

GIZ Food and Nutrition Security Programme, Malawi 2015-2025



LATRINE CONSTRUCTION GUIDEBOOK

January 2025



4-Step Guide to Constructing a Ventilated PIT Latrine:

1. Excavation of Pit

- Identify & clear the area for the latrine and dig a 3-meter-deep hole

2. Casting of Slab

- Preparations:
 - Ground Model → Frame → Placeholders → Reinforcement (Iron Bars | Bamboo)
- Mixing of Concrete
- Concrete Application
- Drying Process

3. Lining of Pit with Bricks

- During drying process of concrete slab

4. Fitting Slab on Pit & Construction of Superstructure

4-Step Guide: Kumanga kwa Chimbudzi Chokumba Chopita Mphepo:

1. Kufukula kwa Dzenje

- Pezani ndi kulambura malo a chimbudzi, ndikukumba dzenje lakuya mamita atatu

2. Kuponyedwa kwa Silabu

- Kukonzekera:
→ Ground Model → Chimango → Zoyikapo → Kulimbikitsa (zitsuro | msungwi)
- Kusakaniza Konkire
- Kugwiritsa Ntchito Konkire
- Kuyanika Njira

3. Kumanga Dzenje ndi Njerwa:

- Kumanga dzenje podikila kuti silabu ikuwuma

4. Kuyika Silabu pa dzenje ndi kamangidwe ka khoma

Key Data & Measurements:

1. **Shape of Pit:** Always rectangular: 160 x 140 cm | Depth: 3 meters
2. **Lining of Pit:**
 - a) Rectangular 120 cm x 80 cm
 - b) Round \emptyset 120 cm
3. **Shape of Slab:** Always rectangular = 150 cm x 120 cm
4. **Reinforcement** of slab with
 - a) Iron Bars: Thickness of slab = 6 cm
Drying period = 7 Days
 - b) Bamboo Sticks: Thickness of slab = 10 cm
Drying period = 10 Days
5. **Superstructure:** Free choice of materials, shape & style

Zambiri & Miyezo:

- 1. Maonekedwe a Dzenje:** *Nthawi zonse lidzikhala la makona anayi:*
Kuzama: 3 mamita | 160 cm mulitali ndi 140 cm mulifupi
- 2. Mzere wa Dzenje:**
 - a) Makona anayi **120 cm mulitali ndi 80 cm mulifupi**
 - b) Rozungulira \emptyset 120 cm
- 3. Maonekedwe a Silabu:** *Nthawi zonse makona anayi =*
150 cm mulitali ndi 120 cm mulifupi
- 4. Kulimbitsa** za silabu ndi
 - a) Mipiringidzo yachitsulo: Kukhuthala kwa silabu = 6 cm
Nthawi youma = Masiku asanu ndi awiri
 - b) Nsungwi Ndodo: Kukhuthala kwa silabu = 10 cm
Nthawi youma = Masiku khumi
- 5. Khoma:** Kusankha kwaulere malingana ndi zida komanso mawonekedwe

1. EXCAVATION

- Dig a rectangular hole: **160 cm x 140 cm | 3 meters deep**
- Shovel the excavated sand far from the pit edge to prevent it from falling back in!

1. KUFUKULA

- Kumbani dzenje lamakona anayi:
160 cm mulitali ndi 140 cm mulifupi | 3 mita kuya
- Fosholani mchenga wofukulidwa kutali ndi m'mphepete mwa dzenje kuti mchenga usabwelele mkati!

3 meters deep!

3 mita kuya!



