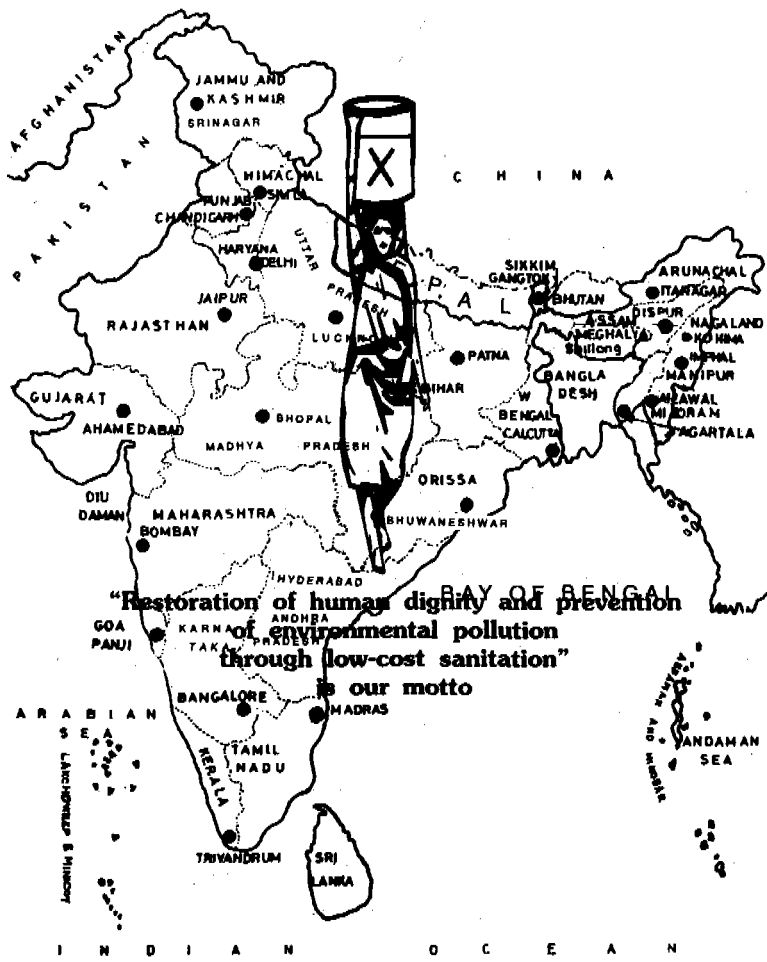


# Sulabh International marches from Urban to Rural areas



**SULABH INTERNATIONAL**  
A Non-profit Voluntary Social Organisation

# **Sulabh International marches from Urban to Rural areas**

Human excreta is the cause of many enteric diseases such as cholera, dysentery, typhoid, paratyphoid, infectious hepatitis, hook worm etc. Over 50 infections can be transferred from a diseased person to a healthy one by various direct and indirect routes from excreta. Studies carried out in India and abroad have shown that the impact of safe disposal of human excreta is particularly significant in reducing morbidity and mortality due to gastro-enteric diseases and helminthic infection. Safe human excreta disposal can bring about maximum improvement in environment and health of the community, thus raising the productivity of the community and quality of life.

Conventional sewerage is an ideal solution for the disposal of human excreta and waste water. It satisfies most of the public health criteria and also provides convenience. But it requires enormous supply of water for its proper functioning. The capital cost of its construction including the waste treatment for safe disposal is very high, much beyond the economic capability in the present stage of development of our country. Besides, operation and maintenance cost is also beyond the capacity of most of the State governments and beneficiaries.

Although sewerage was introduced in India about 120 years back and the entire five-year plans allocations for urban sanitation have almost been spent on sewerages, yet only 232 towns and cities out of 4689 are sewered. None of them, however, covers the entire municipal area, leave alone the adjoining suburbs included in the municipal limits. Due to high cost, in most of the towns even on streets where sewers exist, all houses have not been connected to sewers inspite of municipal law making such connections compulsory.

The other method of excreta disposal is the septic tank which is also beyond the reach of the common man; it costs two to three times more than the Sulabh Shauchalaya. It requires large volume of water for flushing. Moreover it has other problems like periodic cleaning and disposal of sludge. Effluent disposal is a potential source of foul smell, mosquito breeding and health hazards, if not properly disposed of. Though the design of septic tank latrines was developed nearly 400 years back and introduced in India about 150 year back, yet less than 20% of the houses even in urban areas have septic tank toilets. Due to high cost and other limitations, septic tank has not been able to find wide acceptance.

In the present economic condition, sewerage or septic tank is not the answer.

After studying the various designs developed in the country in the nineteen sixties, Padma Bhushan Dr. Bindeshwar Pathak, an action sociologist, social reformer, humanist and internationally known expert on low-cost sanitation and bio-gas from human excreta, developed the design of Sulabh Shauchalaya (pour-flush waterseal latrine with twin leach pits) after necessary modifications and refinement, which could be afforded even by the economically weaker sections of society, acceptable to the people and could be constructed and maintained easily to replace the Shauchalaya due to special design of squatting pan and trap can be hand-flushed with one and a half to two litres of water. For those who do not want hand-flush, low volume flushing cistern which can flush with 2 litres of water, can be installed.

Dr. Pathak founded an organisation called Sulabh International (earlier known as Sulabh Shauchalaya Sansthan) in 1970 in Patna, Bihar to provide toilet facility on turn-key basis. Sulabh has developed a delivery system which takes the entire responsibility of providing latrine facility without any botheration to householder and ensures full satisfaction of the beneficiary. Five years guarantee is given to the beneficiary for removal of any construction defect noticed during this

period. After construction, service is provided and the problems and difficulties faced by the people in the use and maintenance of Sulabh Shauchalaya are resolved by the workers of the organisation posted in the place of work.

Hundreds of thousands Sulabh Shauchalayas have been constructed all over India in rural and urban areas, Sulabh alone has constructed nearly 600 thousand Shauchalayas. The people have accepted them and are fully satisfied with their performance. The Government of India, State Governments, various national and international agencies like UNICEF, World Bank, UNDP, WHO, United Nations Centre for Human Settlement (UNCHS) etc. have accepted the design and are advocating and providing financial assistance for the construction of these Shauchalayas in India and other developing countries in South-East Asia, Latin America, Africa etc. The national and international press, All India Radio, Doordarshan, B.B.C. have also acknowledged Sulabh Shauchalaya as the most appropriate technological option for the disposal of human excreta and appreciated the methodology adopted by Sulabh International for marketing and delivery.

## **SULABH SHAUCHALAYA**

Sulabh Shauchalaya consists of a squatting pan of special design with a steep slope ( $25^{\circ}$  to  $30^{\circ}$ ) and a trap with 20mm waterseal set on the floor. The pan is connected to two leach pits by a covered drain or pipe for discharging the human excreta to the pits. It requires only 1.5 to 2 litres of water for flushing. One of the two pits is used at a time. When the pit in use is full, the excreta is diverted to second pit. In about 1.5 years, the contents of the filled up pit get digested, become dry, innocuous and free of foul smell. The pit can then conveniently be emptied and is ready to be put back in use after the second pit is full. Thus the two pits can be used alternately and continuously.

Sulabh Shauchalaya is low-cost, but it is not a low technology. The leach pits are generally constructed on the basis of 2 to 3 years cleaning interval but if any body desires, these can be designed and built for any desired period of cleaning interval.

## **NO NEED FOR VENT PIPE**

In a Sulabh Shauchalaya, vent pipe is not necessary as gases are dispersed into the soil.

## **WHY TWO PITS**

Single leach pit latrines are appropriate only if they can be desludged mechanically by a vacuum tanker, since their contents are not pathogen free. In two pit system, since one pit is used at a time, the filled pit can be cleaned manually even by the householder himself because of the long period of digestion which makes it free of foul smell and safe for handling.

