C. (1:4:8) | 0,17 | m3 | | | | |
| Cement | 181,95 | kg/m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,11 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft. long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,13 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,04 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 149,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.674,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 14.942,00 |

figure 11: Cost estimate for "Design 8"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|-----------|--------------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,61 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,61 | m3 | 80,00 | 49,00 |
| Murum | 0,81 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,85 | m3 | 200,00 | 170,00 |
| Mud Plaster (3:1) | 0,18 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,14 | m3 | 1.060,00 | 148,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,05 | m3 | 0,00 | 0,00 |
| Subtotal Foundation | | | | | | 367,00 |
| 2. Processing Compartment | | | | | | |
| Adobe Brick Work (6") | 0,86 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,43 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,30 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,13 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,05 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,02 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Slab | | | | | | |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 15 | No | 100,00 | 1.500,00 |
| Mud Plaster (3:1) | 0,16 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,12 | m3 | 1.060,00 | 127,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC Tee-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.469,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,14 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,05 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A. C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.685,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Adobe Brick Work (6") | 0,17 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,09 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,06 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,08 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,06 | m3 | 1.060,00 | 64,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,01 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,00 | m3 | 0,00 | 0,00 |
| Subtotal Staircase | | | | | | 78,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 11.319,00 |

figure 12: Cost estimate for "Design 9"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m3 | | | | |
| Excavation | 1.00 | m3/m3 | 0.40 | m3 | 80.00 | 32.00 |
| Murum | 0.40 | m3 | | | | |
| Murum | 1.05 | m3/m3 | 0.42 | m3 | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m3 | | | | |
| Cement | 161.95 | kg/m3 | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m3/m3 | 0.11 | m3 | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m3/m3 | 0.22 | m3 | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m2 | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0069 | m3/m2 | | | | |
| Cement | 382.33 | kg/m3 | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m3/m3 | 0.03 | m3 | 1,060.00 | 32.00 |
| R.C.C. Slab (1:2:4) | 0.15 | m3 | | | | |
| Cement | 308.53 | kg/m3 | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m3/m3 | 0.07 | m3 | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m3/m3 | 0.13 | m3 | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m3 | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m2 | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0069 | m3/m2 | | | | |
| Cement | 382.33 | kg/m3 | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m3/m3 | 0.01 | m3 | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8.70 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100) | 16.67 | No/m2 | 145 | No | 22.00 | 3,190.00 |
| Mortar (1:4) | 0.0069 | m3/m2 | | | | |
| Cement | 382.33 | kg/m3 | 30 | kg | 5.30 | 159.00 |
| Sand | 1,070 | m3/m3 | 0.08 | m3 | 1,060.00 | 85.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m3 | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m2 | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies (300 x 450 mm) | | | 2 | No | 110.00 | 220.00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3.0 | m | 130.00 | 390.00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 2 | No | 100.00 | 200.00 |
| Steel Bar Hinges (6 mm dia.) | | | 1.0 | kg | 41.00 | 41.00 |
| Subtotal Superstructure | | | | | | 4,846.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m3 | | | | |
| Excavation | 1.00 | m3/m3 | 0.06 | m3 | 80.00 | 5.00 |
| Murum | 0.06 | m3 | | | | |
| Murum | 1.05 | m3/m3 | 0.06 | m3 | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m3 | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | 0.02 | m3 | | | | |
| Cement | 382.33 | kg/m3 | 8 | kg | 5.30 | 42.00 |
| Sand | 1,070 | m3/m3 | 0.02 | m3 | 1,060.00 | 21.00 |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | 8 | days | 150.00 | 1,200.00 |
| Subtotal Labour | | | | | | 2,400.00 |
| Grand Total | | | | | | 14,087.00 |

figure 4: Cost estimate for "Design 1"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|--------------------------------|----------|----------------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,40 | m ³ | 80,00 | 32,00 |
| Murum | 0,40 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,42 | m ³ | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m ³ /m ³ | 0,11 | m ³ | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,22 | m ³ | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| R.C.C. slab (12:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,60 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 60 | No | 22,00 | 1.320,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 12 | kg | 5,30 | 64,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| Water | 191 | l/m ³ | 6 | l | 0,00 | 0,00 |
| Ferro Cement (1:3) | 0,16 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 79 | kg | 5,30 | 419,00 |
| Sand | 1,070 | m ³ /m ³ | 0,17 | m ³ | 1.060,00 | 180,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 1 | No | 110,00 | 110,00 |
| Subtotal Superstructure | | | | | | 2.686,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0,02 | m ³ | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | | | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | | | | |
| Unskilled | | | 10 | days | 150,00 | 1.500,00 |
| Subtotal Labour | | | | | | 2.700,00 |
| Grand Total | | | | | | 12.227,00 |

figure 5: Cost estimate for "Design 2"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,40 | m3 | 80,00 | 32,00 |
| Murum | 0,40 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,42 | m3 | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m3/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m3/m3 | 0,22 | m3 | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m3/m3 | 0,03 | m3 | 1.060,00 | 32,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m3/m3 | 0,07 | m3 | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m3/m3 | 0,13 | m3 | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m3 | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| Bamboo Mats (130 x 180 cm) | | | 7 | No | 200,00 | 1.400,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 13 | No | 100,00 | 1.300,00 |
| Subtotal Superstructure | | | | | | 2.700,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m3 | | | | |
| Cement | 382,33 | kg/m3 | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 11.941,00 |

figure 6: Cost estimate for "Design 3"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,96 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,96 | m ³ | 80,00 | 77,00 |
| Murum | 0,09 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,09 | m ³ | 200,00 | 18,00 |
| Random Rubble Masonry | | | | | | |
| Rubble Masonry | 0,87 | m ³ | | | | |
| Stones | 1,05 | m ³ /m ³ | 0,91 | m ³ | 400,00 | 364,00 |
| Mortar (1:4) | 0,3 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 100 | kg | 5,30 | 530,00 |
| Sand | 1,070 | m ³ /m ³ | 0,28 | m ³ | 1,060,00 | 297,00 |
| P.C.C. (1:4:8) | 0,15 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 24 | kg | 5,30 | 127,00 |
| Sand | 0,470 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,14 | m ³ | 530,00 | 74,00 |
| Subtotal Foundation | | | | | | 1.561,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 4,20 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 70 | No | 22,00 | 1.540,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 14 | kg | 5,30 | 74,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1,060,00 | 42,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,84 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 14 | No | 22,00 | 308,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 3 | kg | 5,30 | 16,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1,060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 3.424,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8,70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 145 | No | 22,00 | 3.190,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 30 | kg | 5,30 | 159,00 |
| Sand | 1,070 | m ³ /m ³ | 0,08 | m ³ | 1,060,00 | 85,00 |
| Water | 191 | l/m ³ | 15 | l | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3,0 | m | 130,00 | 390,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 2 | No | 100,00 | 200,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,0 | kg | 41,00 | 41,00 |
| Subtotal Superstructure | | | | | | 4.846,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| 4" (290x190x100) Solid Block Masonry | | | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1,060,00 | 21,00 |
| Subtotal Staircase | | | | | | 797,00 |
| 5. Other hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Staircase | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| skilled | | | 4 | days | 300,00 | 1.200,00 |
| unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 15.548,00 |

figure 7: Cost estimate for "Design 4"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|--------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,57 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,57 | m ³ | 80,00 | 46,00 |
| Murum | 0,57 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,6 | m ³ | 200,00 | 120,00 |
| P.C.C. (1:4:8) | 0,34 | m³ | | | | |
| Cement | 161,95 | kg/m ³ | 55 | kg | 5,20 | 282,00 |
| Sand | 0,470 | m ³ /m ³ | 0,16 | m ³ | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,32 | m ³ | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,83 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m ³ /m ³ | 0,22 | m ³ | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m³ | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC T-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | 11,00 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 563 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | 0,09 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ /m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5,6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm, 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| Brick Work (Single Brick) | 0,17 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 16.361,00 |

figure 8: Cost estimate for "Design 5"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|--------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,57 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,57 | m3 | 80,00 | 46,00 |
| Murum | 0,57 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,6 | m3 | 200,00 | 120,00 |
| P.C.C. (1:4:8) | 0,34 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 55 | kg | 5,30 | 292,00 |
| Sand | 0,470 | m3/m3 | 0,16 | m3 | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m3/m3 | 0,32 | m3 | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,83 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m3/m3 | 0,22 | m3 | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | 12,50 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 663 | No | 3,50 | 2.321,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 110 | kg | 5,30 | 583,00 |
| Sand | 1,070 | m3/m3 | 0,31 | m3 | 1.060,00 | 329,00 |
| Plaster (1:3) | 0,08 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 39 | kg | 5,30 | 207,00 |
| Sand | 1,070 | m3/m3 | 0,09 | m3 | 1.060,00 | 95,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 406,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Subtotal Superstructure | | | | | | 4.316,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| Brick Work (Single Brick) | 0,17 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 3 | No | 250,00 | 750,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.770,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 15.959,00 |

figure 9: Cost estimate for "Design 6"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|----------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | | | | | | |
| Excavation | 1,28 | m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | | | | | | |
| Murum | 0,66 | m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 136,00 |
| P.C.C. (1:4:8) | | | | | | |
| Cement | 0,17 | m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 161,95 | kg/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,97 | m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 455 | No./m3 | | | | |
| Cement | 0,246 | m3/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 382,33 | kg/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | | | | | | |
| Cement | 0,23 | m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 308,53 | kg/m3 | 0,1 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,98 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,72 | m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 53 | No./m2 | | | | |
| Cement | 0,023 | m3/m2 | 6 | kg | 5,30 | 32,00 |
| Sand | 382,33 | kg/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Water | 1,070 | m3/m3 | 3 | l | 0,00 | 0,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,04 | m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 493,03 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 11,00 | m2 | 583 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 53 | No./m2 | | | | |
| Cement | 0,023 | m3/m2 | 97 | kg | 5,30 | 514,00 |
| Sand | 382,33 | kg/m3 | 0,27 | m3 | 1.060,00 | 286,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,09 | m3 | 44 | kg | 5,30 | 233,00 |
| Sand | 493,03 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,05 | m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | | | | | | |
| Murum | 0,05 | m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,17 | m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 455 | No./m3 | | | | |
| Cement | 0,246 | m3/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 382,33 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,01 | m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 493,03 | kg/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 17.636,00 |

figure 10: Cost estimate for "Design 7"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | 0,66 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 138,00 |
| R.C.C. (1:4:8) | 0,17 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,11 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft. long) | | | 2 | No | 300,00 | 600,00 |
| PVC T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,13 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,04 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 149,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.674,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 14.942,00 |

