

Foam Filtration Unit Design

We are currently designing a foam filtration unit for four separate situations:

- A family of 7 to 10 people with access to a tap with untreated water. It is assumed that the family will use the filter for all of their water needs: drinking, cooking, cleaning and bathing
- A family of 7 to 10 people with no access to a tap. Since this family must carry all of their water to the filter, they will not use treated water for all of their needs. They will filter their drinking and cooking water, which will result in a decreased filtering capacity required for this design.
- An apartment complex with approximately 150 people with access to a tap. This design will be similar to the family unit with a tap, but the surface area of the filter will be larger to reflect the necessary increase in filter capacity.
- A village without a municipal water distribution system. These people would get water directly from a source. This filter will be brought to the water source used by the community and residents will all use the filter at the water source. Because people in such communities must carry their water from the source, the filter size will be designed to handle the drinking and cooking water needs of community residents.

	Family Unit with Water Distribution System	Family Unit without Water Distribution System	Apartment Building with Water Distribution System	Business / School with Water Distribution System (without shower)	Small Village without Water Distribution System (only drinking)
Number of Expected People Using the Filter	7 people	7 people	50 people	50 people	200 people
Average Water Consumption per Person per Day (Howard, 2003)	100 L/day	20 L/day	100 L/day	50 L/day	5 L/day
Total Water Treated per Day	7000 L/day	140 L/day	5000 L/day	2500 L/day	1000 L/day

Table 1: Different cases for Point of Use Filtration Unit Design

The foam material used in the design can be found here: [Foam Material](#)
Our designs use the 2.0 density foam, which is the sites version of the 90 ppi foam.

[Inlet Designs](#)

[Filter Bed Designs](#)

[Distribution Tank Designs](#)