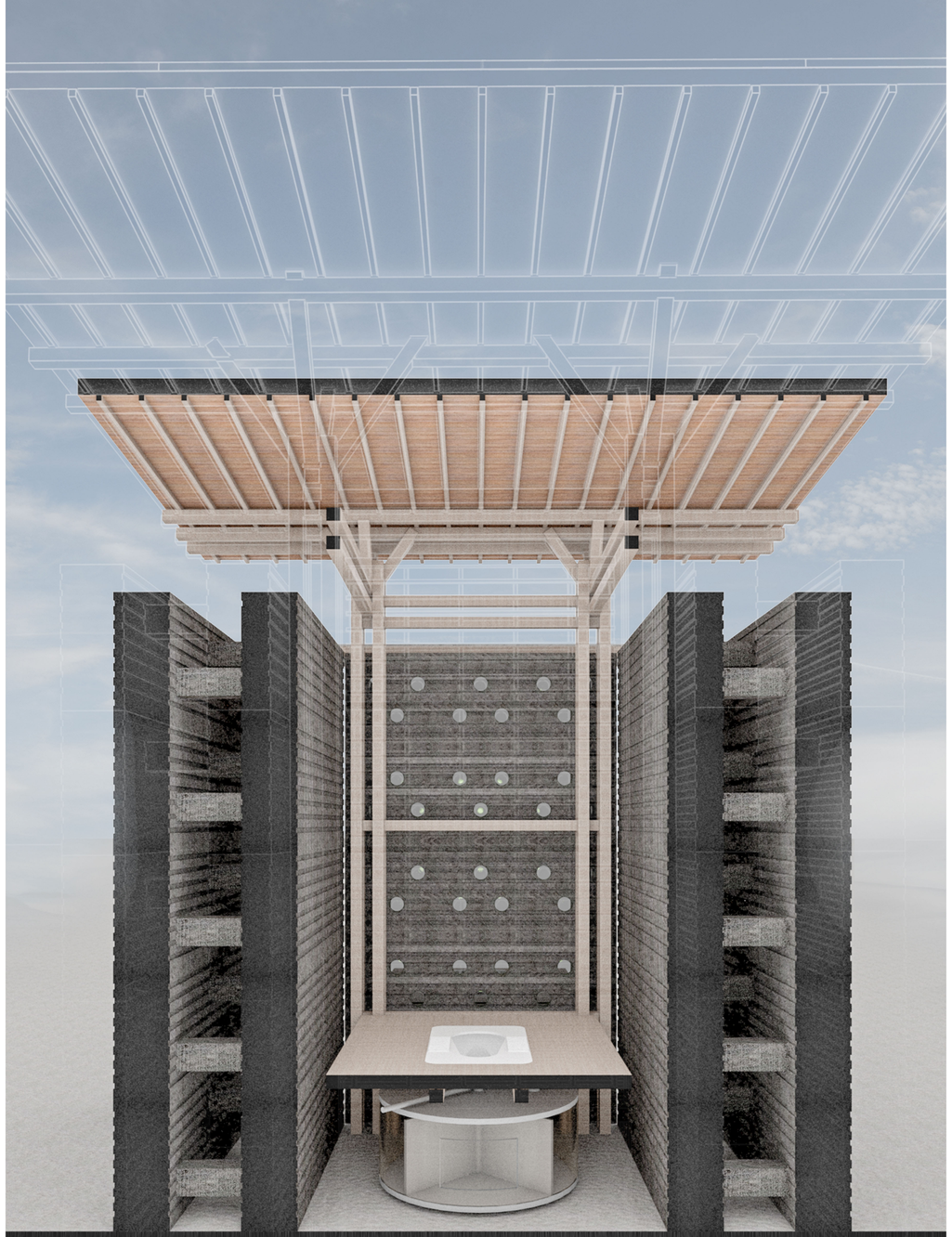
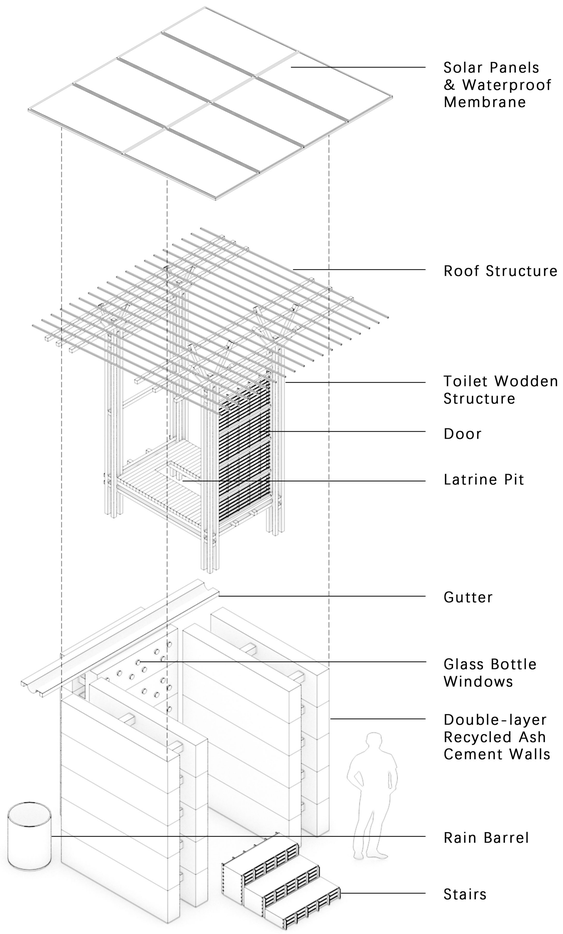
# Burning Again