figure 11: Cost estimate for "Design 8"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|-----------|--------------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,61 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,61 | m3 | 80,00 | 49,00 |
| Murum | 0,81 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,85 | m3 | 200,00 | 170,00 |
| Mud Plaster (3:1) | 0,18 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,14 | m3 | 1.060,00 | 148,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,05 | m3 | 0,00 | 0,00 |
| Subtotal Foundation | | | | | | 367,00 |
| 2. Processing Compartment | | | | | | |
| Adobe Brick Work (6") | 0,86 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,43 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,30 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,13 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,05 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,02 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Slab | | | | | | |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 15 | No | 100,00 | 1.500,00 |
| Mud Plaster (3:1) | 0,16 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,12 | m3 | 1.060,00 | 127,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC Tee-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.469,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,14 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,05 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A. C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.685,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Adobe Brick Work (6") | 0,17 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,09 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,06 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,08 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,06 | m3 | 1.060,00 | 64,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,01 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,00 | m3 | 0,00 | 0,00 |
| Subtotal Staircase | | | | | | 78,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 11.319,00 |

figure 12: Cost estimate for "Design 9"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.40 | m ³ | 80.00 | 32.00 |
| Murum | 0.40 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.42 | m ³ | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m ³ | | | | |
| Cement | 161.95 | kg/m ³ | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m ³ /m ³ | 0.11 | m ³ | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m ³ /m ³ | 0.22 | m ³ | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m ³ /m ³ | 0.03 | m ³ | 1,060.00 | 32.00 |
| R.C.C. Slab (1:2:4) | 0.15 | m ³ | | | | |
| Cement | 308.53 | kg/m ³ | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m ³ /m ³ | 0.07 | m ³ | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m ³ /m ³ | 0.13 | m ³ | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m ³ | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m ³ /m ³ | 0.01 | m ³ | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8.70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100) | 16.67 | No/m ² | 145 | No | 22.00 | 3,190.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 30 | kg | 5.30 | 159.00 |
| Sand | 1,070 | m ³ /m ³ | 0.08 | m ³ | 1,060.00 | 85.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m ³ | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m ² | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies (300 x 450 mm) | | | 2 | No | 110.00 | 220.00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3.0 | m | 130.00 | 390.00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 2 | No | 100.00 | 200.00 |
| Steel Bar Hinges (6 mm dia.) | | | 1.0 | kg | 41.00 | 41.00 |
| Subtotal Superstructure | | | | | | 4,846.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.06 | m ³ | 80.00 | 5.00 |
| Murum | 0.06 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.06 | m ³ | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m ³ | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | 0.02 | m ³ | | | | |
| Cement | 382.33 | kg/m ³ | 8 | kg | 5.30 | 42.00 |
| Sand | 1,070 | m ³ /m ³ | 0.02 | m ³ | 1,060.00 | 21.00 |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | 8 | days | 150.00 | 1,200.00 |
| Subtotal Labour | | | | | | 2,400.00 |
| Grand Total | | | | | | 14,087.00 |

figure 4: Cost estimate for "Design 1"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|--------------------------------|----------|----------------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,40 | m ³ | 80,00 | 32,00 |
| Murum | 0,40 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,42 | m ³ | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m ³ /m ³ | 0,11 | m ³ | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,22 | m ³ | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| R.C.C. slab (12:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,60 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 60 | No | 22,00 | 1.320,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 12 | kg | 5,30 | 64,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| Water | 191 | l/m ³ | 6 | l | 0,00 | 0,00 |
| Ferro Cement (1:3) | 0,16 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 79 | kg | 5,30 | 419,00 |
| Sand | 1,070 | m ³ /m ³ | 0,17 | m ³ | 1.060,00 | 180,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 1 | No | 110,00 | 110,00 |
| Subtotal Superstructure | | | | | | 2.686,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0,02 | m ³ | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | | | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | | | | |
| Unskilled | | | 10 | days | 150,00 | 1.500,00 |
| Subtotal Labour | | | | | | 2.700,00 |
| Grand Total | | | | | | 12.227,00 |

figure 5: Cost estimate for "Design 2"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,40 | m3 | 80,00 | 32,00 |
| Murum | 0,40 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,42 | m3 | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m3/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m3/m3 | 0,22 | m3 | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m3/m3 | 0,03 | m3 | 1.060,00 | 32,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m3/m3 | 0,07 | m3 | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m3/m3 | 0,13 | m3 | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m3 | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| Bamboo Mats (130 x 180 cm) | | | 7 | No | 200,00 | 1.400,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 13 | No | 100,00 | 1.300,00 |
| Subtotal Superstructure | | | | | | 2.700,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m3 | | | | |
| Cement | 382,33 | kg/m3 | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 11.941,00 |

figure 6: Cost estimate for "Design 3"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,96 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,96 | m ³ | 80,00 | 77,00 |
| Murum | 0,09 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,09 | m ³ | 200,00 | 18,00 |
| Random Rubble Masonry | | | | | | |
| Rubble Masonry | 0,87 | m ³ | | | | |
| Stones | 1,05 | m ³ /m ³ | 0,91 | m ³ | 400,00 | 364,00 |
| Mortar (1:4) | 0,3 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 100 | kg | 5,30 | 530,00 |
| Sand | 1,070 | m ³ /m ³ | 0,28 | m ³ | 1,060,00 | 297,00 |
| P.C.C. (1:4:8) | 0,15 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 24 | kg | 5,30 | 127,00 |
| Sand | 0,470 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,14 | m ³ | 530,00 | 74,00 |
| Subtotal Foundation | | | | | | 1.561,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 4,20 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 70 | No | 22,00 | 1.540,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 14 | kg | 5,30 | 74,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1,060,00 | 42,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,84 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 14 | No | 22,00 | 308,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 3 | kg | 5,30 | 16,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1,060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 3.424,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8,70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 145 | No | 22,00 | 3.190,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 30 | kg | 5,30 | 159,00 |
| Sand | 1,070 | m ³ /m ³ | 0,08 | m ³ | 1,060,00 | 85,00 |
| Water | 191 | l/m ³ | 15 | l | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3,0 | m | 130,00 | 390,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 2 | No | 100,00 | 200,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,0 | kg | 41,00 | 41,00 |
| Subtotal Superstructure | | | | | | 4.846,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| 4" (290x190x100) Solid Block Masonry | | | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1,060,00 | 21,00 |
| Subtotal Staircase | | | | | | 797,00 |
| 5. Other hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Staircase | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| skilled | | | 4 | days | 300,00 | 1.200,00 |
| unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 15.548,00 |

figure 7: Cost estimate for "Design 4"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|--------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,57 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,57 | m ³ | 80,00 | 46,00 |
| Murum | 0,57 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,6 | m ³ | 200,00 | 120,00 |
| P.C.C. (1:4:8) | 0,34 | m³ | | | | |
| Cement | 161,95 | kg/m ³ | 55 | kg | 5,20 | 292,00 |
| Sand | 0,470 | m ³ /m ³ | 0,16 | m ³ | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,32 | m ³ | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,83 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m ³ /m ³ | 0,22 | m ³ | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m³ | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC T-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | 11,00 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 563 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | 0,09 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ /m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm, 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| Brick Work (Single Brick) | 0,17 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 16.361,00 |

figure 8: Cost estimate for "Design 5"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] | |
|---|--------------|-----------|----------|-------|-----------------------|------------------|--------|
| 1. Foundation | | | | | | | |
| Excavation | 0,57 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,57 | m3 | 80,00 | 46,00 | |
| Murum | 0,57 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,6 | m3 | 200,00 | 120,00 | |
| P.C.C. (1:4:8) | 0,34 | m3 | | | | | |
| Cement | 161,95 | kg/m3 | 55 | kg | 5,30 | 292,00 | |
| Sand | 0,470 | m3/m3 | 0,16 | m3 | 1.060,00 | 170,00 | |
| Aggregate | 0,95 | m3/m3 | 0,32 | m3 | 530,00 | 170,00 | |
| Subtotal Foundation | | | | | | 798,00 | |
| 2. Processing Compartment | | | | | | | |
| Brick Work (Single Brick) | 0,83 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 378 | No | 3,50 | 1.323,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 78 | kg | 5,30 | 413,00 | |
| Sand | 1,070 | m3/m3 | 0,22 | m3 | 1.060,00 | 233,00 | |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 | |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 | |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 | |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 | |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 | |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 | |
| Plaster (1:3) | 0,04 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Ventilation System | | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 | |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 | |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 | |
| Subtotal Processing Compartment | | | | | | 4.023,00 | |
| 3. Superstructure | | | | | | | |
| Brick Work (Half Brick) | 12,50 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 663 | No | 3,50 | 2.321,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 110 | kg | 5,30 | 583,00 | |
| Sand | 1,070 | m3/m3 | 0,31 | m3 | 1.060,00 | 329,00 | |
| Plaster (1:3) | 0,08 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 39 | kg | 5,30 | 207,00 | |
| Sand | 1,070 | m3/m3 | 0,09 | m3 | 1.060,00 | 95,00 | |
| Door | | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | | |
| Jalies | | | | 2 | No | 110,00 | 220,00 |
| Subtotal Superstructure | | | | | | 4.316,00 | |
| 4. Staircase | | | | | | | |
| Excavation | 0,06 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 | |
| Murum | 0,06 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 | |
| Brick Work (Single Brick) | 0,17 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Plaster (1:3) | 0,01 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 | |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 | |
| Subtotal Staircase | | | | | | 452,00 | |
| 5. Other Hardware | | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 | |
| Washbasin | | | 1 | No | 160,00 | 160,00 | |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 | |
| Urine Collection Container (20 l) | | | 3 | No | 250,00 | 750,00 | |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 | |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 | |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 | |
| Subtotal Other Hardware | | | | | | 2.770,00 | |
| 6. Labour | | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 | |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 | |
| Subtotal Labour | | | | | | 3.600,00 | |
| Grand Total | | | | | | 15.959,00 | |

figure 9: Cost estimate for "Design 6"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|--------------|-------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m³ | | | | |
| Excavation | 1,00 | m ³ m ³ | 1,28 | m ³ | 80,00 | 102,00 |
| Murum | 0,66 | m³ | | | | |
| Murum | 1,05 | m ³ m ³ | 0,69 | m ³ | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m ³ m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m ³ m ³ | 0,13 | m ³ | 1.060,00 | 136,00 |
| P.C.C. (1:4:8) | 0,17 | m³ | | | | |
| Cement | 161,95 | kg/m ³ | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m ³ m ³ | 0,08 | m ³ | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m ³ m ³ | 0,16 | m ³ | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m ³ m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m ³ m ³ | 0,26 | m ³ | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m³ | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,98 | m ³ m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Water | 191 | l/m ³ | 3 | l | 0,00 | 0,00 |
| Plaster (1:3) | 0,04 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | 11,00 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 583 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | 0,09 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m³ | | | | |
| Excavation | 1,00 | m ³ m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m³ | | | | |
| Murum | 1,05 | m ³ m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 17.636,00 |

figure 10: Cost estimate for "Design 7"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | 0,66 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 138,00 |
| R.C.C. (1:4:8) | 0,17 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,11 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft. long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,13 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,04 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 149,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.674,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | | | | |
| Urine-Diversion Squatting Pan | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | | | | |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 14.942,00 |

