# DIY Irrigation Systems for Urban Greening Projects

Whether you're nurturing a lush green wall or maintaining a vibrant rooftop garden, proper irrigation is the lifeline of a healthy ecosystem. This guide walks you through tailored DIY irrigation strategies for a variety of living wall kits, tower systems, and green roofs.

# Living Wall Kits

### 1. Living Wall Kit (Small)

Best Irrigation Type: Gravity-fed Drip Irrigation

Why: Small footprint, lower water demand, easy to maintain.

#### **Materials Needed:**

- 5-gallon water reservoir (elevated)
- 1/4" drip tubing
- Inline drip emitters (0.5–1 GPH)
- Manual or battery-operated timer (optional)

#### **Setup Steps:**

- 1. Place the reservoir above wall height.
- 2. Connect tubing with emitters spaced evenly to align with plant pockets.
- 3. Use a timer to regulate watering once or twice daily depending on climate.

## 2. Living Wall Kit (Medium)

**Best Irrigation Type:** Automated Pump-Driven Drip

Why: More coverage, requires consistent water distribution.

#### **Materials Needed:**

- 10-gallon reservoir
- Submersible pump (30–50 GPH)
- 1/4" tubing with drip emitters
- Digital timer

#### **Setup Steps:**

- 1. Place reservoir at base with pump installed inside.
- 2. Run tubing vertically with emitters at each plant row.
- 3. Set timer for 1–2 minutes daily.

# 3. Living Wall Kit (Large)

Best Irrigation Type: Recirculating Drip with Reservoir

Why: Large surface needs efficient water reuse.

#### **Materials Needed:**

- 15–20 gallon reservoir
- Submersible pump (100 GPH+)
- Distribution tubing and emitters
- Return tray to collect runoff
- Filter to prevent clogging

#### **Setup Steps:**

- 1. Install tubing at top rows and let gravity distribute water.
- 2. Collect runoff into reservoir via tray.
- 3. Circulate filtered water back up with timer-controlled pump.

# **Y** Tower Systems

## 4. Tower System (Basic)

Best Irrigation Type: Passive Wick or Gravity Drip

Why: Simple hydroponic or soil towers benefit from low-tech solutions.

#### **Materials Needed:**

- Central reservoir or top watering cap
- Absorbent wicks or drip tubing
- Optional base catchment tray

#### **Setup Steps:**

- 1. Insert wicks into each level or line tubing along vertical shaft.
- 2. Fill top reservoir to allow water to slowly percolate down.
- 3. Collect any excess at the bottom.

# 5. Tower System (Advanced)

Best Irrigation Type: Recirculating Pump System

Why: High plant density and nutrient delivery demand controlled flow.

#### **Materials Needed:**

• 10–15 gallon nutrient reservoir

- Submersible pump (150–250 GPH)
- Vertical manifold or sprinkler head
- Tubing, timer, and overflow catchment

#### **Setup Steps:**

- 1. Run tubing to the top with micro-sprayers or drip rings.
- 2. Ensure even flow and drainage.
- 3. Timer runs pump in 15–30 min cycles throughout the day.

# **F** Green Roofs

## 6. Green Roof (Extensive)

Best Irrigation Type: Soaker Hose Grid

Why: Lightweight, drought-tolerant species need occasional watering.

#### **Materials Needed:**

- Soaker hoses
- Pressure regulator and filter
- Outdoor hose bib or timer connection

#### **Setup Steps:**

- 1. Lay hoses in grid pattern every 12–18 inches.
- 2. Connect to water source with regulator and filter.
- 3. Use programmable timer during dry spells only.

## 7. Green Roof (Intensive)

Best Irrigation Type: Automated Sprinkler or Subsurface Drip

Why: Lawn areas, shrubs, and deep-rooted plants need reliable moisture.

#### **Materials Needed:**

- In-ground or above-ground sprinkler system OR
- Subsurface drip lines with emitters
- Moisture sensors (optional)

#### **Setup Steps:**

- 1. Design zones based on sun and plant types.
- 2. Install a smart irrigation controller.
- 3. Water early morning or late evening for maximum efficiency.

# 💡 Tips for All Systems

- Use timers to automate and conserve water.
- Check for clogs monthly, especially in drip systems.
- Add filters to protect emitters and pumps from debris.
- Adjust seasonally based on plant growth and rainfall.