In a single pit system, desludging has to be done almost immediately after the pit has been filled up to enable its re-use; this involves handling of fresh and undigested excreta which is a health risk.

If a deeper and larger single pit is provided, desludging operation becomes difficult and there are more chances of pollution especially where ground water table is high.

Advantages of Sulabh Shauchalaya over septic tank are as under:-

1. Septic tanks have to be cleaned after every one or two years interval and wet sludge has to be taken out, which has fresh human excreta floating at the top and emitting obnoxious smell. It needs the services of scavengers for desludging, since the ordinary labour will not be willing to handle it as it is mixed with fresh excreta. If desludging operation and disposal is not handled properly, it is health

hazardous. The Government of India is proposing to ban scavenging after 1995. So after this period, desludging of a septic tank will pose a serious problem.

Services of scavengers are not needed in case of Sulabh Shauchalayas. The pits can be cleaned by the householder himself or any labourer because the excreta is completely digested and safe for handling after one and a half years of disuse of filled up pit.

2. The maintenance of Sulabh Shauchalaya is easy and simple and costs little, whereas emptying of septic tank is a burden on the householder as it costs much. In case of Sulabh Shauchalaya, part cost of emptying can be met from the sale of sludge as direct fertilizer taken out from the pit.
3. Septic tanks have to be cleaned immediately on filling so as to allow uninterrupted use of toilet; hence it becomes a great problem for the householder. In case of Sulabh Shauchalaya, since one pit is used at a time, the filled up pit can be desludged at the convenience of the householder after one and a half years rest period, when the digested sludge is safe for handling and does not cause any health hazard.
4. Although ISI code states that under no circumstances should effluent from a septic tank be allowed into an open channel, drain or body of water without adequate treatment, this is seldom done resulting in foul odour, fly and mosquito nuisance, health hazard and environmental pollution. The municipal bye-laws also prohibit discharge of septic tank effluent direct to open drains or body of water but this provision is not enforced due to political pressure and various other reasons.

In Sulabh Shauchalaya, there is no such problem because liquid infiltrates into surrounding soil through the holes in pit lining.

5. Every septic tank is required to be provided with ventilating pipe so as not to cause smell nuisance to any building in the area. The emission of foul smell through the vent pipes pollutes the atmosphere. In Sulabh Shauchalaya no vent pipe is required as gases are dispersed into the soil.
6. There is shortage of drinking water in almost all the urban and rural areas of the country; hence water has to be conserved. Septic tank latrine usually needs 14 litres of water for flushing, whereas Sulabh Shauchalaya needs only one and a half to two litres of water.
7. Septic tank latrine requires more space than the pour flush toilet. The design of Sulabh Shauchalaya has the flexibility; it can be designed suiting to site and household requirements.
8. Sulabh Shauchalaya with twin pits has a potential of upgradation. It can be connected to sewerage system easily; only leaching pits will become infructuous, where as in septic tank latrine, the septic tank and effluent disposal system will become infructuous, which is 2 to 3 times more costly than the leach pits in a Sulabh Shauchalaya.
9. The sludge and effluent from a septic tank cannot be used as a fertilizer straight away without causing health hazard, where as the sludge of the leaching pit is almost dry, odourless and safe for handling after about one and a half years of rest period; hence it can be used immediately after it is taken out. It is a very good manure and soil conditioner.
10. Sulabh Shauchalaya is low cost and affordable even by the economically weaker section whereas the septic tank cost is not within the reach of common man; it costs 2 to 3 times more than Sulabh Shauchalaya.

11. The construction of Sulabh Shauchalaya is very simple and can be constructed by any mason with a little training, whereas skilled masons are needed for construction of a septic tank of proper design.

Geared with the confidence of its abounding success in introducing Sulabh Shauchalaya in the low income urban settlements, Sulabh International has now taken up the challenge for providing sanitation facilities in rural India. Although the technology needs no change, yet the programme has to be tailored to suit the rural requirements. Alteration in the design and use of local materials has been considered for reducing the cost. Sulabh International has prepared several alternative designs both for superstructure as well for design of the leach pits for disposal of the waste with a view to satisfying people of different economic levels as well as suiting their socio-cultural habits. These have been designed and constructed for the village population giving them a wide range of selection. However, Sulabh International is well aware of the greater need of the software components in rural surroundings. Motivation, communication support, community involvement, health education, publicity through audio-visual aids etc. are some of the aspects Sulabh stresses more in the rural programme than what was needed in the urban setting. Training is an important aspect both for the urban and rural programmes. But there is a difference. Sulabh has observed that people trained in the villages migrate to the urban areas because the person trained cannot meet his livelihood only by constructing a few latrines. He is, therefore, trained not only in construction of latrines but also in other fields of development such as hand pump repairing, brick pavement of lanes, social forestry, biogas, smokeless chulahs etc. as funds for these programmes are provided by the government. The trained person can meet part of his wages by carrying out these works along with the latrine construction, thus enabling his stay in his village with a respectable livelihood.



# DIFFERENT DESIGNS OF SULABH SHAUCHALAYAS AND COSTS

## MODEL NO.1

Drawing on page xiii

**Substructure :** Mud platform plastered in cement mortar 1:4, cement plastered pan, cement trap and brick plastered foot rests. Pit lining - Tar drum, Pit cover - Compacted soil over thatch and logs.

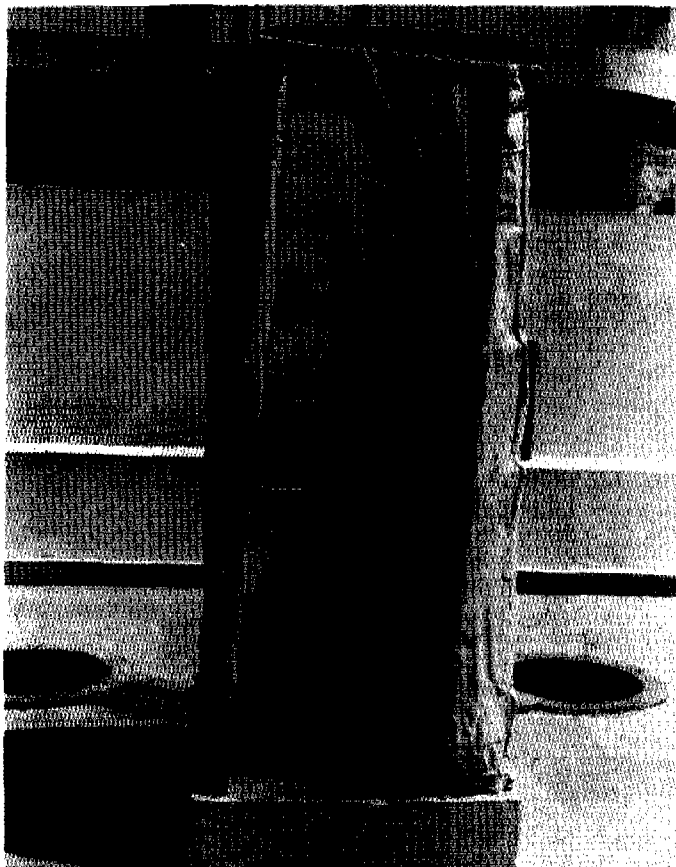
**Superstructure:** Jute all round the latrine on bamboo frame 1800mm high and jute purdah on door opening.

**Cost:** Substructure - 5 users with 2 years capacity pits

Rs. 700.

