



Pete's Luminous Creations

3 Coleman Street, #03-24

Singapore 179804

Phone: (65) 6287 3059, Fax: (65) 6726 0822

10 m² Glow Walkway (Epoxy Surface + Concrete Backing)

Bill of Materials (for 10 m² at 1 mm epoxy glow surface layer)

Epoxy Glow Surface

- **Glow powder (strontium aluminate, light green, 100–300 µm)** → ~3 kg
(≈0.3 kg/m² at 25% loading in 1 mm epoxy layer)
- **Clear epoxy resin system (UV-resistant, outdoor-grade)** → ~9 kg
(≈0.9 kg/m² for 1 mm layer)
- **Optional decorative pigments/aggregates** (if mixing multiple colors)
- **Clear PU topcoat (UV-stable, non-yellowing)** → ~5 liters (2 coats)
- **Clear silica/quartz anti-slip grit** → 1–2 kg

Concrete Backing

- **Ordinary Portland Cement (OPC)** → ~250 kg
- **Sand (well-graded)** → ~600 kg
- **Gravel (10–20 mm)** → ~1,200 kg
- **Water** → ~120 liters (adjust for workability)
- **Reinforcement mesh** (if slabs are large or load-bearing)

Tools

- Molds (if precast tiles/panels) or formwork (if casting in place)
- Concrete mixer
- Epoxy mixing buckets + drill mixer
- Trowels, rollers, brushes
- Vibrating table or hand vibrator



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- PPE (gloves, goggles, respirator for mixing powder)
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✂ Step-by-Step Workflow

Day 1 – Prepare Molds

1. Clean molds or formwork thoroughly.
 2. Apply mold release agent (non-staining, epoxy-safe).
 3. Make sure molds are level to avoid epoxy pooling.
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Day 1 – Apply Glow Epoxy Layer

1. **Mix epoxy + glow powder:**
 - Mix ratio: epoxy resin : hardener = as per supplier (often 2:1 or 3:1).
 - Add glow powder at **25–30% by weight of resin**.
 - Example per m²: 0.9 kg epoxy + 0.3 kg glow powder.
 2. Pour or brush into the mold, spreading evenly to **1 mm thickness**.
 3. De-bubble with roller or heat gun.
 4. Let cure until **firm (semi-hard)**: usually 6–8 hours at 25 °C.
 - Surface should support weight of concrete pour without mixing, but still chemically bond.
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Day 2 – Pour Concrete Backing

1. Mix concrete (1 part cement : 2.5 parts sand : 5 parts gravel).
 - Water/cement ratio \approx 0.45–0.5.
 2. Carefully pour concrete over the cured epoxy glow layer.
 3. Vibrate gently to remove voids without disturbing epoxy.
 4. Screed smooth, embed reinforcement if needed.
 5. Allow to cure at least 48 hours before demolding.
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Day 4 – Demold & Initial Curing

1. Remove slabs from molds.
 2. Cure concrete under damp cloth/plastic sheet for **7 days** minimum (keep moist).
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Day 10+ – Surface Protection

1. Once concrete has cured and dried: clean surface thoroughly.
 2. Apply **clear PU topcoat** (2 coats, roller or spray).
 - First coat: thin, penetrating.
 - Second coat: heavier, within 12–24 hrs.
 3. For anti-slip: broadcast clear silica grit on first coat while wet, then lock in with second coat.
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Curing & Lifespan

- Epoxy glow layer: hard in 8 hrs, fully cured in 5–7 days.
- Concrete: walkable in 7 days, full strength at 28 days.



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- Topcoat: touch dry in 6 hrs, traffic-ready in 48 hrs.
 - Lifespan: **5–8 years outdoors** with PU topcoat before resealing; epoxy glow layer itself lasts 15+ years if protected.
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Coverage with 1 kg Glow Powder

- At **25% loading in 1 mm epoxy layer** → 1 kg covers ~3.3 m².
 - For **10 m² walkway**, you need ≈3 kg glow powder.
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Summary:

- Pour **glow epoxy first (1 mm layer in mold)**.
 - Allow semi-cure, then pour **structural concrete backing**.
 - Demold, cure, seal with **UV-stable PU topcoat + anti-slip grit**.
 - Coverage: **1 kg glow powder ≈ 3–4 m²** at strong glow.
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In-Place Glow Walkway (Concrete Base + Glow Epoxy Surface)

Bill of Materials (for 10 m²)

Concrete Base (walkway structure)

- Cement → ~250 kg
- Sand → ~600 kg
- Gravel (10–20 mm) → ~1,200 kg
- Water → ~120 liters (adjust for slump)
- Reinforcement mesh (if load-bearing)

Glow Surface Layer

- Glow powder (strontium aluminate, light green) → ~3 kg
- Clear epoxy resin (UV-resistant, outdoor grade) → ~9–10 kg
- Clear polyurethane (PU) topcoat → ~5 liters (2 coats)
- Clear silica/quartz grit (anti-slip) → 1–2 kg

Tools

- Concrete mixer, screeds, trowels
 - Grinder or sander (for surface prep)
 - Epoxy mixing buckets + drill mixer
 - Rollers, squeegee, brushes
 - PPE (gloves, goggles, respirator for powder)
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✂ Step-by-Step Workflow

Step 1 – Pour Walkway Base

1. Excavate, prepare subgrade, and compact.
 2. Lay reinforcement mesh if needed.
 3. Pour and screed concrete base (100–120 mm thick typical).
 4. Finish with smooth trowel or light broom finish.
 5. Cure at least **7 days** (ideally 28 for full strength).
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Step 2 – Surface Preparation (after curing)

1. Grind or sand lightly to open pores of concrete (better adhesion).
 2. Clean thoroughly: remove dust, laitance, oils, or curing compounds.
 3. Ensure surface is **dry ($\leq 4\%$ moisture content)** before epoxy.
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Step 3 – Apply Glow Epoxy Layer

1. Mix epoxy resin and hardener per supplier ratio.
 2. Add glow powder at **25–30% by weight of epoxy**.
 - Example: 1 kg epoxy + 0.3 kg glow powder.
 3. Spread over concrete using squeegee or roller, targeting **1 mm thick layer**.
 4. Work in sections to avoid premature setting.
 5. Roll with spiked roller to release bubbles.
 6. Allow curing for 8–12 hours (walkable) or per product data sheet.
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Step 4 – Apply Protective Topcoat + Anti-Slip



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1. Once epoxy has cured, roll on **clear PU topcoat** (UV-stable).
 - First coat: thin, penetrating.
 - While wet, broadcast clear silica grit lightly for anti-slip.
 2. After drying, roll on second coat to lock grit in.
 3. Allow 24–48 hours before foot traffic.
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Coverage (1 kg Glow Powder)

- Epoxy + glow (1 mm layer, 25% loading): **1 kg pigment = ~3.3 m²** strong glow.
 - For **10 m² walkway**, need ~3 kg glow powder + ~9–10 kg epoxy.
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Durability & Maintenance

- Epoxy glow layer: lasts **10–15 years** if protected.
 - PU sealer: reapply every **3–5 years outdoors**.
 - Anti-slip grit ensures safety without dimming glow.
 - Cleaning: wash with mild detergent, no harsh abrasives.
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Summary

- Cast concrete walkway normally.
- Grind + clean surface after curing.
- Apply **glow epoxy coat (1 mm, 25% pigment)** directly onto surface.
- Seal with **UV-stable PU** and add **anti-slip grit**.
- Coverage: 1 kg pigment = 3–4 m².