

Extended Aeration

Extended aeration plants, also referred to as aerobic digestion plants, have particular application for relatively small installation serving subdivisions, trailer parks, motels, shopping centers, and the like. Some basic design data are given below and in Table 4-21 for conventional activated sludge and other aerobic processes. A three-month adjustment period is needed to produce an acceptable effluent. Therefore, extended aeration plants are not recommended for seasonal operations such as camps and schools.

Table 4-21 Permissible Aeration Tank Capacities and Loading

Process	Aeration Tank Organic Loading (lb BOD ₅ /day per 1000 ft ³)	F/M ^a Ratio (lb BOD ₅ /day per lb MLVSS ^b)	MLSS ^c
Conventional Step aeration	40	0.2-0.5	1000-3000
Complete mix			
Contact stabilization	50 ^d	0.2-0.6	1000-3000
Extended aeration	15	0.05-0.1	3000-5000
Oxidation ditch			

Source: *Recommended Standards for Sewage Works*, Great Lakes-Upper Mississippi River Board of State Sanitary Engineers, Health Research Inc., Health Education Service Division, P.O. Box 7126, Albany, N.Y. 12224, pp. 80-86, 1978.

^a Food to microorganism ratio (F/M)

^b Mixed liquor volatile suspended solids (MLVSS)

^c MLVSS values are dependent upon the surface area provided for sedimentation and the rate of sludge return as well as the aeration process

^d Total aeration capacity, includes both contact and reaeration capacities. Normally the contact zone equals 30 to 35 percent of the total aeration capacity.

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