figure 11: Cost estimate for "Design 8"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|-----------|--------------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,61 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,61 | m3 | 80,00 | 49,00 |
| Murum | 0,81 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,85 | m3 | 200,00 | 170,00 |
| Mud Plaster (3:1) | 0,18 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,14 | m3 | 1.060,00 | 148,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,05 | m3 | 0,00 | 0,00 |
| Subtotal Foundation | | | | | | 367,00 |
| 2. Processing Compartment | | | | | | |
| Adobe Brick Work (6") | 0,86 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,43 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,30 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,13 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,05 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,02 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Slab | | | | | | |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 15 | No | 100,00 | 1.500,00 |
| Mud Plaster (3:1) | 0,16 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,12 | m3 | 1.060,00 | 127,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC Tee-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.469,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,14 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,05 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A. C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.685,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Adobe Brick Work (6") | 0,17 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,09 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,06 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,08 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,06 | m3 | 1.060,00 | 64,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,01 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,00 | m3 | 0,00 | 0,00 |
| Subtotal Staircase | | | | | | 78,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 11.319,00 |

figure 12: Cost estimate for "Design 9"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.40 | m ³ | 80.00 | 32.00 |
| Murum | 0.40 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.42 | m ³ | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m ³ | | | | |
| Cement | 161.95 | kg/m ³ | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m ³ /m ³ | 0.11 | m ³ | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m ³ /m ³ | 0.22 | m ³ | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m ³ /m ³ | 0.03 | m ³ | 1,060.00 | 32.00 |
| R.C.C. Slab (1:2:4) | 0.15 | m ³ | | | | |
| Cement | 308.53 | kg/m ³ | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m ³ /m ³ | 0.07 | m ³ | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m ³ /m ³ | 0.13 | m ³ | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m ³ | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m ³ /m ³ | 0.01 | m ³ | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8.70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100) | 16.67 | No/m ² | 145 | No | 22.00 | 3,190.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 30 | kg | 5.30 | 159.00 |
| Sand | 1,070 | m ³ /m ³ | 0.08 | m ³ | 1,060.00 | 85.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m ³ | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m ² | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies (300 x 450 mm) | | | 2 | No | 110.00 | 220.00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3.0 | m | 130.00 | 390.00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 2 | No | 100.00 | 200.00 |
| Steel Bar Hinges (6 mm dia.) | | | 1.0 | kg | 41.00 | 41.00 |
| Subtotal Superstructure | | | | | | 4,846.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.06 | m ³ | 80.00 | 5.00 |
| Murum | 0.06 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.06 | m ³ | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m ³ | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 8 | kg | 5.30 | 42.00 |
| Sand | 1,070 | m ³ /m ³ | 0.02 | m ³ | 1,060.00 | 21.00 |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | 8 | days | 150.00 | 1,200.00 |
| Subtotal Labour | | | | | | 2,400.00 |
| Grand Total | | | | | | 14,087.00 |

figure 4: Cost estimate for "Design 1"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,40 | m ³ | 80,00 | 32,00 |
| Murum | 0,40 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,42 | m ³ | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m ³ /m ³ | 0,11 | m ³ | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,22 | m ³ | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| R.C.C. slab (12:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,60 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 60 | No | 22,00 | 1.320,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 12 | kg | 5,30 | 64,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| Water | 191 | l/m ³ | 6 | l | 0,00 | 0,00 |
| Ferro Cement (1:3) | 0,16 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 79 | kg | 5,30 | 419,00 |
| Sand | 1,070 | m ³ /m ³ | 0,17 | m ³ | 1.060,00 | 180,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 1 | No | 110,00 | 110,00 |
| Subtotal Superstructure | | | | | | 2.686,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0,02 | m ³ | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | | | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 10 | days | 150,00 | 1.500,00 |
| Subtotal Labour | | | | | | 2.700,00 |
| Grand Total | | | | | | 12.227,00 |

figure 5: Cost estimate for "Design 2"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,40 | m3 | 80,00 | 32,00 |
| Murum | 0,40 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,42 | m3 | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m3/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m3/m3 | 0,22 | m3 | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m3/m3 | 0,03 | m3 | 1.060,00 | 32,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m3/m3 | 0,07 | m3 | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m3/m3 | 0,13 | m3 | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m3 | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| Bamboo Mats (130 x 180 cm) | | | 7 | No | 200,00 | 1.400,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 13 | No | 100,00 | 1.300,00 |
| Subtotal Superstructure | | | | | | 2.700,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m3 | | | | |
| Cement | 382,33 | kg/m3 | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 11.941,00 |

figure 6: Cost estimate for "Design 3"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,96 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,96 | m ³ | 80,00 | 77,00 |
| Murum | 0,09 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,09 | m ³ | 200,00 | 18,00 |
| Random Rubble Masonry | | | | | | |
| Rubble Masonry | 0,87 | m ³ | | | | |
| Stones | 1,05 | m ³ /m ³ | 0,91 | m ³ | 400,00 | 364,00 |
| Mortar (1:4) | 0,3 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 100 | kg | 5,30 | 530,00 |
| Sand | 1,070 | m ³ /m ³ | 0,28 | m ³ | 1,060,00 | 297,00 |
| P.C.C. (1:4:8) | 0,15 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 24 | kg | 5,30 | 127,00 |
| Sand | 0,470 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,14 | m ³ | 530,00 | 74,00 |
| Subtotal Foundation | | | | | | 1.561,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 4,20 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 70 | No | 22,00 | 1.540,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 14 | kg | 5,30 | 74,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1,060,00 | 42,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,84 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 14 | No | 22,00 | 308,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 3 | kg | 5,30 | 16,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1,060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 3.424,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8,70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 145 | No | 22,00 | 3.190,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 30 | kg | 5,30 | 159,00 |
| Sand | 1,070 | m ³ /m ³ | 0,08 | m ³ | 1,060,00 | 85,00 |
| Water | 191 | l/m ³ | 15 | l | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3,0 | m | 130,00 | 390,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 2 | No | 100,00 | 200,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,0 | kg | 41,00 | 41,00 |
| Subtotal Superstructure | | | | | | 4.846,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| 4" (290x190x100) Solid Block Masonry | | | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1,060,00 | 21,00 |
| Subtotal Staircase | | | | | | 797,00 |
| 5. Other hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Staircase | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| skilled | | | 4 | days | 300,00 | 1.200,00 |
| unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 15.548,00 |

figure 7: Cost estimate for "Design 4"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|----------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,57 | m ³ | 0,57 | m ³ | 80,00 | 46,00 |
| | 1,00 | m ³ /m ³ | | | | |
| Murum | | | | | | |
| Murum | 0,57 | m ³ | 0,6 | m ³ | 200,00 | 120,00 |
| | 1,05 | m ³ /m ³ | | | | |
| P.C.C. (1:4:8) | | | | | | |
| Cement | 0,34 | m ³ | | | | |
| | 161,95 | kg/m ³ | 55 | kg | 5,30 | 292,00 |
| Sand | 0,470 | m ³ /m ³ | 0,16 | m ³ | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,32 | m ³ | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,83 | m ³ | | | | |
| | 455 | No./m ³ | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m ³ /m ³ | 0,22 | m ³ | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | | | | | | |
| Cement | 0,23 | m ³ | | | | |
| | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,72 | m ² | | | | |
| | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,04 | m ³ | | | | |
| | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC T-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 11,00 | m ² | | | | |
| | 53 | No./m ² | 563 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,09 | m ³ | | | | |
| | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ /m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm, 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,06 | m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| | 1,00 | m ³ /m ³ | | | | |
| Murum | | | | | | |
| Murum | 0,06 | m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| | 1,05 | m ³ /m ³ | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,17 | m ³ | | | | |
| | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,01 | m ³ | | | | |
| | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 16.361,00 |

figure 8: Cost estimate for "Design 5"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] | |
|---|--------------|-----------|----------|-------|-----------------------|------------------|--------|
| 1. Foundation | | | | | | | |
| Excavation | 0,57 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,57 | m3 | 80,00 | 46,00 | |
| Murum | 0,57 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,6 | m3 | 200,00 | 120,00 | |
| P.C.C. (1:4:8) | 0,34 | m3 | | | | | |
| Cement | 161,95 | kg/m3 | 55 | kg | 5,30 | 292,00 | |
| Sand | 0,470 | m3/m3 | 0,16 | m3 | 1.060,00 | 170,00 | |
| Aggregate | 0,95 | m3/m3 | 0,32 | m3 | 530,00 | 170,00 | |
| Subtotal Foundation | | | | | | 798,00 | |
| 2. Processing Compartment | | | | | | | |
| Brick Work (Single Brick) | 0,83 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 378 | No | 3,50 | 1.323,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 78 | kg | 5,30 | 413,00 | |
| Sand | 1,070 | m3/m3 | 0,22 | m3 | 1.060,00 | 233,00 | |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 | |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 | |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 | |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 | |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 | |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 | |
| Plaster (1:3) | 0,04 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Ventilation System | | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 | |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 | |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 | |
| Subtotal Processing Compartment | | | | | | 4.023,00 | |
| 3. Superstructure | | | | | | | |
| Brick Work (Half Brick) | 12,50 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 663 | No | 3,50 | 2.321,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 110 | kg | 5,30 | 583,00 | |
| Sand | 1,070 | m3/m3 | 0,31 | m3 | 1.060,00 | 329,00 | |
| Plaster (1:3) | 0,08 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 39 | kg | 5,30 | 207,00 | |
| Sand | 1,070 | m3/m3 | 0,09 | m3 | 1.060,00 | 95,00 | |
| Door | | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | | |
| Jalies | | | | 2 | No | 110,00 | 220,00 |
| Subtotal Superstructure | | | | | | 4.316,00 | |
| 4. Staircase | | | | | | | |
| Excavation | 0,06 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 | |
| Murum | 0,06 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 | |
| Brick Work (Single Brick) | 0,17 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Plaster (1:3) | 0,01 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 | |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 | |
| Subtotal Staircase | | | | | | 452,00 | |
| 5. Other Hardware | | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 | |
| Washbasin | | | 1 | No | 160,00 | 160,00 | |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 | |
| Urine Collection Container (20 l) | | | 3 | No | 250,00 | 750,00 | |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 | |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 | |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 | |
| Subtotal Other Hardware | | | | | | 2.770,00 | |
| 6. Labour | | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 | |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 | |
| Subtotal Labour | | | | | | 3.600,00 | |
| Grand Total | | | | | | 15.959,00 | |