Superstructure -

Rs. 400



## MODEL NO. 2

Drawing on page xiv

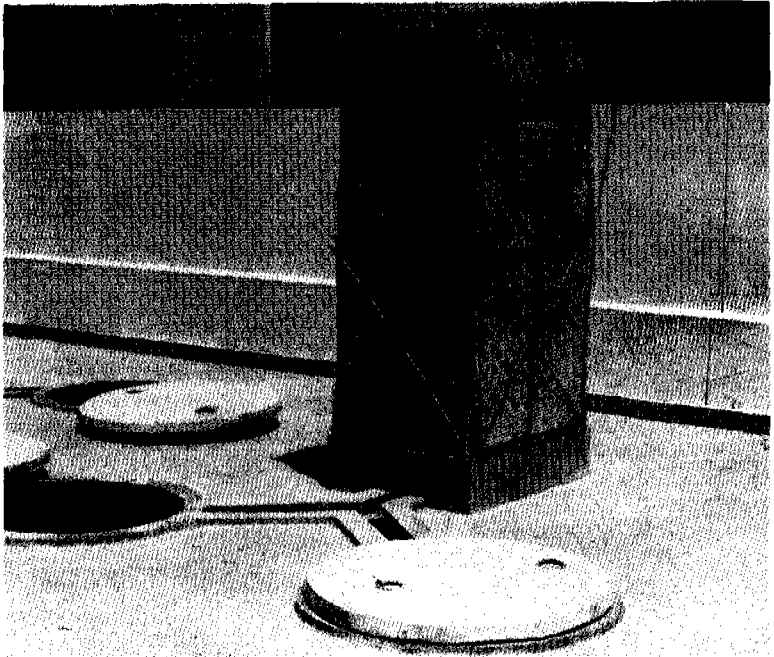
**Substructure:** Mud platform plastered in cement mortar 1:4, cement plastered pan, cement trap and brick plastered foot rests. Pit lining - Brick work 75mm in cement mortar 1:6, Pit cover - Compacted soil over thatch and logs.

**Superstructure:** Palm matting all round the latrine on bamboo frame 1800mm high and jute purdah on door opening, painting on matting.

**Cost:** Substructure - 5 users with 2 years capacity pits  
Superstructure -

Rs. 1350

Rs. 450



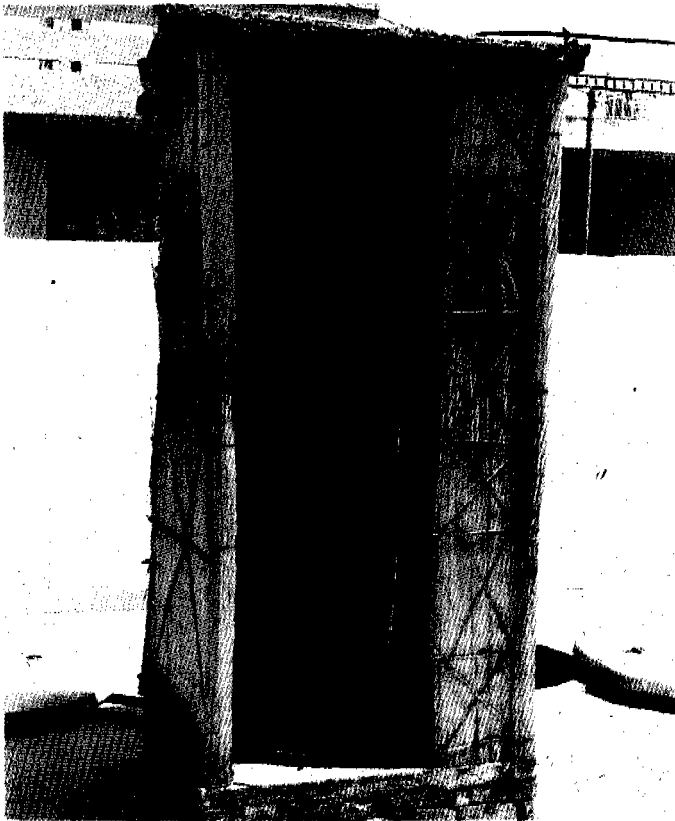
### MODEL NO. 3

Drawing on page xv

**Substructure:** Dry brick ballast in foundation, brick work in mud mortar, flooring of 12mm thick 1:4 cement plaster over 75mm dry brick ballast, cement mosaic pan, cement trap and brick plastered foot rests. Pit lining- Brick work 75 mm in cement mortar 1:6, Pit cover - 50 mm thick R.C.C. 1:2:4.

**Superstructure:** Thatch wall with thatch roof on bamboo frame and jute purdah on door opening 1800 mm high.

<b>Cost:</b>	Substructure	
	(i) 5 users with 2 years capacity pits	Rs. 1800
	(ii) 5 users with 3 years capacity pits	Rs. 2050
	(iii) 10 users with 2 years capacity pits	Rs. 2750
	Superstructure -	Rs. 500



## MODEL NO. 4

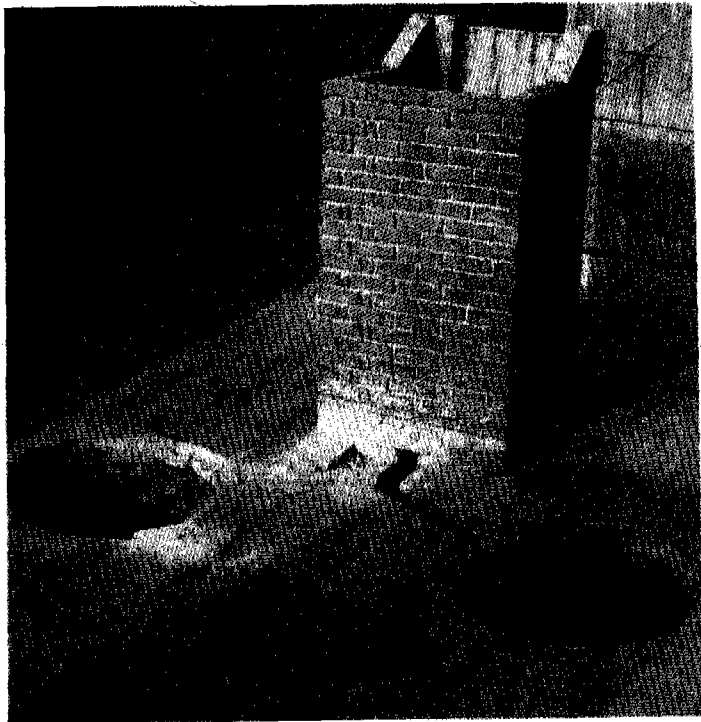
Drawing on page xvi

**Substructure:** Dry brick ballast in foundation, brick work in mud mortar, flooring of 12mm thick 1:4 cement plaster over 75 mm dry brick ballast, cement mosaic pan, cement and brick plastered foot rests. Pit lining - Brick work 115 mm in cement mortar 1:6, Pit cover - 50 mm thick R.C.C. 1:2:4.

**Superstructure:** 115 mm thick brick work in 1:6 cement mortar 1500 mm high and jute purdah on door opening 1800 mm high.

**Cost:** Substructure-

(i)	5 users with 2 years capacity pits	Rs.2100
(ii)	5 users with 3 years capacity pits	Rs.2400
(iii)	10 users with 2 years capacity pits	Rs.2850
	Superstructure-	Rs.750



## MODEL NO. 5

Drawing on page xvii

**Substructure:** Dry brick ballast in foundation, brick work in 1:6 cement mortar, flooring of 1:4 cement plaster over 75 mm dry brick ballast, cement mosaic pan, cement trap and brick plastered foot rests. Pit lining - Brick work 115 mm in cement mortar 1:6, Pit cover - 50 mm thick R.C.C. 1:2:4.

**Superstructure:** 225 mm thick mud wall with thatch roof on bamboo frame, 115 mm thick 150 mm high brick work in 1:6 cement mortar on inner face at bottom and jute purdah on door opening 1800 mm high.

