HidroVerse™
Universal Water Systems

LODGE WASTEWATER PROCUREMENT

MBBR vs SBR vs MBR — side by side.

The three biological technologies that occupy 80% of the lodge wastewater market, compared on the dimensions a procurement officer or estate trustee actually has to defend.

How to read this

CapEx and OpEx are normalised against MBBR (1.0×). Energy and sludge figures are for a typical 20-suite Lowveld property. Effluent quality is the steady-state performance under design load — peak-load excursions degrade all three by ~20%.

	MBBR	SBR	MBR
Effluent BOD	< 10 mg/L	< 10 mg/L	< 5 mg/L
Effluent SS	< 15 mg/L	< 15 mg/L	< 1 mg/L
Footprint (20 ste)	12 × 7 m	14 × 7 m	10 × 6 m
Energy (kWh/m³)	0.6–0.9	0.5–0.8	0.9–1.4
Sludge prod. (kg/m³)	0.20–0.30	0.25–0.35	0.18–0.28
Operator skill	Low	Moderate	Moderate–High
CapEx (relative)	1.0×	0.85×	1.4–1.7×
OpEx (relative)	1.0×	0.95×	1.25–1.45×
Reuse-ready effluent	With UF polish	With UF polish	Yes — direct
Handles load swings	Excellent	Good (cycle-tunable)	Good
Best fit	Default workhorse	Variable load sites	Tight footprint / premium reuse

Reference: Rusten et al., 'Design and operation of moving bed biofilm reactor processes,' Aquacultural Engineering 34(3), 2006; Judd, The MBR Book 2nd ed., Elsevier, 2010.