



Design of Rain Water Harvesting System for Noritake Factory Matale

Lanka Rain Water
Harvesting Forum

June 2025

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Location: Noritake Lanka Porcelain, Warakamura, Matale

Available roof area:

There is one large potential roofs within the premises that can be used to collect rainwater. Roof areas were calculated using google maps, therefore only estimates. Only the main roof areas were calculated (figure 1).

Type of Catchment	Area (Sqm)
A Building	495
B Building	1,460
C Building	8,800

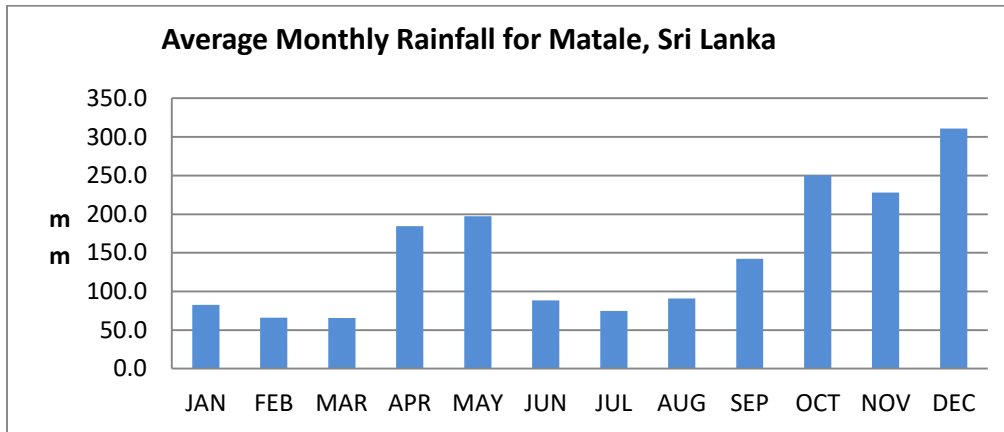


Water demand per Month Average = 39 m³.

Roof type: Asbestos and Zn/Al roofing sheets

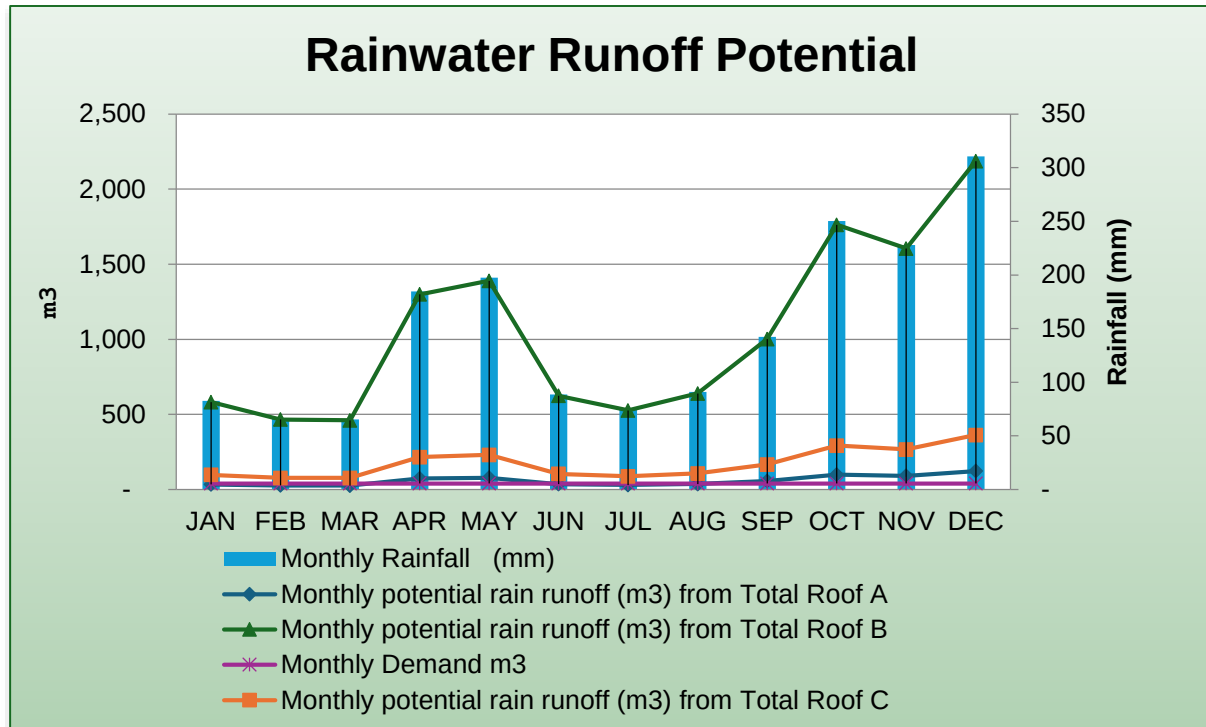
The objective is to utilize the rainwater collected for toilet flushing