## Co-built latrines using ash and garbage






ISOMETRIC DIAGRAM

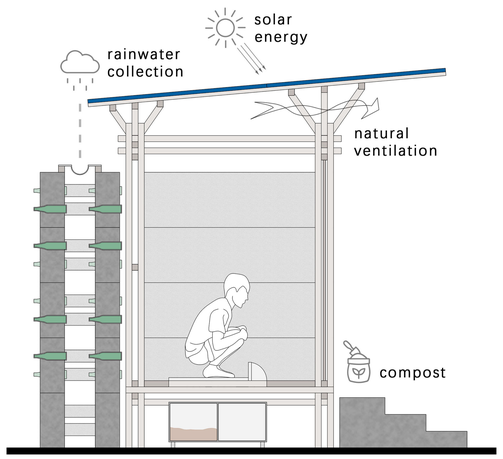
## THE CONSUMPTION CALCULATION OF WATER AND ELECTRICITY

| | Solar Radiation | Mean Wind Speed | Mean Wind Direction | Maximum Wind Gust | Average Air Temperature | | | | | Average Relative Humidity | | | Precipitation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | ly | mph | Deg | mph | Deg F | | | | | % | | | in |
| mm/yyyy | Total | Ave. | Vector Ave. | Max. | Ave. | Ave. Daily Max. | Max. | Ave. Daily Min. | Min. | Ave. | Max. | Min. | Total |
| 01/2019 | 4052 | 3.89 | 310 | 48.88 | 33.61 | 45.93 | 57 | 24.27 | 10.38 | 74.02 | 91.5 | 35.36 | 0.72 |
| 02/2019 | 3749 | 5.988 | 310.4 | 60.94 | 32.85 | 41.18 | 59.2 | 25.59 | 12.25 | 64.34 | 91.8 | 29.36 | 1.6 |
| 03/2019 | 4641 | 2.974 | 317.4 | 30.1 | 40.26 | 52.32 | 65.75 | 29.72 | 18.53 | 60.85 | 91.5 | 18.22 | 0.07 |
| 04/2019 | 5150 | 5.068 | 295.8 | 29.45 | 52.22 | 64.94 | 83.48 | 39.43 | 27.41 | 49.25 | 90.1 | 12.26 | 0.27 |
| 05/2019 | 5730 | 5.179 | 311.3 | 29.52 | 56.39 | 69.37 | 86.02 | 42.89 | 27.57 | 46.29 | 89.6 | 10.32 | 0.52 |
| 06/2019 | 9912 | 4.902 | 302.8 | 41.14 | 67.54 | 82.15 | 92.3 | 50.16 | 33.08 | 32.46 | 90.5 | 5.827 | 0.91 |
| 07/2019 | 6919 | 4.742 | 273.7 | 41.43 | 76.75 | 90.62 | 97.07 | 59.23 | 49.57 | 28.18 | 86.7 | 6.941 | 0.03 |
| 08/2019 | 10203 | 2.65 | 284.7 | 35.22 | 75.56 | 91.22 | 100.3 | 57.25 | 43.98 | 28.6 | 79.68 | 6.246 | 0.04 |
| 09/2019 | 8327 | 1.576 | 328.7 | 38.94 | 62.03 | 76.88 | 94.51 | 46.3 | 31.16 | 42.93 | 86.8 | 7.337 | 0.11 |
| 10/2019 | 1023 | 0.001129 | 356.4 | 5.48 | 45.34 | 63.59 | 78.69 | 26.19 | 4.442 | 33.42 | 86.6 | 7.521 | 0 |
| 11/2019 | 193.4 | 0.000252 | 357.9 | 0.731 | 39.79 | 56.38 | 69.48 | 25.7 | 12.13 | 49.84 | 92.5 | 11.18 | 0 |
| 12/2019 | 70.04 | 0.000878 | 357.2 | 1.242 | 33.08 | 41.87 | 52.95 | 26.45 | 13.26 | 79.39 | 94.8 | 39.22 | 0.02 |