**Cost:** Substructure -

(i) 5 users with 2 years capacity pits

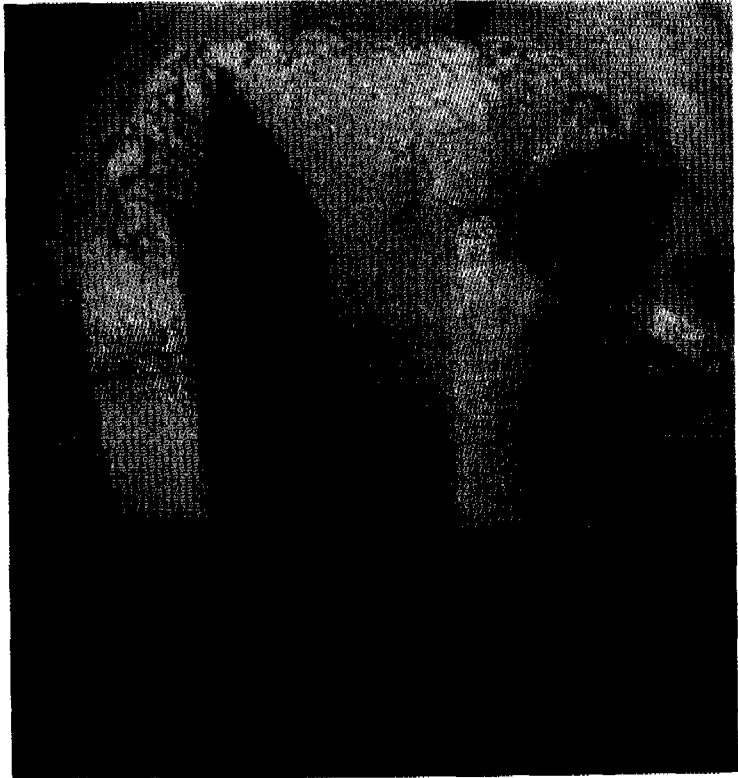
Rs.2150

(ii) 10 users with 2 years capacity pits

Rs.3000

Superstructure-

Rs.850



## MODEL NO. 6

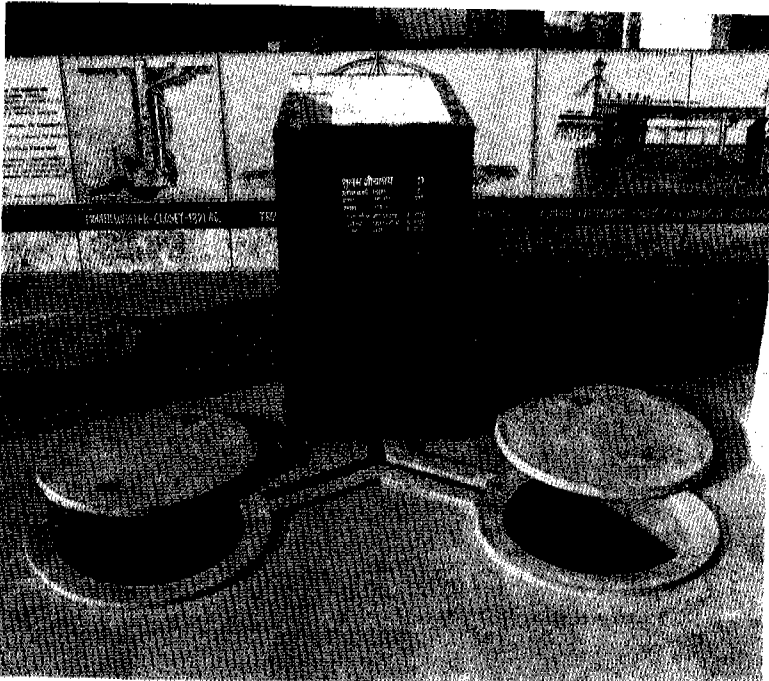
Drawing on page xviii

**Substructure:** Dry brick ballast in foundation, brick work in 1:6 cement mortar, flooring of 1:4 cement plaster over 75 mm dry brick ballast, cement mosaic pan, cement trap and brick plastered foot rests. Pit lining - Brick work 115 mm in cement mortar 1:6, Pit cover - 50 mm thick R.C.C. 1:2:4.

**Superstructure:** 115 mm thick 1500 mm high brick wall in cement mortar 1:6 (G-shape).

**Cost:** Substructure -

(i) 5 users with 2 years capacity pits	Rs.2100
(ii) 5 users with 3 years capacity pits	Rs. 2400
(iii) 10 users with 2 years capacity pits	Rs.3000
(iv) 10 users with 3 years capacity pits (Pit cover 75 mm thick)	Rs.3300
Superstructure -	Rs.1000



## MODEL NO. 7

Drawing on page xix

**Substructure:** Cement concrete 1:6:12 in foundation, brick work in 1:6 cement mortar, flooring of 1:4 cement plaster over 75 mm dry brick ballast, cement mosaic pan, cement trap and brick plastered foot rests. Pit lining - Brick work 75 mm in cement mortar 1:6, Pit cover - 50 mm thick R.C.C. 1:2:4.

**Superstructure:** 115 mm thick brick wall in 1:6 cement mortar, A.C. sheet roofing, holes in brick work for ventilation and jute purdah 1800 mm high. Inside white wash and outside colour wash.

**Cost:** Substructure -

(i) 5 users with 2 years capacity pits	Rs. 1850
(ii) 5 users with 3 years capacity pits	Rs. 2150
(iii) 10 users with 2 years capacity pits	Rs. 2800
(iv) 10 users with 3 years capacity pits (Pit cover 75 mm thick)	Rs.3100
Superstructure -	Rs.1200



## MODEL NO. 8

Drawing on page xx

**Substructure:** Cement concrete 1:6:12 in foundation, brick work in 1:6 cement mortar, flooring of 1:4 cement plaster over 75 mm dry brick ballast, fibre glass pan, HDPE trap and ceramic foot rests. Pit lining - Brick work 115 mm in cement mortar 1:6, Pit cover - 50 mm thick R.C.C. 1:2:4.

**Superstructure:** 115 mm thick brick wall in 1:6 cement mortar 1500 mm high, 600 mm high dado in cement mortar 1:4, both sides plastered in 1:6 cement mortar and jute purdah on door opening 1800 mm high.

**Cost:** Substructure-

(i) 5 users with 3 years capacity pits	Rs.2450
(ii) 10 users with 3 years capacity pits (Pit cover 75 mm thick)	Rs.3600
Superstructure -	Rs.1300





## MODEL NO. 9

Drawing on page xxi

**Substructure:** Cement concrete 1:4:8 in foundation, brick work in 1:6 cement mortar, C.C. 1:2:4 flooring over 75 mm C.C. 1:6:12, fibre glass pan, HDPE trap and ceramic foot rests. Pit lining - Brick work 115 mm in 1:6 cement mortar, Pit cover - 50 mm thick R.C.C. 1:2:4.

**Superstructure:** 115 mm thick brick work in 1:6 cement mortar, 600 mm high dado in cement mortar 1:4, 50 mm thick R.C.C. roof, holes in brick work for ventilation and country wood door 1500 mm high. Inside white wash and outside colour wash.