2. CONCRETE SLAB - KONKIRE SLAB

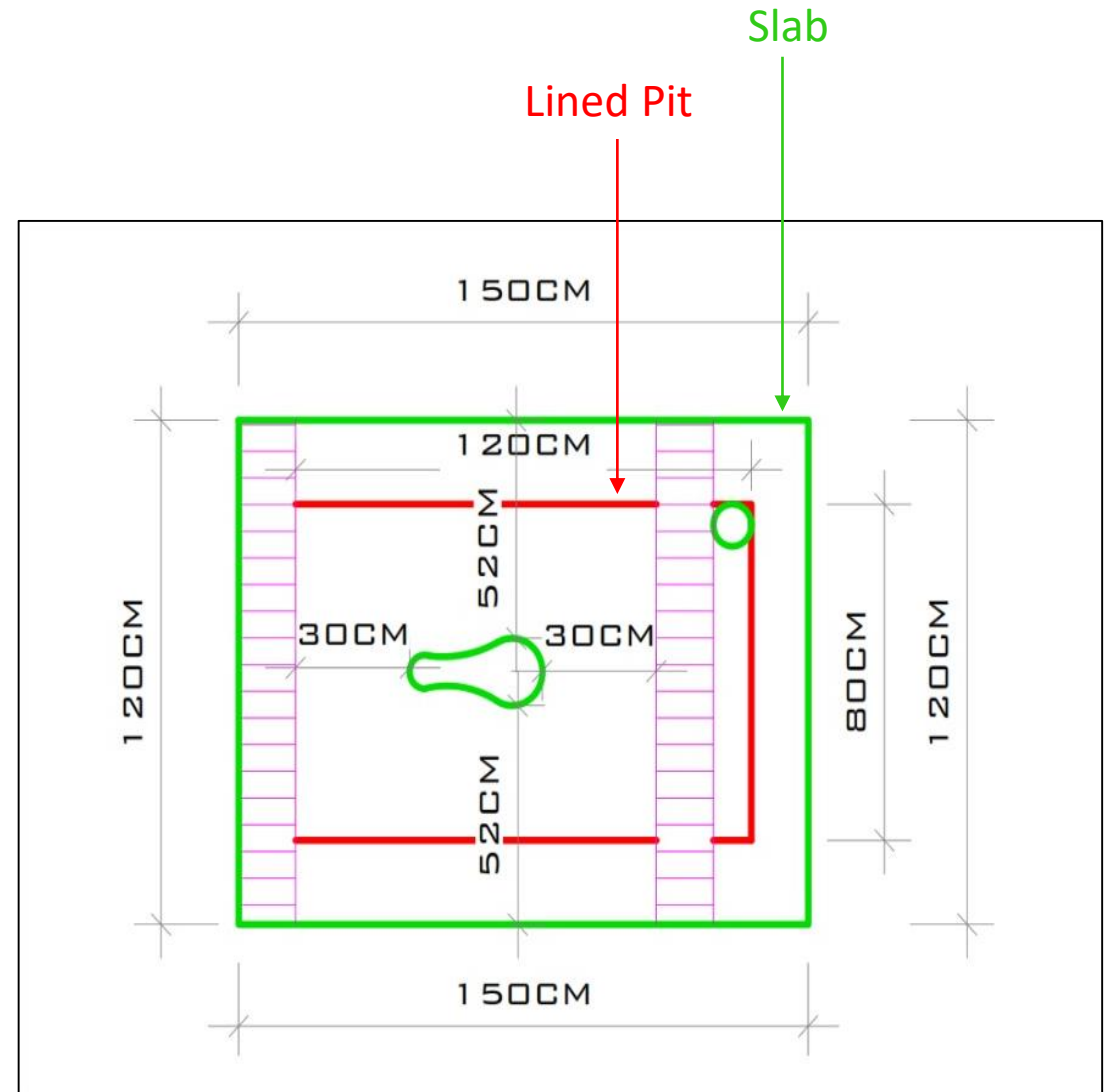
