5 m Brick Water Tower 5,000 L

AOFS Reference Implementation: 5 m Brick Water Tower with 5,000 L nylon tank. Designed for **simple, locally-buildable construction** using available materials.

This blueprint is **non-normative** and intended as a **practical, low-tech reference** for smallholder farms, NGOs, or off-grid installations.

Functional Purpose

- Store 5,000 L of water in a tank elevated ~5 m for gravity-fed irrigation
- Provide reliable water supply without requiring specialized equipment
- Integrate optionally with AOFS Field Controllers for water level monitoring

Structural Concept

- 5 m high brick tower in **simple cross/X pattern** for stability
- Supports a **standard 5,000 L nylon tank** (locally available)
- No specialized engineering required — buildable with local skills
- Open-top tank for inspection and filling
- Mobile Ladder or simple access for maintenance if needed

Hydraulic Layout

- Tank outlet feeds irrigation zones by gravity
- **Minimum outlet height prevents complete emptying** to maintain tank stability
- Isolation valve allows manual control
- Overflow routed to simple drainage or secondary container
- Optional integration with a small pump for secondary irrigation zones

Safety Considerations

- Basic stability ensured by the cross/X brick pattern
- Keep tank weight within reasonable limits (full tank ~5 tons)
- Ladder and hatch should be used carefully
- Empty or near-empty tanks are more susceptible to wind forces; take care during strong wind events
- Ensure tank straps, brackets, or anchoring to the frame are installed and checked regularly
- Overflow and basic manual valve operation prevent flooding

Manual Operation Pathways

- Tank filling and irrigation can be done manually if electronics fail
- Simple paper-based logs or measurements supported

Controller Integration Points

- Optional water level sensor for Field Controller logging
- AOFS control can read tank level for irrigation scheduling
- Controller can enforce a minimum water level to ensure the tank remains gravity-stable against wind forces
- Controller may connect to global weather forecasts when internet is available
    - High wind or storm warnings trigger alerts to the operator
    - Controller can temporarily fill or maintain tank level to prevent tipping during forecasted high winds
    - Irrigation may be suspended or modified to reduce risk to infrastructure
- Manual bypass always available — irrigation continues even if electronics are offline

Versioning Note

- This design is **so simple and locally adaptable** that traditional versioning practically does not apply
- Builders may adjust dimensions, brick patterns, or tank placement according to local materials and skills
- Basic stability and functional operation should be maintained

From:
http://wiki.irrigation.afriticgroup.com/ - **Afritic Open Farming Standard**

Permanent link:
http://wiki.irrigation.afriticgroup.com/doku.php?id=reference_implementations:water_towers:wt_5m_brick&rev=1771801596

Last update: **2026/02/22 23:06**