**Cost:** Substructure -

(i) 5 users with 2 years capacity pits	Rs. 2600
(ii) 5 users with 3 years capacity pits	Rs. 2800
(iii) 10 users with 3 years capacity pits (Pit cover 75 mm thick)	Rs. 3800
Superstructure -	Rs. 1800



## MODEL NO. 10

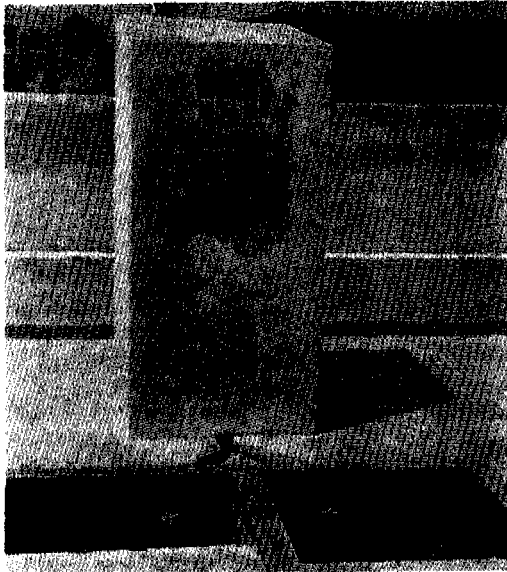
Drawing on page xxii

**Substructure:** Cement concrete 1:4:8 in foundation, brick work in 1:6 cement mortar, C.C. 1:2:4 flooring over 75 mm C.C. 1:6:12, fibre glass pan, HDPE trap and ceramic foot rests. Pit lining - Brick work 115 mm in 1:6 cement mortar (Rectangular pit divided by a partition wall in two chambers), partition wall plastered on both sides in cement mortar 1:6, Pit cover - 50 mm thick R.C.C. 1:2:4.

**Superstructure:** 115 mm thick brick work in 1:6 cement mortar, outside plastered, 600 mm high dado in cement mortar 1:4 holes in brick work for ventilation, R.C.C. roof 50 mm thick and country wood door 1500 mm high. Inside white wash and outside colour wash.

**Cost: Substructure -**

(i) 5 users with 2 years capacity pits	Rs. 2750
(ii) 5 users with 3 years capacity pits	Rs. 2900
(iii) 10 users with 2 years capacity pits (Pit cover 75 mm thick)	Rs. 3750 Rs. 3100
(iv) 10 users with 3 years capacity pits (Pit cover 75 mm thick)	Rs. 3850
<b>Superstructure -</b>	<b>Rs. 2300</b>



## MODEL NO. 11

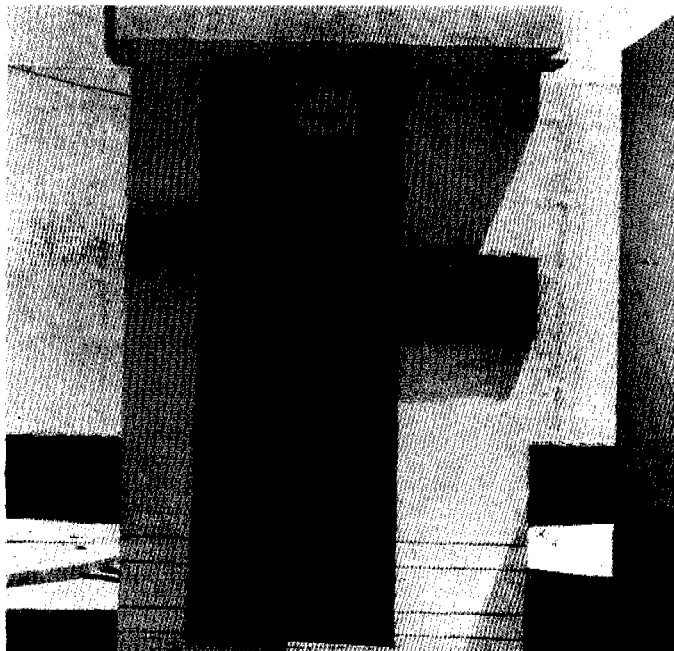
Drawing on page xxiii and xxiv

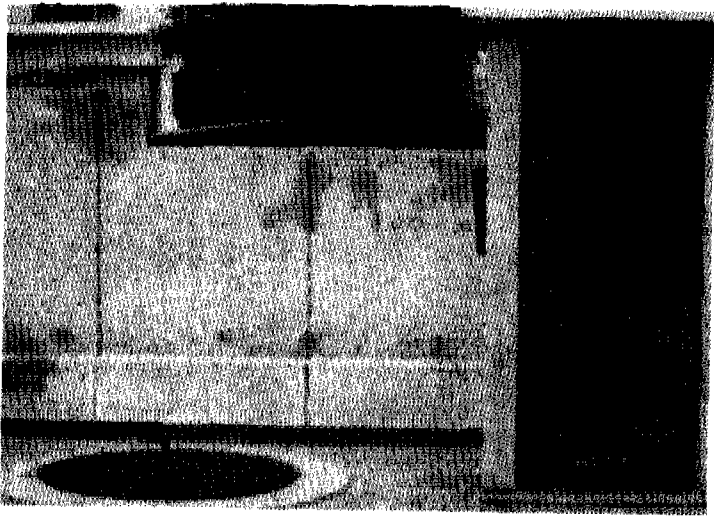
**Substructure:** Cement concrete 1:4:8 in foundation, brick work in 1:6 cement mortar, 6 mm thick cement mosaic flooring over 25 mm thick C.C. 1:2:4 base on 75 mm C.C. 1:4:8, ceramic pan, porcelain trap and ceramic foot rests. Pit lining - Brick work 115 mm in cement mortar 1:6, Pit cover - 75 mm thick R.C.C. 1:2:4.

**Superstructure:** 225 mm thick brick work in 1:6 cement mortar, plaster on both sides, 900 mm high while glazed tiles dado, wooden ventilator, 75 mm thick R.C.C. roof and teak wood panelled door 40 mm thick with wooden frame 2100 mm high. Inside white wash and outside colour wash.

**Cost:** Substructure -

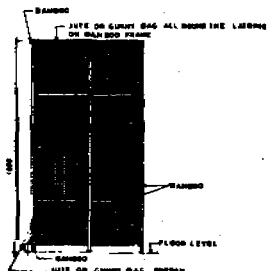
(i) 10 users with 5 years capacity pits	Rs. 5400
(ii) 10 users with 10 years capacity pits	Rs. 7000
(iii) 10 users with 15 years capacity pits (Pit lining 225 mm thick and pit cover 80 mm thick)	Rs.11900
(iv) 10 users with 20 years capacity pits (Pit lining 225 mm thick and pit cover 80 mm thick)	Rs.13400
Superstructure -	Rs.10300



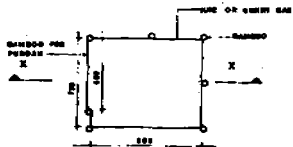


*A Sulabh Shauchalaya with bio-gas plant*

MODEL NO. 1

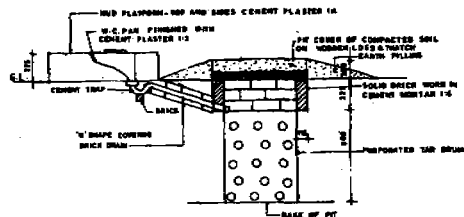


SECTION AT Y-X

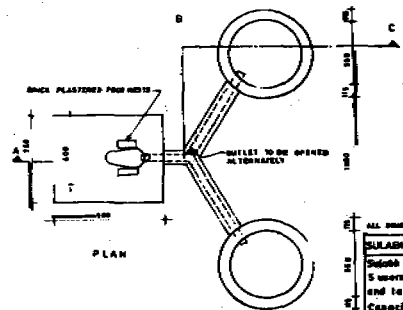


PLATFORM PLAN

Superstructure of pits on bamboo frame



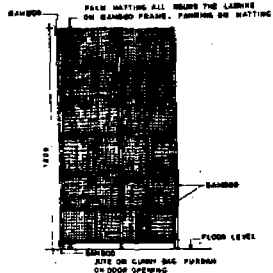
SECTION AT A-B-C



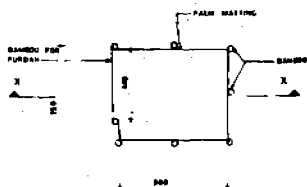
PLAN

ALL DIMENSIONS IN METERS  
**SUKLASHI INTERNATIONAL DESIGN**  
 Suklashi International Design for  
 15 meters well platform  
 and for drum lined pits.  
 Capacity of each pit  
 2 years