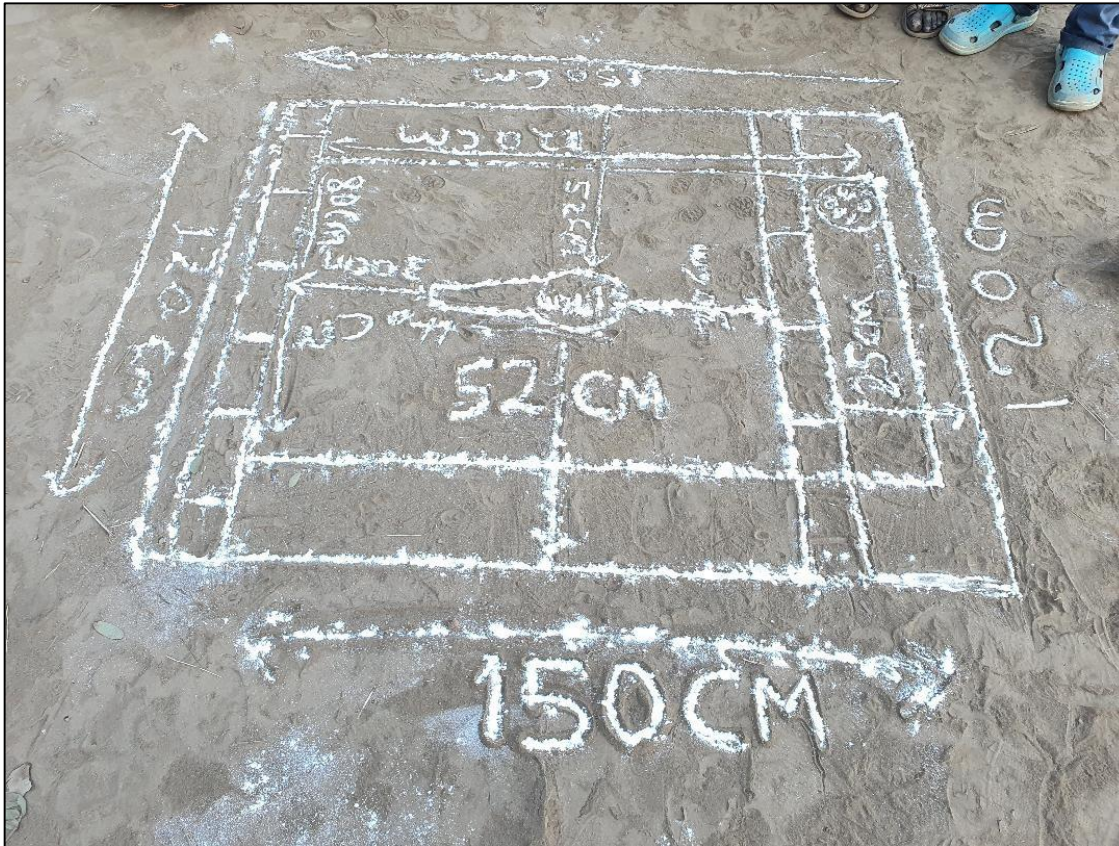
2.1. Drawing of Ground Model: Rectangle Slab