Average Monthly Rainfall



Potential Monthly Roof Run off from the Different Buildings

Months	Monthly Rainfall (mm)	Monthly potential rain runoff (m ³) from Total Roof A	Monthly potential rain runoff (m ³) from Total Roof B	Monthly potential rain runoff (m ³) from Total Roof C	Total potential from total Roof are (m ³)	Monthly Demand m ³
JAN	82.6	33	96	581	711	39
FEB	66.1	26	77	466	569	39
MAR	65.4	26	76	460	563	39
APR	184.6	73	216	1,299	1,588	39
MAY	197.5	78	231	1,390	1,699	39
JUN	88.5	35	103	623	762	39
JUL	74.8	30	87	526	643	39
AUG	90.9	36	106	640	782	39
SEP	142.4	56	166	1,002	1,225	39
OCT	250.4	99	292	1,763	2,155	39
NOV	227.9	90	266	1,605	1,961	39
DEC	310.6	123	363	2,187	2,673	39
Total	1,782	706	2,081	12,543	15,329	468
Monthly Average m ³		59	173	1,045	1,277	



Observation

1. The premises has number of large roof building therefore there is high potential to collect roof rainwater. However, some roof are fairly old therefore need repair and cleaning before using for rainwater harvesting
2. The 3 building identified for rainwater harvesting is based on their elevation, space available for placing of storage tanks and availability of gutters.
3. Demand of 69m³ per month or 368 m³ per year can easily be met with roof run off collection from building A alone.
4. Total roof run off collection from all 3 roofs is 15,329 m³ , average monthly run off is 1,277 m³
5. Use of Rainwater for the premises can be conducted in several phases. Suggested steps are below (although it need not be in the following sequence)

Recommendation

1. Building B

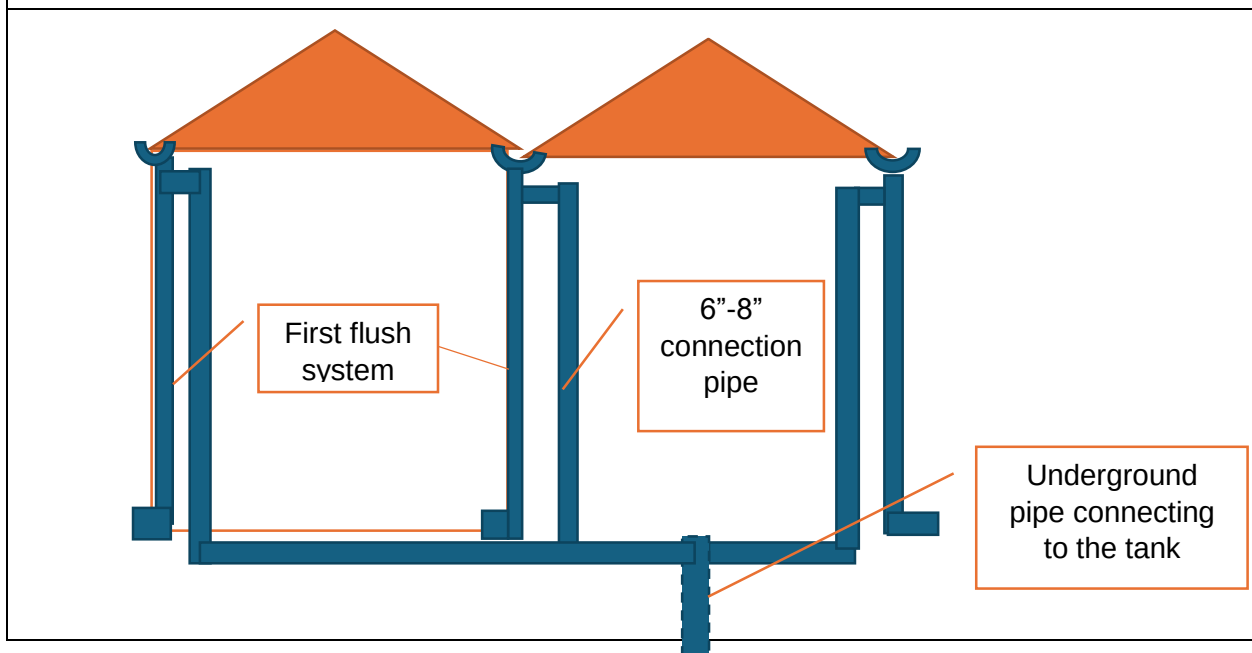
- a. Install 4-6 x 10 m³ PE tanks at the back of the building B to collect run off water from the roof, from all gutters. Collected water can be used through gravity in the buildings below for toilet flushing/ gardening or
- b. connect the gutter through down pipe (6") from the front side of the building B, deliver underground to tanks placed in the grass area in front of this building (if the drop is more than 7 ft then 10 m³ tanks can be placed)