figure 9: Cost estimate for "Design 6"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] | |
|--|----------|-----------|----------|-------|-----------------------|------------------|----------|
| 1. Foundation | | | | | | | |
| Excavation | | | | | | | |
| Excavation | 1,28 | m3 | 1,28 | m3 | 80,00 | 102,00 | |
| Murum | | | | | | | |
| Murum | 0,66 | m3 | 0,69 | m3 | 200,00 | 138,00 | |
| Brick Work (Single Brick) | | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 | |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 136,00 | |
| P.C.C. (1:4:8) | | | | | | | |
| Cement | 161,95 | kg/m3 | 28 | kg | 5,30 | 148,00 | |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 | |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 | |
| Subtotal Foundation | | | | | | 1.743,00 | |
| 2. Processing Compartment | | | | | | | |
| Brick Work (Single Brick) | | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 | |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 | |
| R.C.C. Slab (1:2:4) | | | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 | |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 | |
| Aggregate | 0,98 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 | |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 | |
| Brick Work (Half Brick) Cover | | | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 | |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 | |
| Water | 191 | l/m3 | 3 | l | 0,00 | 0,00 | |
| Plaster (1:3) | | | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Ventilation System | | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 | |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 | |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 | |
| Subtotal Processing Compartment | | | | | | 4.356,00 | |
| 3. Superstructure | | | | | | | |
| Brick Work (Half Brick) | | | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 583 | No | 3,50 | 2.041,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 97 | kg | 5,30 | 514,00 | |
| Sand | 1,070 | m3/m3 | 0,27 | m3 | 1.060,00 | 286,00 | |
| Plaster (1:3) | | | | | | | |
| Cement | 0,09 | m3 | 44 | kg | 5,30 | 233,00 | |
| Sand | 493,03 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 | |
| Door | | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | | |
| Jalies | | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 | |
| 4. Staircase | | | | | | | |
| Excavation | | | | | | | |
| Excavation | 0,05 | m3 | 0,05 | m3 | 80,00 | 4,00 | |
| Murum | | | | | | | |
| Murum | 0,05 | m3 | 0,05 | m3 | 200,00 | 10,00 | |
| Brick Work (Single Brick) | | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Plaster (1:3) | | | | | | | |
| Cement | 0,01 | m3 | 5 | kg | 5,30 | 27,00 | |
| Sand | 493,03 | kg/m3 | 0,01 | m3 | 1.060,00 | 11,00 | |
| Subtotal Staircase | | | | | | 449,00 | |
| 5. Other Hardware | | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 | |
| 6. Labour | | | | | | | |
| Skilled | | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 | |
| Grand Total | | | | | | 17.636,00 | |

figure 10: Cost estimate for "Design 7"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | 0,66 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 138,00 |
| R.C.C. (1:4:8) | 0,17 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,11 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft. long) | | | 2 | No | 300,00 | 600,00 |
| PVC T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,13 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,04 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 149,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.674,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 14.942,00 |

figure 11: Cost estimate for "Design 8"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|-----------|--------------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,61 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,61 | m3 | 80,00 | 49,00 |
| Murum | 0,81 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,85 | m3 | 200,00 | 170,00 |
| Mud Plaster (3:1) | 0,18 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,14 | m3 | 1.060,00 | 148,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,05 | m3 | 0,00 | 0,00 |
| Subtotal Foundation | | | | | | 367,00 |
| 2. Processing Compartment | | | | | | |
| Adobe Brick Work (6") | 0,86 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,43 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,30 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,13 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,05 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,02 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Slab | | | | | | |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 15 | No | 100,00 | 1.500,00 |
| Mud Plaster (3:1) | 0,16 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,12 | m3 | 1.060,00 | 127,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC Tee-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.469,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,14 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,05 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A. C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.685,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Adobe Brick Work (6") | 0,17 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,09 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,06 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,08 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,06 | m3 | 1.060,00 | 64,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,01 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,00 | m3 | 0,00 | 0,00 |
| Subtotal Staircase | | | | | | 78,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 11.319,00 |

figure 12: Cost estimate for "Design 9"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.40 | m ³ | 80.00 | 32.00 |
| Murum | 0.40 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.42 | m ³ | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m ³ | | | | |
| Cement | 161.95 | kg/m ³ | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m ³ /m ³ | 0.11 | m ³ | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m ³ /m ³ | 0.22 | m ³ | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m ³ /m ³ | 0.03 | m ³ | 1,060.00 | 32.00 |
| R.C.C. Slab (1:2:4) | 0.15 | m ³ | | | | |
| Cement | 308.53 | kg/m ³ | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m ³ /m ³ | 0.07 | m ³ | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m ³ /m ³ | 0.13 | m ³ | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m ³ | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m ³ /m ³ | 0.01 | m ³ | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8.70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100) | 16.67 | No/m ² | 145 | No | 22.00 | 3,190.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 30 | kg | 5.30 | 159.00 |
| Sand | 1,070 | m ³ /m ³ | 0.08 | m ³ | 1,060.00 | 85.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m ³ | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m ² | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies (300 x 450 mm) | | | 2 | No | 110.00 | 220.00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3.0 | m | 130.00 | 390.00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 2 | No | 100.00 | 200.00 |
| Steel Bar Hinges (6 mm dia.) | | | 1.0 | kg | 41.00 | 41.00 |
| Subtotal Superstructure | | | | | | 4,846.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.06 | m ³ | 80.00 | 5.00 |
| Murum | 0.06 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.06 | m ³ | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m ³ | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 8 | kg | 5.30 | 42.00 |
| Sand | 1,070 | m ³ /m ³ | 0.02 | m ³ | 1,060.00 | 21.00 |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | 8 | days | 150.00 | 1,200.00 |
| Subtotal Labour | | | | | | 2,400.00 |
| Grand Total | | | | | | 14,087.00 |

figure 4: Cost estimate for "Design 1"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|--------------------------------|----------|----------------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,40 | m ³ | 80,00 | 32,00 |
| Murum | 0,40 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,42 | m ³ | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m ³ /m ³ | 0,11 | m ³ | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,22 | m ³ | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| R.C.C. slab (12:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,60 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 60 | No | 22,00 | 1.320,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 12 | kg | 5,30 | 64,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| Water | 191 | l/m ³ | 6 | l | 0,00 | 0,00 |
| Ferro Cement (1:3) | 0,16 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 79 | kg | 5,30 | 419,00 |
| Sand | 1,070 | m ³ /m ³ | 0,17 | m ³ | 1.060,00 | 180,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 1 | No | 110,00 | 110,00 |
| Subtotal Superstructure | | | | | | 2.686,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0,02 | m ³ | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | | | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | | | | |
| Unskilled | | | 10 | days | 150,00 | 1.500,00 |
| Subtotal Labour | | | | | | 2.700,00 |
| Grand Total | | | | | | 12.227,00 |

figure 5: Cost estimate for "Design 2"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,40 | m3 | 80,00 | 32,00 |
| Murum | 0,40 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,42 | m3 | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m3/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m3/m3 | 0,22 | m3 | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m3/m3 | 0,03 | m3 | 1.060,00 | 32,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m3/m3 | 0,07 | m3 | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m3/m3 | 0,13 | m3 | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m3 | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| Bamboo Mats (130 x 180 cm) | | | 7 | No | 200,00 | 1.400,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 13 | No | 100,00 | 1.300,00 |
| Subtotal Superstructure | | | | | | 2.700,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m3 | | | | |
| Cement | 382,33 | kg/m3 | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 11.941,00 |

figure 6: Cost estimate for "Design 3"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,96 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,96 | m ³ | 80,00 | 77,00 |
| Murum | 0,09 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,09 | m ³ | 200,00 | 18,00 |
| Random Rubble Masonry | | | | | | |
| Rubble Masonry | 0,87 | m ³ | | | | |
| Stones | 1,05 | m ³ /m ³ | 0,91 | m ³ | 400,00 | 364,00 |
| Mortar (1:4) | 0,3 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 100 | kg | 5,30 | 530,00 |
| Sand | 1,070 | m ³ /m ³ | 0,28 | m ³ | 1,060,00 | 297,00 |
| P.C.C. (1:4:8) | 0,15 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 24 | kg | 5,30 | 127,00 |
| Sand | 0,470 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,14 | m ³ | 530,00 | 74,00 |
| Subtotal Foundation | | | | | | 1.561,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 4,20 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 70 | No | 22,00 | 1.540,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 14 | kg | 5,30 | 74,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1,060,00 | 42,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,84 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 14 | No | 22,00 | 308,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 3 | kg | 5,30 | 16,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1,060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 3.424,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8,70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 145 | No | 22,00 | 3.190,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 30 | kg | 5,30 | 159,00 |
| Sand | 1,070 | m ³ /m ³ | 0,08 | m ³ | 1,060,00 | 85,00 |
| Water | 191 | l/m ³ | 15 | l | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3,0 | m | 130,00 | 390,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 2 | No | 100,00 | 200,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,0 | kg | 41,00 | 41,00 |
| Subtotal Superstructure | | | | | | 4.846,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| 4" (290x190x100) Solid Block Masonry | | | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1,060,00 | 21,00 |
| Subtotal Staircase | | | | | | 797,00 |
| 5. Other hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Staircase | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| skilled | | | 4 | days | 300,00 | 1.200,00 |
| unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 15.548,00 |

figure 7: Cost estimate for "Design 4"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|----------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,57 | m ³ | 0,57 | m ³ | 80,00 | 46,00 |
| | 1,00 | m ³ /m ³ | | | | |
| Murum | | | | | | |
| Murum | 0,57 | m ³ | 0,6 | m ³ | 200,00 | 120,00 |
| | 1,05 | m ³ /m ³ | | | | |
| P.C.C. (1:4:8) | | | | | | |
| Cement | 0,34 | m ³ | | | | |
| | 161,95 | kg/m ³ | 55 | kg | 5,30 | 292,00 |
| Sand | 0,470 | m ³ /m ³ | 0,16 | m ³ | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,32 | m ³ | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,83 | m ³ | | | | |
| | 455 | No./m ³ | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m ³ /m ³ | 0,22 | m ³ | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | | | | | | |
| Cement | 0,23 | m ³ | | | | |
| | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,72 | m ² | | | | |
| | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,04 | m ³ | | | | |
| | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC T-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 11,00 | m ² | | | | |
| | 53 | No./m ² | 563 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,09 | m ³ | | | | |
| | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ /m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm, 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,06 | m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| | 1,00 | m ³ /m ³ | | | | |
| Murum | | | | | | |
| Murum | 0,06 | m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| | 1,05 | m ³ /m ³ | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,17 | m ³ | | | | |
| | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,01 | m ³ | | | | |
| | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 16.361,00 |