- **GREEN:** Outer line of slab = **150 x 120 cm**
- **RED:** Edges of pit lining = **120 x 80 cm**
- **PINK:** Walls of superstructure (to be built later)
- **GREEN:** Place holders for drop holder & vent pipe
- **CAREFUL:** Vent pipe hole must be on top of pit but outside superstructure!

2.1. Kujambula kwa kaonekedwe ka: Silabu la makona anayi

- **WOBIRIWIRA:** Mzere wakunja wa slab = **150 cm mulitali ndi 120 cm mulifupi**
- **WOFIIRA:** Mphepete mwa dzenje = **120 cm mulitari ndi 80 cm mulifupi**
- **PINKI :** Makoma a chapamwamba (kuti amangidwe pambuyo pake)
- **WOBIRIWIRA:** Ikani zogwirila za bowo la mphweya ndi chovindikira pabowo la chimbudzi
- **MOSAMALA:** Boola bowo la mpweya limene liyenera kukhala pamwamba pa dzenje koma kunja kwa khoma!

2.1. Rectangle Concrete Slab



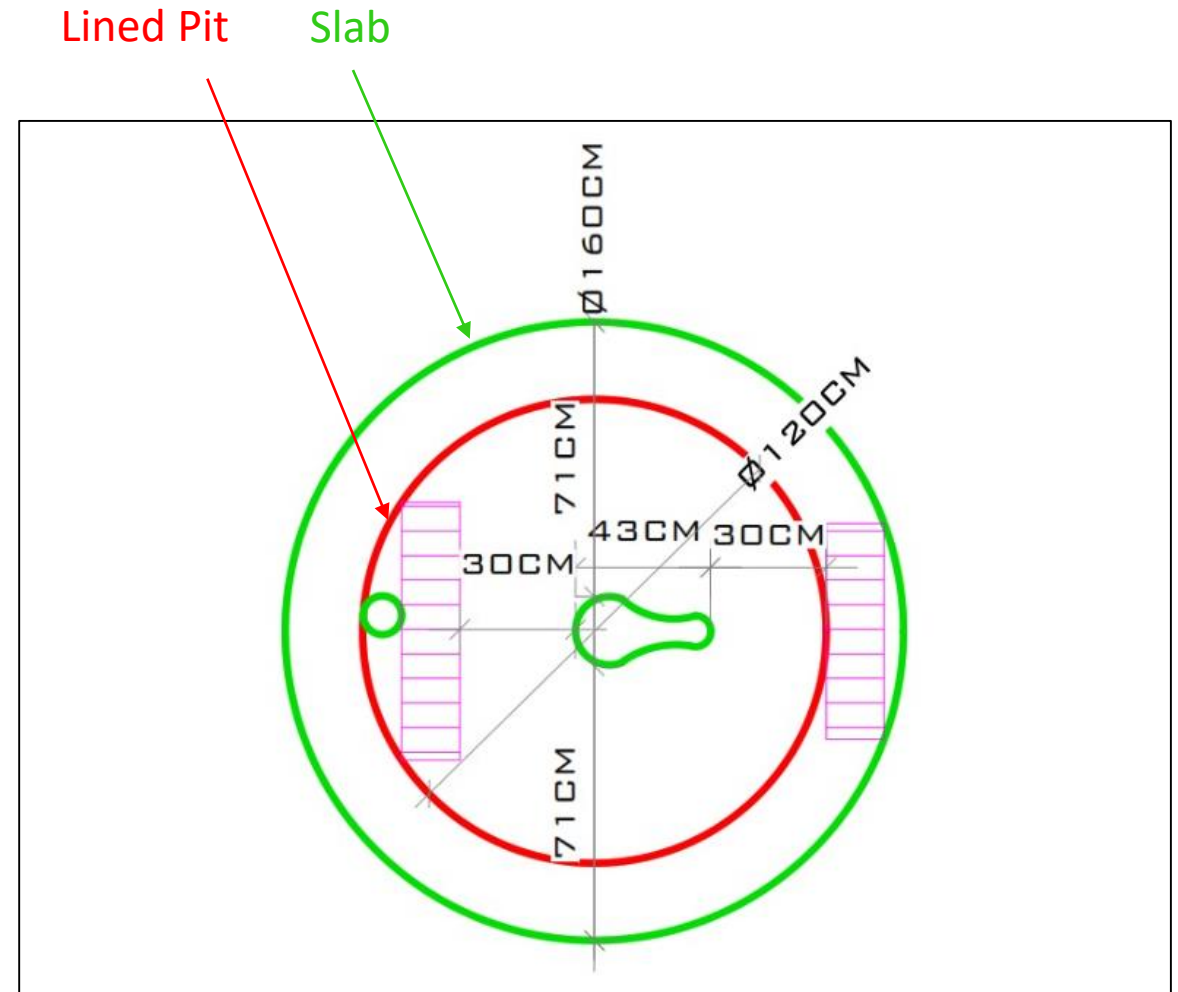
2.2. Drawing of Ground Model: Round Slab

- **GREEN:** Diameter of slab = 160 cm
- **RED:** Diameter of pit beneath slab = 120 cm
- **PINK:** Walls of superstructure (to be built later)
- **GREEN:** Place holders for drop holder & vent pipe
- **CAREFUL:** Vent pipe hole on top of pit but outside superstructure!

2.2. Kujambula kaonekedwe ka: silabu lozungulira

- **WOBIRIWIRA:** mnzere wapakati pa silabu = 160 cm
- **OFIIRA:** mnzere wa dzenje pansu pa slab = 120 cm
- **PINKI:** Makoma (omwe adzamangidwe pambuyo pake)
- **WOBIRIWIRA:** zizindikira za bowo lamphweya ndi lachimbudzi
- **MOSAMALA:** Zosungira malo & chitoliro chotulutsa mpweya bowo la chitoliro cha mpweya pamwamba pa dzenje koma kunja kwa khoma!