2. **Building A:** Install 4-5 x 10 m³ PE tanks next to the building A collect from roof. Connecting at a higher level. Or underground tank/s collecting at a lower level connecting the downpipe.
3. **Building A&B:** Install 500 – 1000 m³ underground tank collecting roof run off from both building A and B
4. Since rainwater has low conductivity, hardness (Ca/Mg), TDS (Total Dissolved Solids), Turbidity it can be used to dilute water from other sources for washing and processing in the factory, after checking quality for other necessary parameters. This will reduce the cost on water treatment.
5. Install first flush and filter to all rainwater harvesting systems

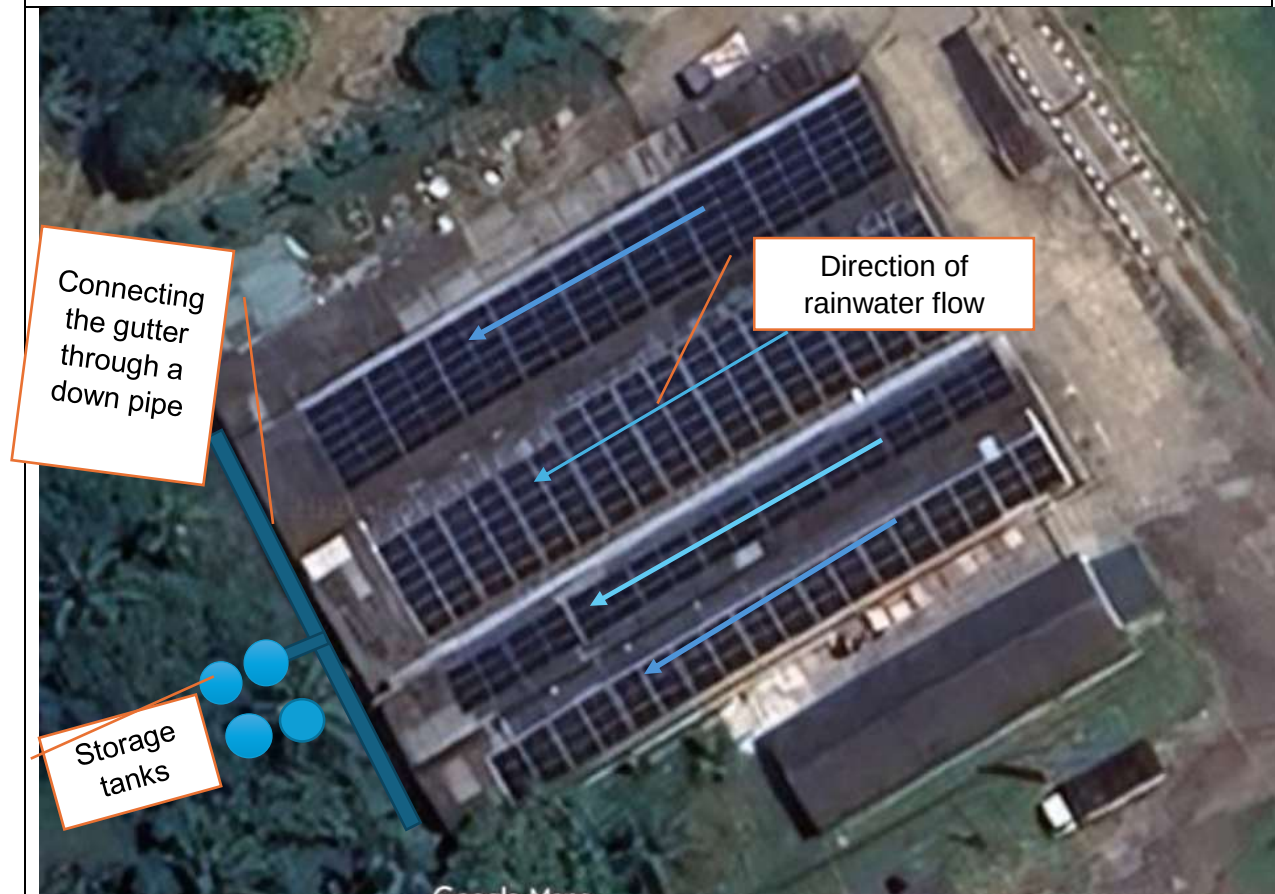


Design of collecting roof run off from the front of the Building B

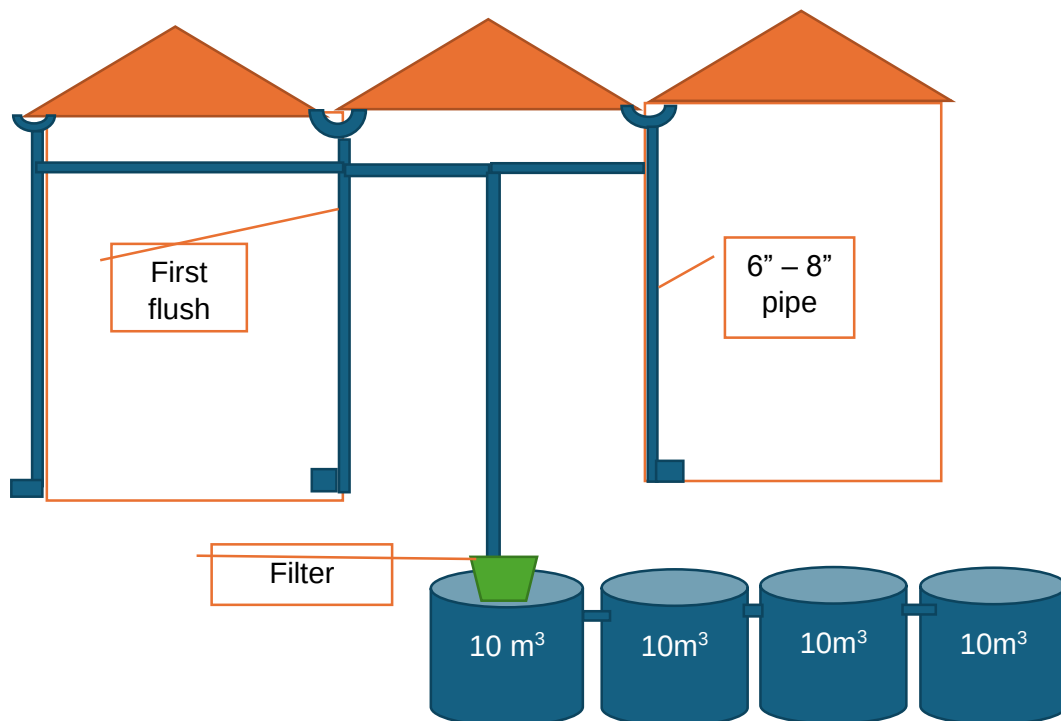
Schematic diagram of Collecting roof run off from the front of the Building B



Design of collectin roof run off from back of Building B



Schematic drawing of Rainwater collection from back of building B



Collectign Roof water from Building A and B (above ground storage tanks design)