figure 8: Cost estimate for "Design 5"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] | |
|---|--------------|-----------|----------|-------|-----------------------|------------------|--------|
| 1. Foundation | | | | | | | |
| Excavation | 0,57 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,57 | m3 | 80,00 | 46,00 | |
| Murum | 0,57 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,6 | m3 | 200,00 | 120,00 | |
| P.C.C. (1:4:8) | 0,34 | m3 | | | | | |
| Cement | 161,95 | kg/m3 | 55 | kg | 5,30 | 292,00 | |
| Sand | 0,470 | m3/m3 | 0,16 | m3 | 1.060,00 | 170,00 | |
| Aggregate | 0,95 | m3/m3 | 0,32 | m3 | 530,00 | 170,00 | |
| Subtotal Foundation | | | | | | 798,00 | |
| 2. Processing Compartment | | | | | | | |
| Brick Work (Single Brick) | 0,83 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 378 | No | 3,50 | 1.323,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 78 | kg | 5,30 | 413,00 | |
| Sand | 1,070 | m3/m3 | 0,22 | m3 | 1.060,00 | 233,00 | |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 | |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1.060,00 | 106,00 | |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 | |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 | |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 | |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 | |
| Plaster (1:3) | 0,04 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Ventilation System | | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 | |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 | |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 | |
| Subtotal Processing Compartment | | | | | | 4.023,00 | |
| 3. Superstructure | | | | | | | |
| Brick Work (Half Brick) | 12,50 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 663 | No | 3,50 | 2.321,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 110 | kg | 5,30 | 583,00 | |
| Sand | 1,070 | m3/m3 | 0,31 | m3 | 1.060,00 | 329,00 | |
| Plaster (1:3) | 0,08 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 39 | kg | 5,30 | 207,00 | |
| Sand | 1,070 | m3/m3 | 0,09 | m3 | 1.060,00 | 95,00 | |
| Door | | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | | |
| Jalies | | | | 2 | No | 110,00 | 220,00 |
| Subtotal Superstructure | | | | | | 4.316,00 | |
| 4. Staircase | | | | | | | |
| Excavation | 0,06 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 | |
| Murum | 0,06 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 | |
| Brick Work (Single Brick) | 0,17 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 | |
| Plaster (1:3) | 0,01 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 | |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 | |
| Subtotal Staircase | | | | | | 452,00 | |
| 5. Other Hardware | | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 | |
| Washbasin | | | 1 | No | 160,00 | 160,00 | |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 | |
| Urine Collection Container (20 l) | | | 3 | No | 250,00 | 750,00 | |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 | |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 | |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 | |
| Subtotal Other Hardware | | | | | | 2.770,00 | |
| 6. Labour | | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 | |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 | |
| Subtotal Labour | | | | | | 3.600,00 | |
| Grand Total | | | | | | 15.959,00 | |

figure 9: Cost estimate for "Design 6"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|----------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | | | | | | |
| Excavation | 1,28 | m ³ | 1,28 | m ³ | 80,00 | 102,00 |
| Murum | | | | | | |
| Murum | 0,66 | m ³ | 0,69 | m ³ | 200,00 | 138,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m ³ /m ³ | 0,13 | m ³ | 1.060,00 | 136,00 |
| P.C.C. (1:4:8) | | | | | | |
| Cement | 161,95 | kg/m ³ | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m ³ /m ³ | 0,08 | m ³ | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,16 | m ³ | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,97 | m ³ | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m ³ /m ³ | 0,26 | m ³ | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | | | | | | |
| Cement | 0,23 | m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 308,53 | kg/m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,98 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,72 | m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 53 | No./m ² | | | | |
| Cement | 0,023 | m ³ /m ² | 6 | kg | 5,30 | 32,00 |
| Sand | 382,33 | kg/m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Water | 1,070 | m ³ /m ³ | 3 | l | 0,00 | 0,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,04 | m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 493,03 | kg/m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 11,00 | m ² | 583 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 53 | No./m ² | | | | |
| Cement | 0,023 | m ³ /m ² | 97 | kg | 5,30 | 514,00 |
| Sand | 382,33 | kg/m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,09 | m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 493,03 | kg/m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,05 | m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | | | | | | |
| Murum | 0,05 | m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 0,17 | m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 455 | No./m ³ | | | | |
| Cement | 0,246 | m ³ /m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 382,33 | kg/m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,01 | m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 493,03 | kg/m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 17.636,00 |

figure 10: Cost estimate for "Design 7"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | 0,66 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 138,00 |
| R.C.C. (1:4:8) | 0,17 | m3 | | | | |
| Cement | 181,95 | kg/m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,11 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft. long) | | | 2 | No | 300,00 | 600,00 |
| PVC T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,13 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,04 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 149,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.674,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 14.942,00 |

figure 11: Cost estimate for "Design 8"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0.40 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.40 | m ³ | 80.00 | 32.00 |
| Murum | 0.40 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.42 | m ³ | 200.00 | 84.00 |
| P.C.C. (1:4:8) | 0.23 | m ³ | | | | |
| Cement | 161.95 | kg/m ³ | 37 | kg | 5.30 | 196.00 |
| Sand | 0.470 | m ³ /m ³ | 0.11 | m ³ | 1,060.00 | 117.00 |
| Aggregate | 0.95 | m ³ /m ³ | 0.22 | m ³ | 530.00 | 117.00 |
| Subtotal Foundation | | | | | | 546.00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3.15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 53 | No | 22.00 | 1,166.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 11 | kg | 5.30 | 58.00 |
| Sand | 1,070 | m ³ /m ³ | 0.03 | m ³ | 1,060.00 | 32.00 |
| R.C.C. Slab (1:2:4) | 0.15 | m ³ | | | | |
| Cement | 308.53 | kg/m ³ | 46 | kg | 5.30 | 244.00 |
| Sand | 0.440 | m ³ /m ³ | 0.07 | m ³ | 1,060.00 | 74.00 |
| Aggregate | 0.88 | m ³ /m ³ | 0.13 | m ³ | 530.00 | 69.00 |
| Reinforcement | 40 | kg/m ³ | 6.0 | kg | 41.00 | 246.00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0.72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16.67 | No/m ² | 12 | No | 22.00 | 264.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 2 | kg | 5.30 | 11.00 |
| Sand | 1,070 | m ³ /m ³ | 0.01 | m ³ | 1,060.00 | 11.00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300.00 | 600.00 |
| PVC "T"-Piece (4") | | | 2 | No | 60.00 | 120.00 |
| PVC Pipe Cover (4") | | | 2 | No | 40.00 | 80.00 |
| Subtotal Processing Compartment | | | | | | 2,975.00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8.70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100) | 16.67 | No/m ² | 145 | No | 22.00 | 3,190.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 30 | kg | 5.30 | 159.00 |
| Sand | 1,070 | m ³ /m ³ | 0.08 | m ³ | 1,060.00 | 85.00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0.007 | m ³ | 21,200.00 | 148.00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2.70 | m ² | 150.00 | 405.00 |
| Steel Bar Hinges (6 mm dia.) | | | 0.2 | kg | 41.00 | 8.00 |
| Jalies | | | | | | |
| Jalies (300 x 450 mm) | | | 2 | No | 110.00 | 220.00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3.0 | m | 130.00 | 390.00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 2 | No | 100.00 | 200.00 |
| Steel Bar Hinges (6 mm dia.) | | | 1.0 | kg | 41.00 | 41.00 |
| Subtotal Superstructure | | | | | | 4,846.00 |
| 4. Staircase | | | | | | |
| Excavation | 0.06 | m ³ | | | | |
| Excavation | 1.00 | m ³ /m ³ | 0.06 | m ³ | 80.00 | 5.00 |
| Murum | 0.06 | m ³ | | | | |
| Murum | 1.05 | m ³ /m ³ | 0.06 | m ³ | 200.00 | 12.00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0.02 | m ³ | 24 | No | 30.00 | 720.00 |
| Mortar (1:4) | 0.0069 | m ³ /m ² | | | | |
| Cement | 382.33 | kg/m ³ | 8 | kg | 5.30 | 42.00 |
| Sand | 1,070 | m ³ /m ³ | 0.02 | m ³ | 1,060.00 | 21.00 |
| Subtotal Staircase | | | | | | 800.00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1,000.00 | 1,000.00 |
| Washbasin | | | 1 | No | 160.00 | 160.00 |
| Greywater Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Urine Pipe | | | 1.5 | m | 40.00 | 60.00 |
| Urine Collection Container (20 l) | | | 2 | No | 250.00 | 500.00 |
| Cleansing Water Pipe | | | 2.5 | m | 40.00 | 100.00 |
| Bucket (Cover Material) | | | 1 | No | 150.00 | 150.00 |
| Bucket (Water) | | | 1 | No | 150.00 | 150.00 |
| Cleansing Water Infiltration | | | 1 | LS | 300.00 | 300.00 |
| Subtotal Other Hardware | | | | | | 2,520.00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300.00 | 1,200.00 |
| Unskilled | | | 8 | days | 150.00 | 1,200.00 |
| Subtotal Labour | | | | | | 2,400.00 |
| Grand Total | | | | | | 14,087.00 |

figure 42: Cost estimate for "Design 9"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|--------------------------------|----------|----------------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,40 | m ³ | 80,00 | 32,00 |
| Murum | 0,40 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,42 | m ³ | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m ³ /m ³ | 0,11 | m ³ | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,22 | m ³ | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| R.C.C. slab (12:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,60 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 60 | No | 22,00 | 1.320,00 |
| Mortar (1:4) | 0,0089 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 12 | kg | 5,30 | 64,00 |
| Sand | 1,070 | m ³ /m ³ | 0,03 | m ³ | 1.060,00 | 32,00 |
| Water | 191 | l/m ³ | 6 | l | 0,00 | 0,00 |
| Ferro Cement (1:3) | 0,16 | m ³ | | | | |
| Cement | 493,03 | kg/m ³ | 79 | kg | 5,30 | 419,00 |
| Sand | 1,070 | m ³ /m ³ | 0,17 | m ³ | 1.060,00 | 180,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 1 | No | 110,00 | 110,00 |
| Subtotal Superstructure | | | | | | 2.686,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 0,02 | m ³ | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | | | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | | | | |
| Unskilled | | | 10 | days | 150,00 | 1.500,00 |
| Subtotal Labour | | | | | | 2.700,00 |
| Grand Total | | | | | | 12.227,00 |

figure 5: Cost estimate for "Design 2"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|--------------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,40 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,40 | m3 | 80,00 | 32,00 |
| Murum | 0,40 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,42 | m3 | 200,00 | 84,00 |
| P.C.C. (1:4:8) | 0,23 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 37 | kg | 5,30 | 196,00 |
| Sand | 0,470 | m3/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Aggregate | 0,95 | m3/m3 | 0,22 | m3 | 530,00 | 117,00 |
| Subtotal Foundation | | | | | | 546,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 3,15 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 53 | No | 22,00 | 1.166,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 11 | kg | 5,30 | 58,00 |
| Sand | 1,070 | m3/m3 | 0,03 | m3 | 1.060,00 | 32,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m3/m3 | 0,07 | m3 | 1.060,00 | 74,00 |
| Aggregate | 0,88 | m3/m3 | 0,13 | m3 | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m3 | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,72 | m2 | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m2 | 12 | No | 22,00 | 264,00 |
| Mortar (1:4) | 0,0089 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 2 | kg | 5,30 | 11,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.975,00 |
| 3. Superstructure | | | | | | |
| Bamboo Mats (130 x 180 cm) | | | 7 | No | 200,00 | 1.400,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 13 | No | 100,00 | 1.300,00 |
| Subtotal Superstructure | | | | | | 2.700,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 |
| Murum | 0,06 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 |
| 4" (290x190x100) Solid Block Masonry | 24 | No | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m3 | | | | |
| Cement | 382,33 | kg/m3 | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Subtotal Staircase | | | | | | 800,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 4 | days | 300,00 | 1.200,00 |
| Unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 11.941,00 |