2.2. Round Concrete Slab



2.3. Construction of Concrete Slab Mold

- a) Define the edges of the slab with wooden planks:
 - **2 Pieces of 150 cm length plus**
 - **2 Pieces of 120 cm length**
- b) Check for squareness by measuring diagonally.
- c) Fasten the planks together at the corners using nails.

2.3. Kupanga silabu la konkire

- a) Komnzani mphepetete mwa silabu ndi matabwa:
 - **2 Zidutswa za 150 cm kotalika kuphatikiza**
 - **2 Zidutswa za 120 cm kotalika**
- b) Onetsetsani kuti mbali ina isatalike mopyola pomayeza.
- c) Mangani matabwa pamodzi pamakona pogwiritsa ntchito misomali.



2.4. Reinforcement of Concrete Slab

Add iron bars or natural bamboo sticks for reinforcement inside the wooden rectangle:

- 6 Pieces x 150 cm
- 7 Pieces x 120 cm
- 48 Pieces x 20 cm of soft wire for binding.

2.4. Kulimbita silabu la Konkire

Onjezerani zitsulo kapena timitengo tansungwi tachilengedwe kuti mulimbitse mkati mwa rectangle yamatabwa:

- 6 Zidutswa x 150 cm
- 7 Zidutswa x 120 cm
- 48 Zidutswa x 20 cm za waya wofewa kuti amange.

Iron Bars for Reinforcement



Bamboo Sticks for Reinforcement



2.5. Adding Placeholders for Openings in Slab

- Add placeholders for the drop hole and vent pipe openings.
- Wrap drop hole molder with plastic to avoid sticking on concrete.

2.5. Ikani zizindikiro pamabowo asilabu

- Chizindikiro cha bowo lachimbudzi ndi lolowetsera mphweya
- Kutirani chizindikirocho ndi pulasitiki kuopetsa kuti chisamatilire



2.6. Mixing of Concrete for Slab

a) When using **Iron Bars** for reinforcement: **Thickness of Slab = 6 cm**

- Sand: 18 Shovels
- Query Stones: 9 Shovels
- Cement: 8 Shovels
- Water: ca. 25 Liters

b) When using **Bamboo Sticks** to reinforce: **Thickness of slab = 10 cm**

- Sand: 32 Shovels
- Query Stones: 15 Shovels
- Cement: 12 Shovels
- Water: ca. 35-40 Liters



Pour the concrete into mold to form the slab

2.6. Kusakaniza Konkire kwa Silabu

a) Pamene mwagwiritsa ntchito **Mipiringidzo yachitsulo** : **Kukula kwa Slab = 6 cm**

- Mchenga: Mafosholo 18
- Miyala : Mafosholo 9
- Simenti: Mafosholo 8
- Madzi: Malita 25

b) Pamene mwagwiritsa ntchito **Nsungwi Ndodo** : **Kukula kwa slab = 10 cm**

- Mchenga: Mafosholo 32
- Miyala : Mafosholo 15
- Simenti : Mafosholo 12
- Madzi : Malita 35-40

 **Thirani konkire mu mnthuzi kuti mupange silabu**

2.7. Drying Process of Concrete Slab

a) When using **Iron Bars** for reinforcement:

- Add thin sand layer and sprinkle with water:
- Then no more water, remove sand!

Drying Period = **7 Days**

2x per day for **5 Days**

b) When using **Bamboo Sticks** to reinforce:

- Add thin sand layer and sprinkle with water:
- Then no more water, remove sand!