The roof is designed to collect rainwater and solar energy, and its area is about 28.5 $m^2$ for a four-room toilet

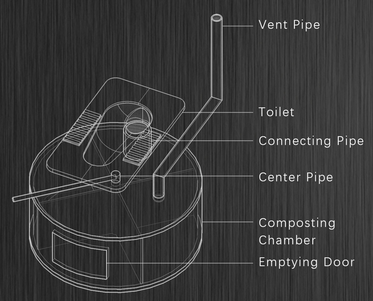
Based on the average accumulated rainfall during the 2019 wet season (0.68 feet per month), the roof can collect 11.8 $m^3$ of water over two months, which is enough for concrete making for another toilet construction.

According to the average monthly cumulative solar radiation in 2019 (58.1 kw·hr/$m^2$) and the solar photo-voltaic conversion rate (30%), the roof can generate about 496 kw·hr electricity per month, which is enough to meet the electricity demand for toilet lighting and composting toilet box (4*10W LED lights and 4*150W composting boxes).




SECTION SCALE 1:25

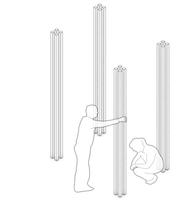
## THE COMPOSTING TOILET



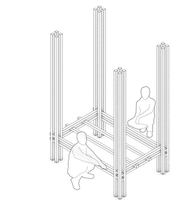

A composting toilet is a type of dry toilet that treats human excreta by a biological process called composting and turns the excreta into fertiliser. This eco technology do not require a connection to septic tanks or sewer systems, so it is very suitable for the site.

The carousel composting toilet technology features four composting chambers used alternately via a rotating carousel base. Excrement will enter one chamber at a time, and when one chamber is full, the base will be rotated so the next chamber can be filled.

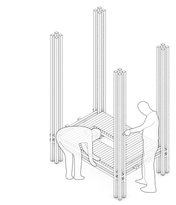
The waste in the first chamber will remain to further compost until the last chamber is filled. When the composting process is complete, the resulting composted material can be used as a soil conditioner by burying it under 12 inches of soil.



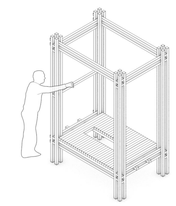
Columns Construction



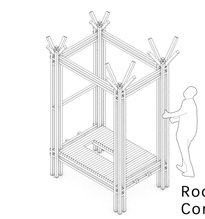
Lower Beams Construction



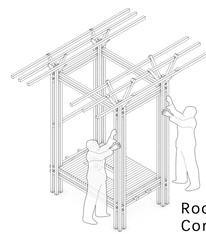
Floor Planks Construction



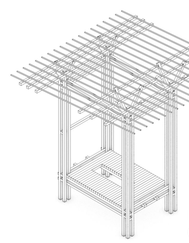
Upper Beams Construction



Roof Trusses Construction



Roof Beams Construction



Roof Purlins Construction