figure 6: Cost estimate for "Design 3"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,96 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,96 | m ³ | 80,00 | 77,00 |
| Murum | 0,09 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,09 | m ³ | 200,00 | 18,00 |
| Random Rubble Masonry | | | | | | |
| Rubble Masonry | 0,87 | m ³ | | | | |
| Stones | 1,05 | m ³ /m ³ | 0,91 | m ³ | 400,00 | 364,00 |
| Mortar (1:4) | 0,3 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 100 | kg | 5,30 | 530,00 |
| Sand | 1,070 | m ³ /m ³ | 0,28 | m ³ | 1,060,00 | 297,00 |
| P.C.C. (1:4:8) | 0,15 | m ³ | | | | |
| Cement | 161,95 | kg/m ³ | 24 | kg | 5,30 | 127,00 |
| Sand | 0,470 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,14 | m ³ | 530,00 | 74,00 |
| Subtotal Foundation | | | | | | 1.561,00 |
| 2. Processing Compartment | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 4,20 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 70 | No | 22,00 | 1.540,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 14 | kg | 5,30 | 74,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1,060,00 | 42,00 |
| R.C.C. Slab (1:2:4) | 0,15 | m ³ | | | | |
| Cement | 308,53 | kg/m ³ | 46 | kg | 5,30 | 244,00 |
| Sand | 0,440 | m ³ /m ³ | 0,07 | m ³ | 1,060,00 | 74,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,13 | m ³ | 530,00 | 69,00 |
| Reinforcement | 40 | kg/m ³ | 6,0 | kg | 41,00 | 246,00 |
| 4" (290x190x100) Hollow Block Masonry Cover | 0,84 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 14 | No | 22,00 | 308,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 3 | kg | 5,30 | 16,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1,060,00 | 11,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 3.424,00 |
| 3. Superstructure | | | | | | |
| 4" (290x190x100) Hollow Block Masonry | 8,70 | m ² | | | | |
| Hollow Blocks (290 x 190 x 100 mm) | 16,67 | No/m ² | 145 | No | 22,00 | 3.190,00 |
| Mortar (1:4) | 0,0069 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 30 | kg | 5,30 | 159,00 |
| Sand | 1,070 | m ³ /m ³ | 0,08 | m ³ | 1,060,00 | 85,00 |
| Water | 191 | l/m ³ | 15 | l | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 150 cm) | | | 3,0 | m | 130,00 | 390,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 2 | No | 100,00 | 200,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,0 | kg | 41,00 | 41,00 |
| Subtotal Superstructure | | | | | | 4.846,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m ³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | 0,05 | m ³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| 4" (290x190x100) Solid Block Masonry | | | | | | |
| Solid Blocks (290 x 190 x 100 mm) | 24 | No | 24 | No | 30,00 | 720,00 |
| Mortar (1:4) | 0,02 | m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 8 | kg | 5,30 | 42,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1,060,00 | 21,00 |
| Subtotal Staircase | | | | | | 797,00 |
| 5. Other hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| skilled | | | 4 | days | 300,00 | 1.200,00 |
| unskilled | | | 8 | days | 150,00 | 1.200,00 |
| Subtotal Labour | | | | | | 2.400,00 |
| Grand Total | | | | | | 15.548,00 |

figure 7: Cost estimate for "Design 4"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|--------------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,57 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,57 | m ³ | 80,00 | 46,00 |
| Murum | 0,57 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,6 | m ³ | 200,00 | 120,00 |
| P.C.C. (1:4:8) | 0,34 | m³ | | | | |
| Cement | 161,95 | kg/m ³ | 55 | kg | 5,30 | 292,00 |
| Sand | 0,470 | m ³ /m ³ | 0,16 | m ³ | 1.060,00 | 170,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,32 | m ³ | 530,00 | 170,00 |
| Subtotal Foundation | | | | | | 798,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,83 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 378 | No | 3,50 | 1.323,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 78 | kg | 5,30 | 413,00 |
| Sand | 1,070 | m ³ /m ³ | 0,22 | m ³ | 1.060,00 | 233,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m³ | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC T-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.023,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | 11,00 | m² | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 563 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | 0,09 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 1,070 | m ³ /m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m ³ | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m ² | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm, 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 16 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,06 | m³ | | | | |
| Excavation | 1,00 | m ³ /m ³ | 0,06 | m ³ | 80,00 | 5,00 |
| Murum | 0,06 | m³ | | | | |
| Murum | 1,05 | m ³ /m ³ | 0,06 | m ³ | 200,00 | 12,00 |
| Brick Work (Single Brick) | 0,17 | m³ | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m³ | | | | |
| Cement | 493,03 | kg/m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m ³ /m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 452,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 16.361,00 |

figure 8: Cost estimate for "Design 5"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] | |
|---|--------------|-----------|----------|-------|-----------------------|------------------|--------|
| 1. Foundation | | | | | | | |
| Excavation | 0.57 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,57 | m3 | 80,00 | 46,00 | |
| Murum | 0.57 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,6 | m3 | 200,00 | 120,00 | |
| P.C.C. (1:4:8) | 0.34 | m3 | | | | | |
| Cement | 161,95 | kg/m3 | 55 | kg | 5,30 | 292,00 | |
| Sand | 0,470 | m3/m3 | 0,16 | m3 | 1,060,00 | 170,00 | |
| Aggregate | 0,95 | m3/m3 | 0,32 | m3 | 530,00 | 170,00 | |
| Subtotal Foundation | | | | | | 798,00 | |
| 2. Processing Compartment | | | | | | | |
| Brick Work (Single Brick) | 0.83 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 378 | No | 3,50 | 1.323,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 78 | kg | 5,30 | 413,00 | |
| Sand | 1,070 | m3/m3 | 0,22 | m3 | 1,060,00 | 233,00 | |
| R.C.C. Slab (1:2:4) | 0.23 | m3 | | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 | |
| Sand | 0,440 | m3/m3 | 0,1 | m3 | 1,060,00 | 106,00 | |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 | |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 | |
| Brick Work (Half Brick) Cover | 0.72 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 | |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1,060,00 | 21,00 | |
| Plaster (1:3) | 0.04 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1,060,00 | 42,00 | |
| Ventilation System | | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 | |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 | |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 | |
| Subtotal Processing Compartment | | | | | | 4.023,00 | |
| 3. Superstructure | | | | | | | |
| Brick Work (Half Brick) | 12.50 | m2 | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 663 | No | 3,50 | 2.321,00 | |
| Mortar (1:4) | 0,023 | m3/m2 | | | | | |
| Cement | 382,33 | kg/m3 | 110 | kg | 5,30 | 583,00 | |
| Sand | 1,070 | m3/m3 | 0,31 | m3 | 1,060,00 | 329,00 | |
| Plaster (1:3) | 0.08 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 39 | kg | 5,30 | 207,00 | |
| Sand | 1,070 | m3/m3 | 0,09 | m3 | 1,060,00 | 95,00 | |
| Door | | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 | 8,00 |
| Jalies | | | | | | | |
| Jalies | | | | 2 | No | 110,00 | 220,00 |
| Subtotal Superstructure | | | | | | 4.316,00 | |
| 4. Staircase | | | | | | | |
| Excavation | 0.06 | m3 | | | | | |
| Excavation | 1,00 | m3/m3 | 0,06 | m3 | 80,00 | 5,00 | |
| Murum | 0.06 | m3 | | | | | |
| Murum | 1,05 | m3/m3 | 0,06 | m3 | 200,00 | 12,00 | |
| Brick Work (Single Brick) | 0.17 | m3 | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 | |
| Mortar (1:4) | 0,246 | m3/m3 | | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 | |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1,060,00 | 42,00 | |
| Plaster (1:3) | 0.01 | m3 | | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 | |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1,060,00 | 11,00 | |
| Subtotal Staircase | | | | | | 452,00 | |
| 5. Other Hardware | | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 | |
| Washbasin | | | 1 | No | 160,00 | 160,00 | |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 | |
| Urine Collection Container (20 l) | | | 3 | No | 250,00 | 750,00 | |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 | |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 | |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 | |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 | |
| Subtotal Other Hardware | | | | | | 2.770,00 | |
| 6. Labour | | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 | |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 | |
| Subtotal Labour | | | | | | 3.600,00 | |
| Grand Total | | | | | | 15.959,00 | |

figure 9: Cost estimate for "Design 6"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|----------|--------------------------------|----------|----------------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | | | | | | |
| Excavation | 1,28 | m ³ | 1,28 | m ³ | 80,00 | 102,00 |
| Murum | | | | | | |
| Murum | 0,66 | m ³ | 0,69 | m ³ | 200,00 | 138,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m ³ /m ³ | 0,13 | m ³ | 1.060,00 | 136,00 |
| P.C.C. (1:4:8) | | | | | | |
| Cement | 161,95 | kg/m ³ | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m ³ /m ³ | 0,08 | m ³ | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m ³ /m ³ | 0,16 | m ³ | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m ³ /m ³ | 0,26 | m ³ | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | | | | | | |
| Cement | 308,53 | kg/m ³ | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m ³ /m ³ | 0,1 | m ³ | 1.060,00 | 106,00 |
| Aggregate | 0,98 | m ³ /m ³ | 0,2 | m ³ | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m ³ | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m ³ /m ³ | 0,02 | m ³ | 1.060,00 | 21,00 |
| Water | 191 | l/m ³ | 3 | l | 0,00 | 0,00 |
| Plaster (1:3) | | | | | | |
| Cement | 493,03 | kg/m ³ | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC "T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Brick Work (Half Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m ² | 583 | No | 3,50 | 2.041,00 |
| Mortar (1:4) | 0,023 | m ³ /m ² | | | | |
| Cement | 382,33 | kg/m ³ | 97 | kg | 5,30 | 514,00 |
| Sand | 1,070 | m ³ /m ³ | 0,27 | m ³ | 1.060,00 | 286,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,09 | m ³ | 44 | kg | 5,30 | 233,00 |
| Sand | 493,03 | kg/m ³ | 0,10 | m ³ | 1.060,00 | 106,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | | 0,007 | m ³ | 21.200,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | | 2,70 | m ² | 150,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 0,2 | kg | 41,00 |
| Jalies | | | | | | |
| Jalies | | | 2 | No | 110,00 | 220,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | | 5,0 | m | 130,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | | 3 | No | 100,00 |
| Steel Bar Hinges (6 mm dia.) | | | | 1,4 | kg | 41,00 |
| Subtotal Superstructure | | | | | | 4.968,00 |
| 4. Staircase | | | | | | |
| Excavation | | | | | | |
| Excavation | 0,05 | m ³ | 0,05 | m ³ | 80,00 | 4,00 |
| Murum | | | | | | |
| Murum | 0,05 | m ³ | 0,05 | m ³ | 200,00 | 10,00 |
| Brick Work (Single Brick) | | | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m ³ | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m ³ /m ³ | | | | |
| Cement | 382,33 | kg/m ³ | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m ³ /m ³ | 0,04 | m ³ | 1.060,00 | 42,00 |
| Plaster (1:3) | | | | | | |
| Cement | 0,01 | m ³ | 5 | kg | 5,30 | 27,00 |
| Sand | 493,03 | kg/m ³ | 0,01 | m ³ | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 12 | days | 150,00 | 1.800,00 |
| Subtotal Labour | | | | | | 3.600,00 |
| Grand Total | | | | | | 17.636,00 |