Drying Period = **10 Days**

2x per day for **7 Days**

2.7. Njira Yowumitsa ya Konkire Slab

a) Pamene ntchito **Mipiringidzo Yachitsulo** kulimbikitsa: **Nthawi Youma = Masiku asanu ndi awiri**

- Onjezani mchenga wopyapyala ndikuwaza ndi madzi: **kawiri patsiku kwa Masiku asanu**
- Pamene madzi aumiratu mu silabu, chotsani mchenga!

b) Pamene mwagwiritsa ntchito **Nsungwi Ndodo** kulimbikitsa: **Nthawi Youma = Masiku khumi**

- Onjezani mchenga wopyapyala ndikuwaza ndi madzi: **kawiri patsiku kwa Masiku asanu ndi awiri**
- Pamene madzi aumiratu mu silabu, chotsani mchenga!

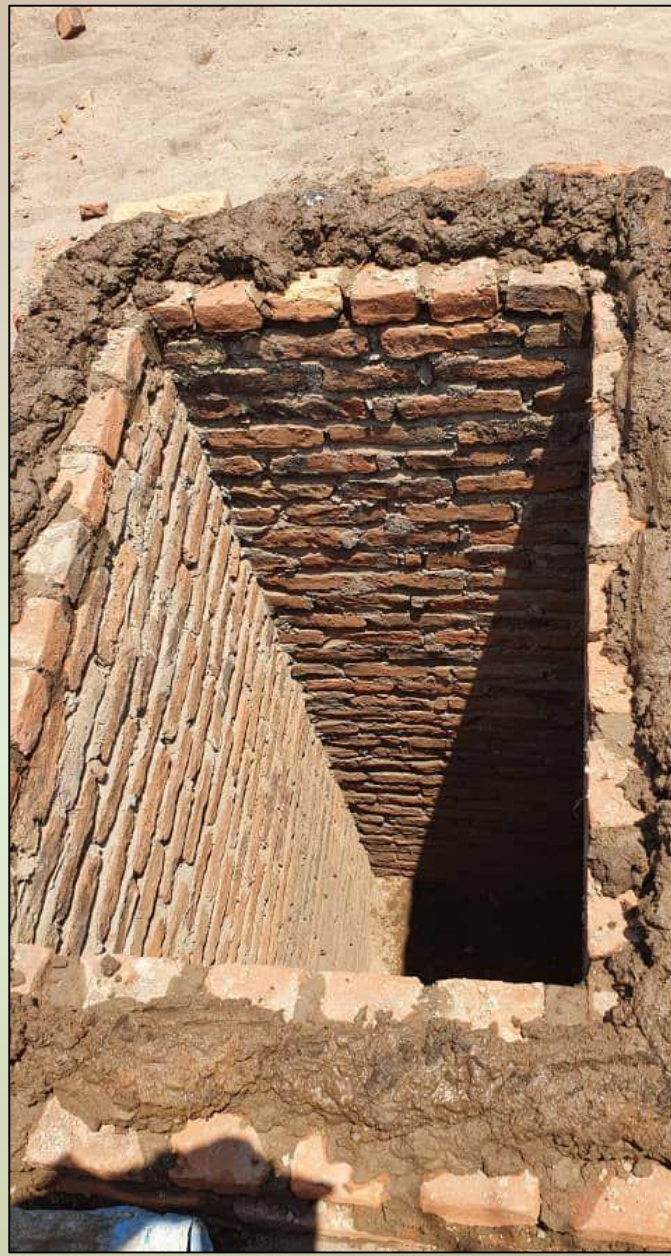


3. LINING of PIT

- **Use the slab's drying period** to line the pit with bricks!
 - Level the pit's bottom for stability.
 - Line with bricks and mortar to secure them.
 - Check alignment regularly and adjust as needed.
 - Finish with at least two rows of bricks above the surface.

3. MZERE WA DZENJE

- **Gwiritsani ntchito silabu nthawi yowuma** kulumikiza dzenje ndi njerwa!
 - Kwezani panso pa dzenje kuti mukhazikike.
 - Lumikizani ndi njerwa ndi matope kuti muteteze.
 - Yang'anani pafupipafupi zakukhazikika kwa silabu ndikusintha ngati pakufunika.
 - Malizitsani ndi mizere iwiri ya njerwa pamwamba.



Lining of Round Pit

Kuika njerwa mkati mwa chimbudzi
chozungulira

Lining of Double Pit for
2-Door-Latrine

Kuika njerwa mkati
mwa zimbudzi ziwiri
za makona anayi.