MODEL NO. 2

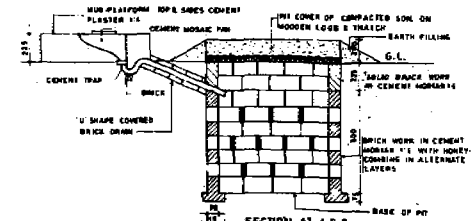


SECTION AT XX

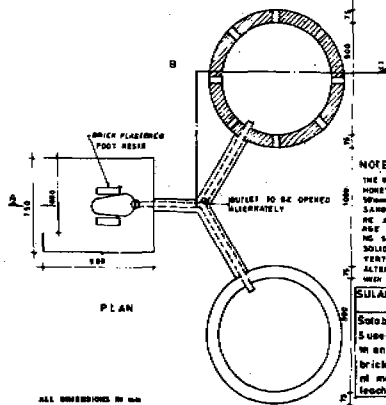


PLATFORM PLAN

Superstructure of palm matting on bamboo frame



SECTION AT A-B-C



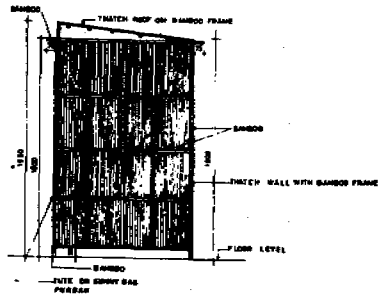
PLAN

ALL DIMENSIONS IN MM

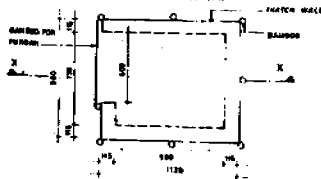
NOTE:  
THE WIDTH OF HOLES IN  
HONEY COMBS SHOULD BE  
30MM. HOWEVER IF  
SANDY SOIL OF WHICH THE  
RE ARE CHIEFS OF 2MM  
AND BY FIELD BATHING  
ING SHOULD BE DONE IN  
SOLID BRICK WORK WITH  
VERTICAL JOINTS IN  
ALTERNATE LAYERS OR IN  
WITH 10 MM DIA.

SULASHI INTERNATIONAL  
DELHI  
Satabh Shasthology for  
Sueets with mud platfor-  
m and 7.5mm thick  
brick lined pit in com-  
nd mortar. Capacity of  
each pit 2 yeats

MODEL NO. 3

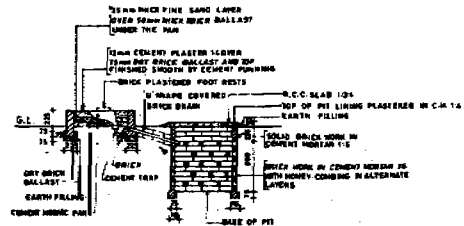


SECTION AT XX

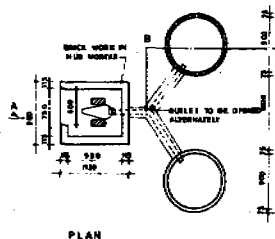


PLATFORM PLAN

Superstructure of thatch wall with thatch roof on bamboo frame



SECTION AT ABC



PLAN

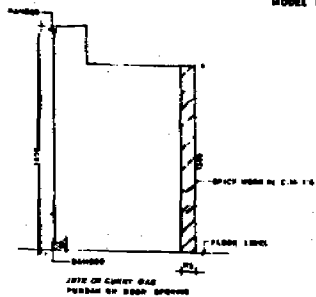
NOTE

THE WIDTH OF HOLES IN HONEY COMBING SHOULD BE 300mm, HOWEVER IN SANDY SOIL OR WHERE THERE ARE CHANCES OF DAMAGE BY FIELD BATS, LIVING SHOULD BE DONE IN SOLID BRICK WORK WITH VERTICAL JOINTS IN ALTERNATE LAYERS ONLY TO WITH NO MORTAR

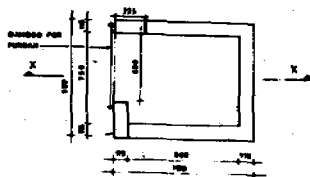
ALL DIMENSIONS IN MM

**SUBAH INTERNATIONAL DELTA**  
 Sulebh Shaucheleya for 5 users with 75mm thick brick lined pits in cement mortar. Capacity of each pit 2years

MODEL NO. 4

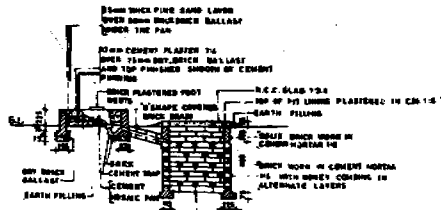


SECTION AT X-X

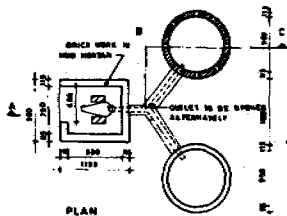


PLATFORM PLAN

Superstructure 1500mm high 100mm thick brick wall in cement mortar



SECTION AT A-B



PLAN

NOTE

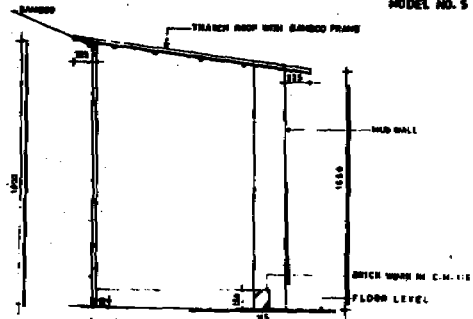
THE WIDTH OF HOLES IN MASONRY SHOULD BE 100mm. HOWEVER, IN SANDY SOIL OR WHERE THERE ARE CHANGES OF BARRAGE BY FIELD RAILS, LARGER HOLES AS SHOWN AT SOLID BRICK WORK WITH VERTICAL JOINTS IN ALTERNATE LAYERS MAY BE WELLED NORMAL.

ALL DIMENSIONS IN mm.

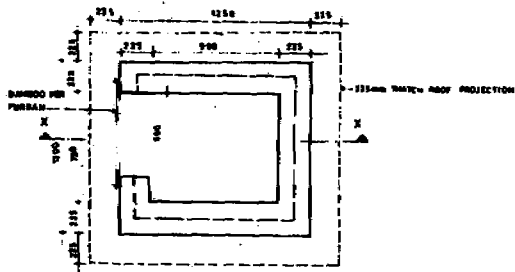
SULABI INTERNATIONAL DELHI  
Sulabi Sheucholaya for 5 years with 15mm thick brick lined pits in cement mortar.  
Capacity of leach pit 7years



MODEL NO. 5

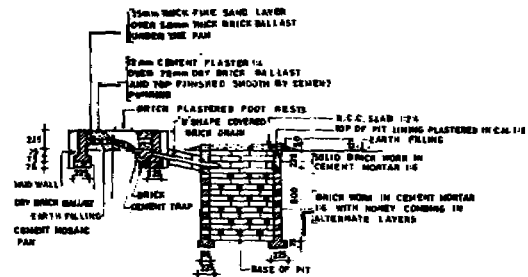


SECTION AT XX

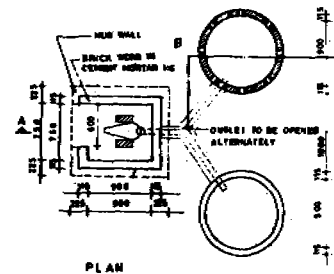


PLATFORM PLAN

Superstructure of 225mm thick mud wall with thatch roof on bamboo frame



SECTION AT ABC



PLAN

NOTE

THE HORN OF HOLES IN HONEY COMBING SHOULD BE 50 mm. HOWEVER IN SANDY SOIL OR WHERE THERE ARE CHANCES OF DAMAGE BY FIELD RATS, LINING SHOULD BE DONE IN SOLID BRICK WORK WITH VERTICAL JOINTS IN ALTERNATE LAYERS DRY 1:4 WITH NO MORTAR.