figure 10: Cost estimate for "Design 7"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|--|-------------|-----------|----------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 1,28 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 1,28 | m3 | 80,00 | 102,00 |
| Murum | 0,66 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,69 | m3 | 200,00 | 138,00 |
| Brick Work (Single Brick) | 0,50 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 228 | No | 3,50 | 798,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 47 | kg | 5,30 | 249,00 |
| Sand | 1,070 | m3/m3 | 0,13 | m3 | 1.060,00 | 138,00 |
| R.C.C. (1:4:8) | 0,17 | m3 | | | | |
| Cement | 161,95 | kg/m3 | 28 | kg | 5,30 | 148,00 |
| Sand | 0,470 | m3/m3 | 0,08 | m3 | 1.060,00 | 85,00 |
| Aggregate | 0,95 | m3/m3 | 0,16 | m3 | 530,00 | 85,00 |
| Subtotal Foundation | | | | | | 1.743,00 |
| 2. Processing Compartment | | | | | | |
| Brick Work (Single Brick) | 0,97 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 441 | No | 3,50 | 1.544,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 91 | kg | 5,30 | 482,00 |
| Sand | 1,070 | m3/m3 | 0,26 | m3 | 1.060,00 | 276,00 |
| R.C.C. Slab (1:2:4) | 0,23 | m3 | | | | |
| Cement | 308,53 | kg/m3 | 71 | kg | 5,30 | 376,00 |
| Sand | 0,440 | m3/m3 | 0,11 | m3 | 1.060,00 | 106,00 |
| Aggregate | 0,88 | m3/m3 | 0,2 | m3 | 530,00 | 106,00 |
| Reinforcement | 35 | kg/m3 | 8,1 | kg | 41,00 | 332,00 |
| Brick Work (Half Brick) Cover | 0,72 | m2 | | | | |
| Bricks (230 x 110 x 70 mm) | 53 | No./m2 | 38 | No | 3,50 | 133,00 |
| Mortar (1:4) | 0,023 | m3/m2 | | | | |
| Cement | 382,33 | kg/m3 | 6 | kg | 5,30 | 32,00 |
| Sand | 1,070 | m3/m3 | 0,02 | m3 | 1.060,00 | 21,00 |
| Plaster (1:3) | 0,04 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 20 | kg | 5,30 | 106,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft. long) | | | 2 | No | 300,00 | 600,00 |
| PVC T"-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 4.356,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,13 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,10 | m3 | 1.060,00 | 106,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,04 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 149,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A.C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.674,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Brick Work (Single Brick) | 0,17 | m3 | | | | |
| Bricks (230 x 110 x 70 mm) | 455 | No./m3 | 77 | No | 3,50 | 270,00 |
| Mortar (1:4) | 0,246 | m3/m3 | | | | |
| Cement | 382,33 | kg/m3 | 16 | kg | 5,30 | 85,00 |
| Sand | 1,070 | m3/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Plaster (1:3) | 0,01 | m3 | | | | |
| Cement | 493,03 | kg/m3 | 5 | kg | 5,30 | 27,00 |
| Sand | 1,070 | m3/m3 | 0,01 | m3 | 1.060,00 | 11,00 |
| Subtotal Staircase | | | | | | 449,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 14.942,00 |

figure 11: Cost estimate for "Design 8"

| | Quantity | Unit/Unit | Quantity | Unit | Unit Costs [INR/Unit] | Costs [INR] |
|---|-------------|-----------|--------------|------|-----------------------|------------------|
| 1. Foundation | | | | | | |
| Excavation | 0,61 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,61 | m3 | 80,00 | 49,00 |
| Murum | 0,81 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,85 | m3 | 200,00 | 170,00 |
| Mud Plaster (3:1) | 0,18 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,14 | m3 | 1.060,00 | 148,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,05 | m3 | 0,00 | 0,00 |
| Subtotal Foundation | | | | | | 367,00 |
| 2. Processing Compartment | | | | | | |
| Adobe Brick Work (6") | 0,86 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,43 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,30 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,13 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,05 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,04 | m3 | 1.060,00 | 42,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,02 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,01 | m3 | 0,00 | 0,00 |
| Slab | | | | | | |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 15 | No | 100,00 | 1.500,00 |
| Mud Plaster (3:1) | 0,16 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,12 | m3 | 1.060,00 | 127,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Ventilation System | | | | | | |
| PVC Pipe (4", 20 ft long) | | | 2 | No | 300,00 | 600,00 |
| PVC Tee-Piece (4") | | | 2 | No | 60,00 | 120,00 |
| PVC Pipe Cover (4") | | | 2 | No | 40,00 | 80,00 |
| Subtotal Processing Compartment | | | | | | 2.469,00 |
| 3. Superstructure | | | | | | |
| Adobe Brick Work (6") | 2,46 | m3 | | | | |
| Adobe Bricks and Mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 1,23 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,86 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,37 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,14 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,11 | m3 | 1.060,00 | 117,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,04 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,05 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Door | | | | | | |
| Wooden Battens (5.6 m @ 50 x 25 mm) | | | 0,007 | m3 | 21.200,00 | 148,00 |
| Galvanized Plain Steel Sheet (2 sheets @ 75 x 180 cm) | | | 2,70 | m2 | 150,00 | 405,00 |
| Steel Bar Hinges (6 mm dia.) | | | 0,2 | kg | 41,00 | 8,00 |
| Roof | | | | | | |
| Corrugated A. C. Sheets (6 mm; 2 sheets @ 105 x 250 cm) | | | 5,0 | m | 130,00 | 650,00 |
| Bamboo Sticks (ca. 4 cm dia., 18 ft long) | | | 3 | No | 100,00 | 300,00 |
| Steel Bar Hinges (6 mm dia.) | | | 1,4 | kg | 41,00 | 57,00 |
| Subtotal Superstructure | | | | | | 1.685,00 |
| 4. Staircase | | | | | | |
| Excavation | 0,05 | m3 | | | | |
| Excavation | 1,00 | m3/m3 | 0,05 | m3 | 80,00 | 4,00 |
| Murum | 0,05 | m3 | | | | |
| Murum | 1,05 | m3/m3 | 0,05 | m3 | 200,00 | 10,00 |
| Adobe Brick Work (6") | 0,17 | m3 | | | | |
| Adobe bricks and mortar | | | | | | |
| Clayey Soil | 0,50 | m3/m3 | 0,09 | m3 | 0,00 | 0,00 |
| Straw/Rice Husk | 0,35 | m3/m3 | 0,06 | m3 | 0,00 | 0,00 |
| Dung | 0,15 | m3/m3 | 0,03 | m3 | 0,00 | 0,00 |
| Mud Plaster (3:1) | 0,08 | m3 | | | | |
| Sand | 0,75 | kg/m3 | 0,06 | m3 | 1.060,00 | 64,00 |
| Clayey Soil | 0,25 | m3/m3 | 0,02 | m3 | 0,00 | 0,00 |
| Lime Plaster (2:1) | 0,01 | m3 | | | | |
| Lime | 0,67 | kg/m3 | 0 | kg | 0,00 | 0,00 |
| Clayey Soil | 0,33 | m3/m3 | 0,00 | m3 | 0,00 | 0,00 |
| Subtotal Staircase | | | | | | 78,00 |
| 5. Other Hardware | | | | | | |
| Urine-Diversion Squatting Pan & Cleansing Bowl | | | 1 | No | 1.000,00 | 1.000,00 |
| Washbasin | | | 1 | No | 160,00 | 160,00 |
| Greywater Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Urine Pipe | | | 1,5 | m | 40,00 | 60,00 |
| Urine Collection Container (20 l) | | | 2 | No | 250,00 | 500,00 |
| Cleansing Water Pipe | | | 2,5 | m | 40,00 | 100,00 |
| Bucket (Cover Material) | | | 1 | No | 150,00 | 150,00 |
| Bucket (Water) | | | 1 | No | 150,00 | 150,00 |
| Cleansing Water Infiltration | | | 1 | LS | 300,00 | 300,00 |
| Subtotal Other Hardware | | | | | | 2.520,00 |
| 6. Labour | | | | | | |
| Skilled | | | 6 | days | 300,00 | 1.800,00 |
| Unskilled | | | 16 | days | 150,00 | 2.400,00 |
| Subtotal Labour | | | | | | 4.200,00 |
| Grand Total | | | | | | 11.319,00 |

figure 12: Cost estimate for "Design 9"

table 5: Cost comparison of “Design 1” to “Design 9”

| Item | Design 1 | Design 2 | Design 3 | Design 4 | Design 5 | Design 6 | Design 7 | Design 8 | Design 9 |
|------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Footing | 546,00 | 546,00 | 546,00 | 1.561,00 | 798,00 | 798,00 | 1.743,00 | 1.743,00 | 367,00 |
| Processing Compartment | 2.975,00 | 2.975,00 | 2.975,00 | 3.424,00 | 4.023,00 | 4.023,00 | 4.356,00 | 4.356,00 | 2.469,00 |
| Superstructure | 4.846,00 | 2.686,00 | 2.700,00 | 4.846,00 | 4.968,00 | 4.316,00 | 4.968,00 | 1.674,00 | 1.685,00 |
| Staircase | 800,00 | 800,00 | 800,00 | 797,00 | 452,00 | 452,00 | 449,00 | 449,00 | 78,00 |
| Other Hardware | 2.520,00 | 2.520,00 | 2.520,00 | 2.520,00 | 2.520,00 | 2.520,00 | 2.520,00 | 2.520,00 | 2.520,00 |
| Labour | 2.400,00 | 2.700,00 | 2.400,00 | 2.400,00 | 3.600,00 | 3.600,00 | 3.600,00 | 4.200,00 | 4.200,00 |
| Total | 14.087,00 | 12.227,00 | 11.941,00 | 15.548,00 | 16.361,00 | 15.959,00 | 17.636,00 | 14.942,00 | 11.319,00 |

7 CONCLUSION

With this paper it is aimed to assess different UDD-toilets designs with respect to the construction materials used and the associated costs.