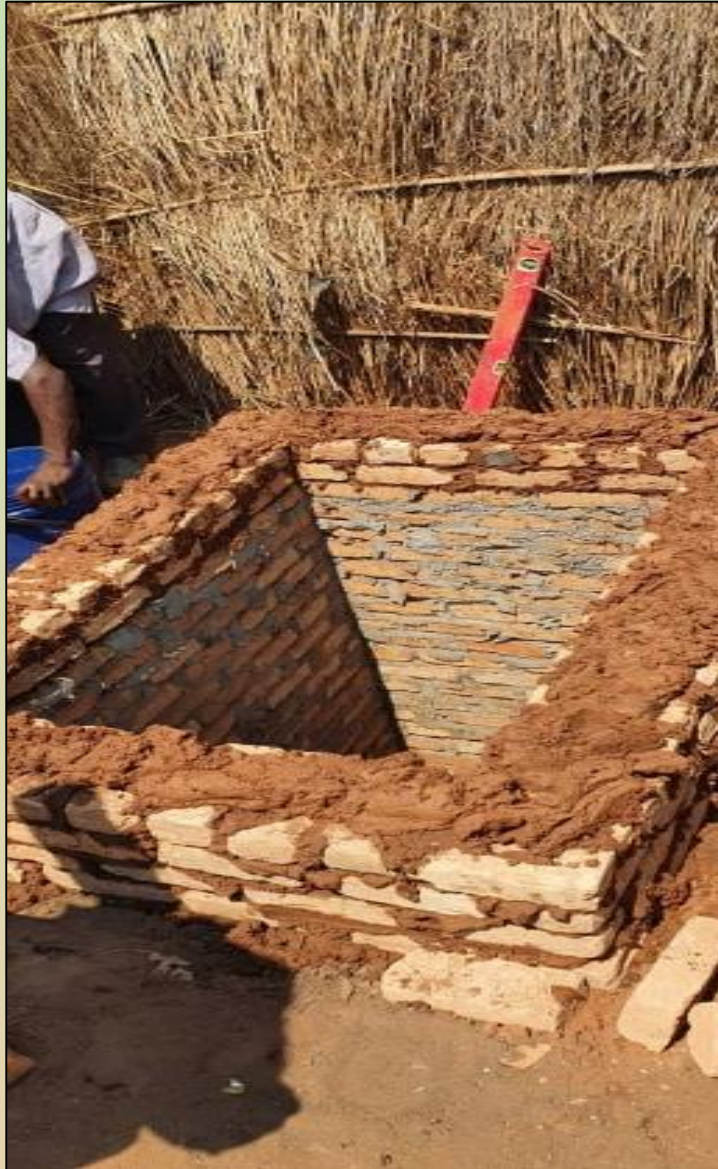
4. SLAB FITTING & SUPERSTRUCTURE

4.1. Fitting of Slab on Lined Pit

- Apply remaining concrete or mud on the rim of the brick-lined pit
- Fit the concrete slab on top of it.

4.1. Kuyika kwa Silabu pa Dzenje

- Ikani konkire yotsalira kapena matope pamphete mwa dzenje lokhala ndi njerwa
- Konzani silabu ya konkriti pamwamba pake



4.2. Construction of Superstructure

- Superstructure = Shelter on top of concrete slab
- Providing privacy & protection from the weather
- Any available materials can be used

4.2. Kupanga khoma la chimbudzi

- Superstructure = Pogona pamwamba pa slab ya konkire
- Kupereka chinsisi ndi chitetezo ku nyengo
- Zida zilizonse zomwe zilipo zitha kugwiritsidwa ntchito



SUPERSTRUCTURE

- Privacy: Curtains are as good as doors!
 - Roofs: Thatched roofs are as good as iron sheets!
 - Ventilation: Works with and without vent pipes!
-
- Zazinsinsi: Makatani ndi abwino ngati zitseko!
 - Denga: Madenga audzu ndi abwino ngati ya malata ~~zitsulo!~~
 - Mpweya wabwino: Imagwira ntchito ndi mapaipi olowera komanso opanda mpweya!





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