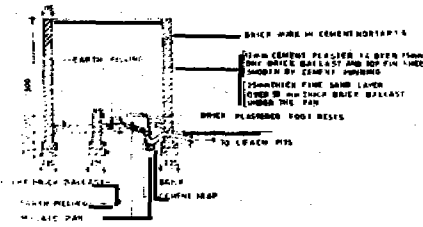
ALL DIMENSIONS IN mm

SULABH INTERNATIONAL DELHI

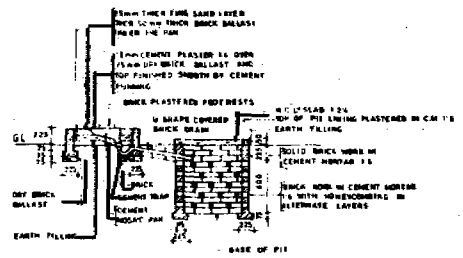
Sulabh Shouchaleya for Users with 125mm thick brick lined pits in cement mortar.

Capacity of leach pits 2 years

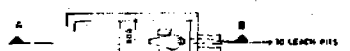
MODEL NO. 6



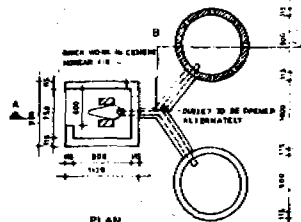
SECTION AT A-B



SECTION AT ABC



PLAN



PLAN

NOTE  
THE WIDTH OF HOLES IN MASONRY WORK SHOULD BE 150mm WIDER IN SANDY SOIL OR WIDER THERE AND CHANGES OF DIRECTION BY FITTING SIZING SHOULD BE DONE AT 30cm DIA. HOLES WITH VERTICAL HOLES IN ALTERNATE LAYERS (1/2 IS WITH NO HOLES)

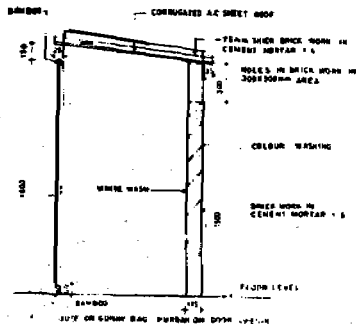
ALL LINES IN CM UNLESS SPECIFIED

SULABH INTERNATIONAL DELHI

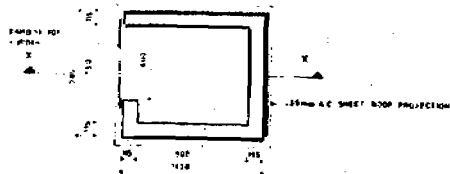
Sulabh Shuchalay for 5 years with 115mm thick brick lined pits in cement mortar.  
Capacity of leach pits 2 years

Sulabh Shuchalay with 115mm thick and 1500mm high brick purdah wall in cement mortar (G-Shape)

MODEL NO. 7

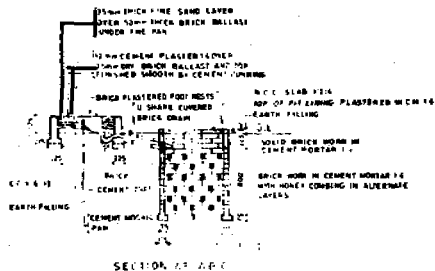


SECTION AT XX

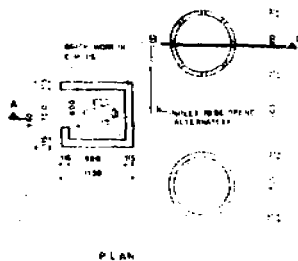


PLATFORM PLAN

Superstructure of 115 mm thick brick wall in cement mortar with A.C. sheet roof



SECTION AT A-A

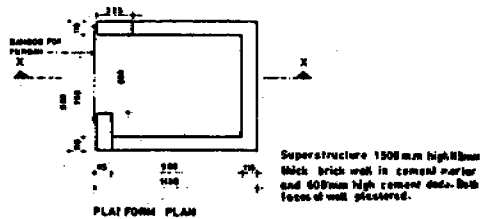
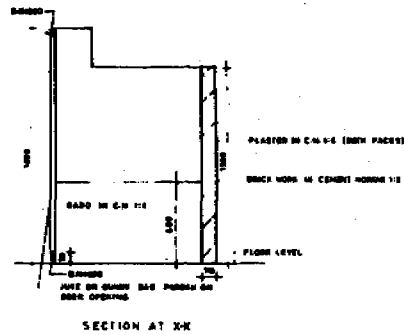


PLAN

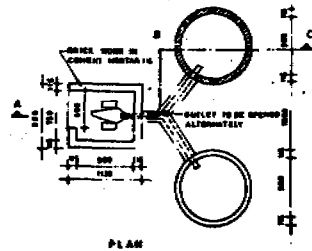
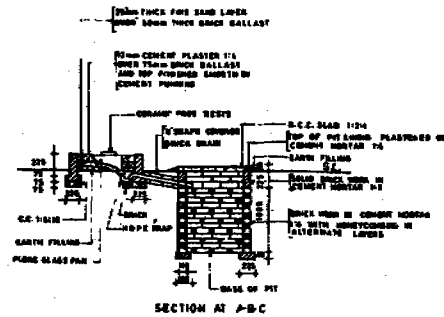
NOTE  
THE WIDTH OF HOLES IN MORTAR COURSE SHOULD BE 100mm. HOLES SHOULD BE MADE IN THE SAME COURSE AND SHOULD BE DONE IN THE BRICK WORK WITH SERVICES IN THE ALTERNATE LAYER ONLY. THE WIDTH OF HOLES SHOULD BE 100mm.

ALL DIMENSIONS IN MM  
**CULABH INTERNATIONAL DESIGN**  
Sulabh Shasthokaya For  
Support in complete plastered platform and 35 mm thick brick lined pits in cement mortar. Capacity of each pit 2 litres.

MODEL NO. 8



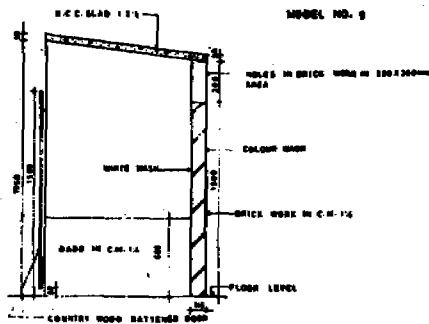
Superstructure 1500 mm high. 125mm thick brick wall in cement mortar and 600mm high cement dado. Both faces of wall plastered.



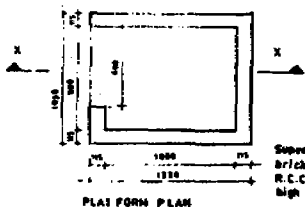
NOTE  
THE THICKNESS OF WALLS IN RECTANGULAR SHADES BE 125mm. HOWEVER IN SANDY SOIL OR WADING STREAMS AND CHANGES OF DIRECTION BY FIELD RATS, SAND LAYERS BE GIVEN IN SOLID BRICK WORK WITH VERTICAL JOINTS IN ALTERNATE LAYERS IN 1:4. METRE H/METER.