Three commonly applied building materials viz., country burned bricks, cement hollow blocks and Ferro Cement and two alternative building materials (i.e. sun-dried mud bricks and bamboo) have been investigated as main construction materials for UDD-toilets. But, there are many more possible combinations of construction materials/techniques (e.g. solid blocks made from locally available rock such as Laterite, etc.) than could be assessed. Finally, the choice of construction material, and the actual design of the UDD-toilet, strongly depends upon the availability or let's better say the non-availability of certain construction materials and the user's preferences towards one or the other material.

From figure 4 to figure 12 and table 5 it can be seen that processing compartments made from CHB atop a PCC slab foundation is the cheapest combination of conventional construction materials (second to processing compartments made from adobe bricks atop a mud floor, only). Cost for the PCC slab foundation and the CHB masonry are INR 546 and INR 2,975, respectively.

Total costs range from ca. INR 11,300 (Design 9) to ca. INR 17,600 (Design 7).

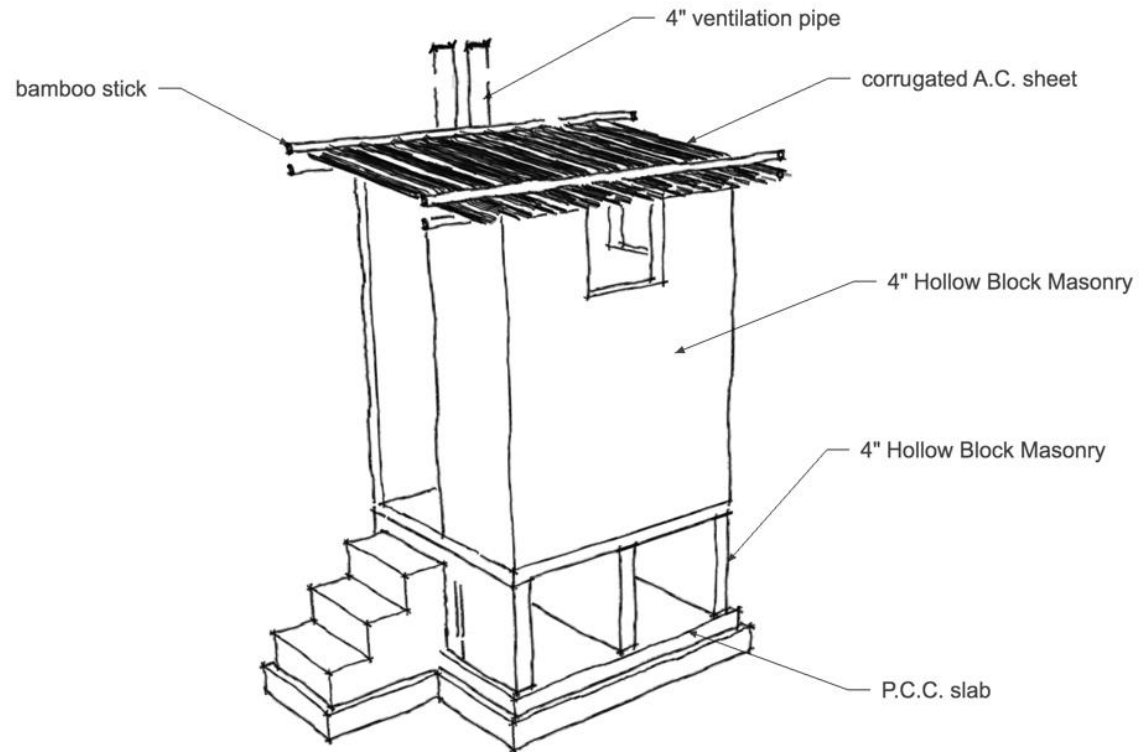
The preferred type of sanitation facilities in many parts of India is the stand-alone toilet that is not directly attached to the house, but is situated a bit off. But, by situating the UDD-toilet in such a way that one or 2 walls of an existing building may be used, construction costs can be brought down considerably.

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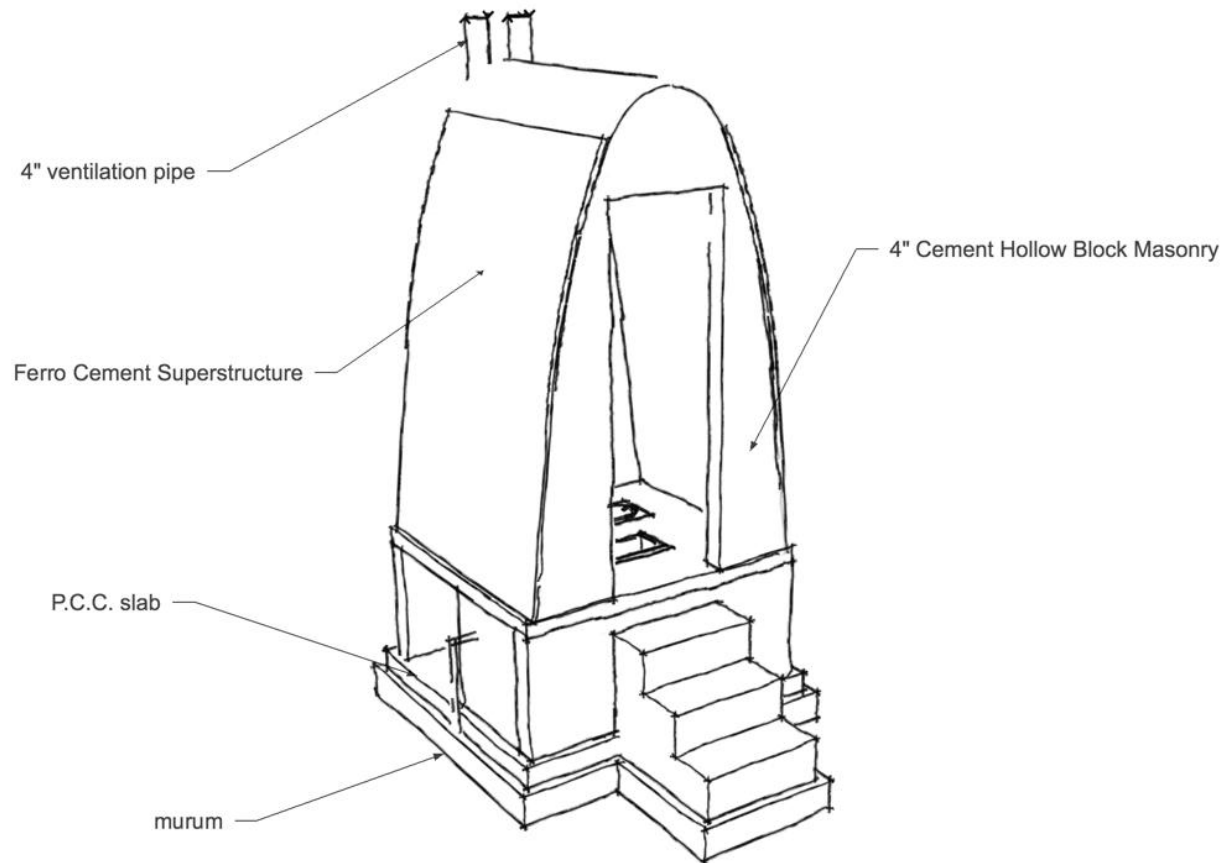


9 SKETCHES



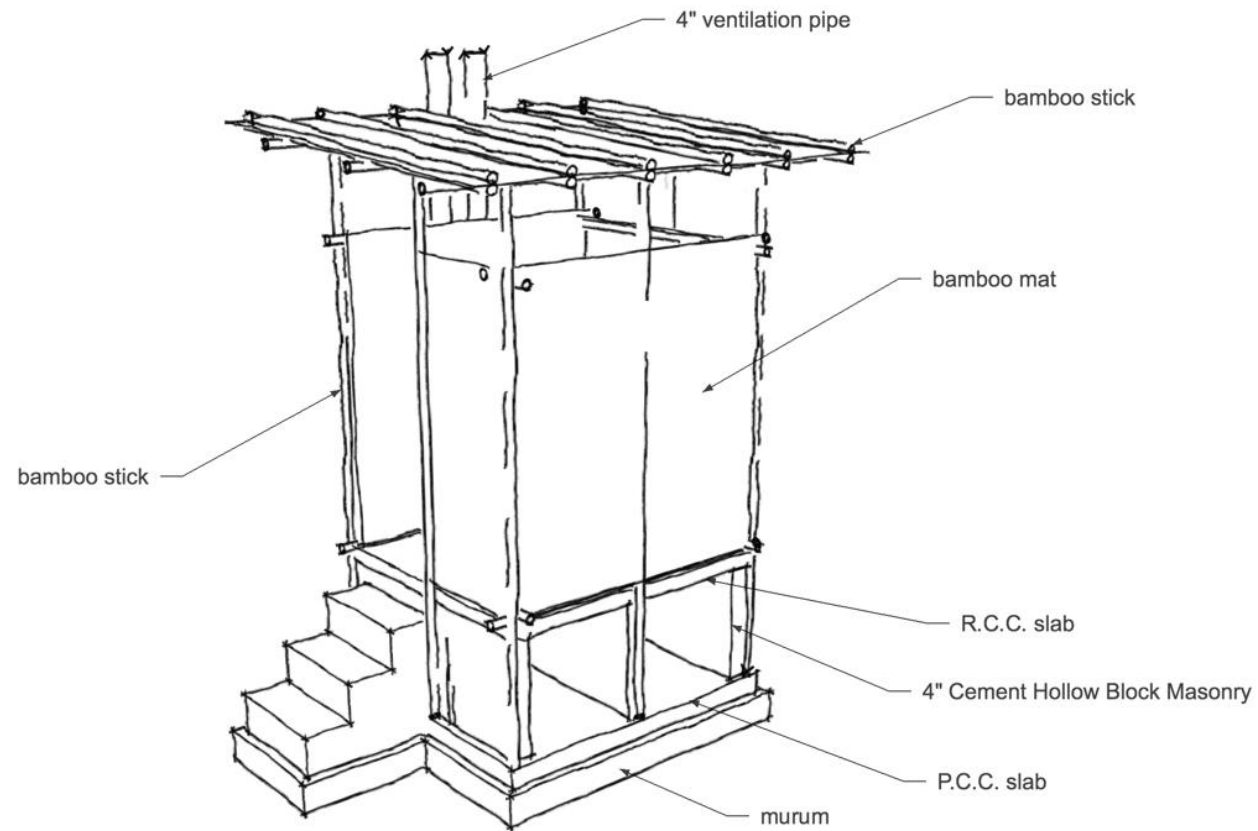
(source: M. Wafler)

figure 13: Schematic sketch of "Design1"



(source: M. Wafler)

figure 14: Schematic sketch of "Design2"



(source: M. Wafler)

figure 15: Schematic sketch of "Design3"



Assessment of Urine-Diversion Dehydration Toilet Designs
with Respect to Construction Materials Used and Associated Costs
Version 1, December 2nd, 2008



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