ALL DIMENSIONS IN MM

**SULABH INTERNATIONAL DELHI**  
Sulabh Shikshaalaya for 5 years with cement plastered platform and 185 mm thick brick lined pits in cement mortar. Capacity of each pit 3 years

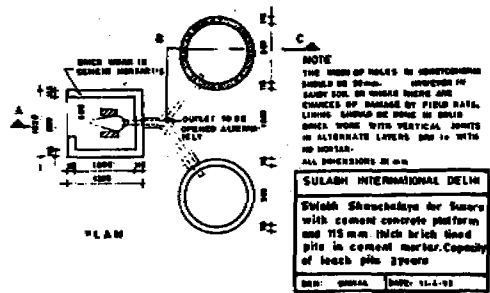
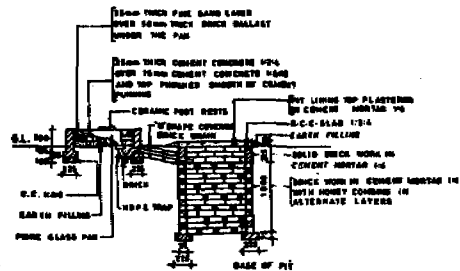


SECTION AT XX

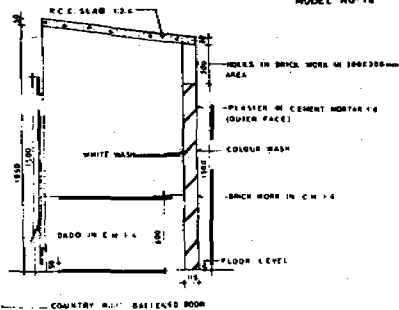


Superstructure of 115 mm high brick wall in cement mortar with R.C.C. sloping roof and 500 mm high cement dado

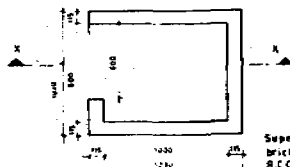
PLATFORM PLAN



MODEL NO 18

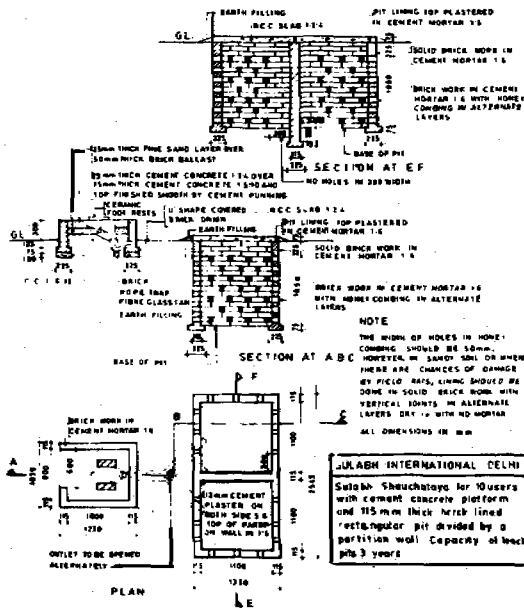


SECTION AT R-X



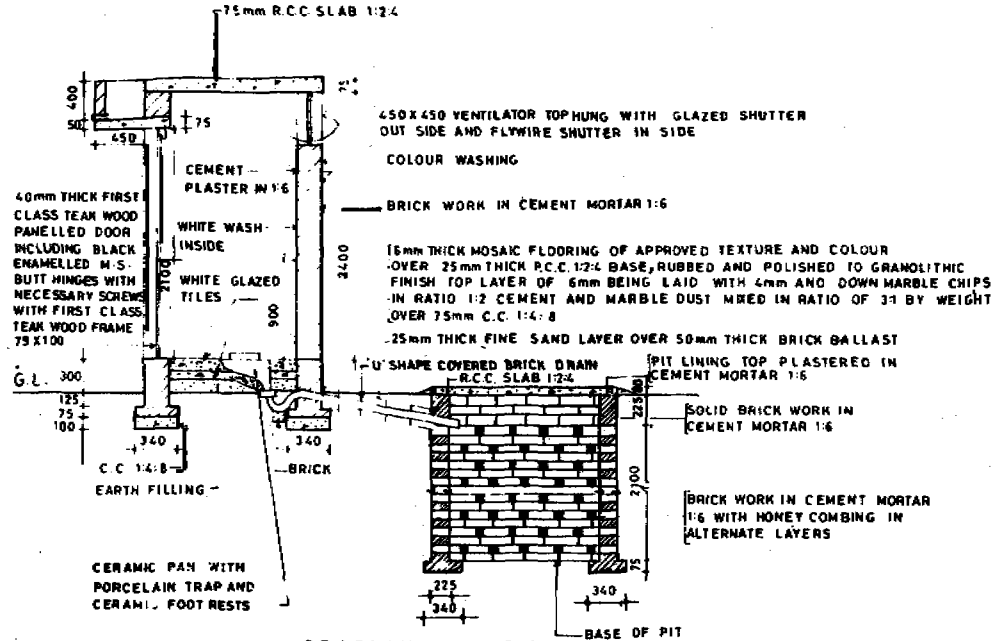
PLATFORM PLAN

Superstructure of 115mm thick brick wall in cement mortar with R.C.C. sliging + ext. Outer face plastered and inside 600 mm high cement dado

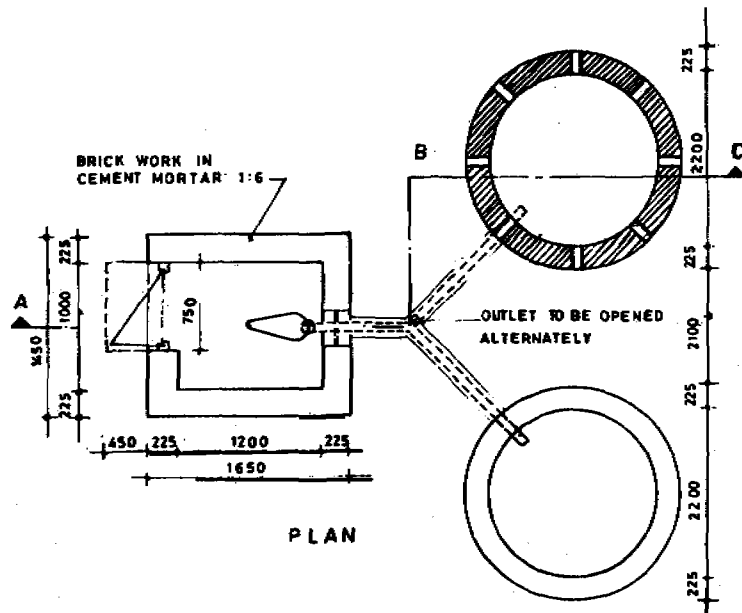


JULABH INTERNATIONAL DELHI  
 Salsabha Shuchitaya for 10 users  
 with cement concrete platform  
 and 115 mm thick hatched lined  
 rectangular pit divided by a  
 partition wall. Capacity of hutch  
 plus 3 years

XXX



AIXX



**NOTE**

THE WIDTH OF HOLES IN HONEY COMBING SHOULD BE 50mm. HOWEVER IN SANDY SOIL OR WHERE THERE ARE CHANCES OF DAMAGE BY FIELD RATS, LINING SHOULD BE DONE IN SOLID BRICK WORK WITH VERTICAL JOINTS IN ALTERNATE LAYERS DRY i.e. WITH NO MORTAR.

ALL DIMENSIONS IN mm

**SULABH INTERNATIONAL DELHI**

Sulabh Shauchalaya for 10 users with mosaic flooring and 225 mm thick brick lined pits in cement mortar, 225 mm thick & 2400 mm high superstructure with R.C.C. roof, teak wood door & ventilator and 900 mm high white glazed tiles dado. Capacity of each pits 20 years