

Good Casting Practices for Concrete Garden Bed Panels

Scope: This guide details the equipment and process for casting [Original Molds](#) and [Round End Molds](#) using portland-based sand and gravel concrete. These molds create panels that are 2-1/2" thick. (Note: *Thin Molds require a slightly different process.*)

Phase 1: Preparation

1. Site Setup

- **Work Surface:** Use a strong table or workbench that is perfectly level both side-to-side and lengthwise. Use a spirit level and shims to adjust as needed.
- **Environment:** Select an undisturbed location away from other activities. An ideal environment is a temperature-controlled shop at **70°F** or warm, dry weather.

2. Tools & Safety Gear Ensure all tools and supplies are nearby before mixing.

- **Safety Gear:** Safety glasses, ear protection, gloves, and a P100 respirator or dust mask.
- **Mixing:** Wheelbarrow, shovel, trowel, pail, cold water, and high-strength concrete mix (5000–6000 psi).
- **Casting:** Rubber mallet (for settling), vibration tool (optional), plastic sheets, and a water spray bottle.

3. Mold & Reinforcement Prep

- **Lubrication:** Wax the mold cavity, let it dry, and buff it to a shine; this provides a better result than mineral oil.
 - **Wire Reinforcement:**
 - Cut **9-gauge galvanized wire** into coils to reinforce the pipe holes.
 - Cut **4-gauge galvanized wire grid** to fit the main panel area using bolt cutters.
 - **Pipe Setup:** Apply **petroleum jelly** to the pipes (superior to mineral oil) and slide them into the mold while threading the wire coils. Ensure the pipe hole extends past the flange edge.
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Phase 2: The Casting Process

4. Mixing the Concrete

- **Mix Strategy:** Empty most of the bag into the wheelbarrow, holding back 2–3 lbs. Add water slowly while mixing with a shovel until wet and smooth.
- **Consistency:** The mix should be on the **dry side**—it should hold its peaks and shape, not settle on its own like soup. If it is too wet, add the dry mix you held back.

5. Filling the Mold

- **Layer 1:** Use a small trowel to pack wet concrete around the pipes and wire coils to hold them in place. Fill the main cavity halfway.
- **Settle:** Tap the bench with a rubber mallet or use a reciprocating saw (blade removed) to vibrate the mold.
- **Reinforce:** Rotate the coil ends down and gently press the wire grid into the wet concrete, centered in the space.
- **Top Off:** Fill the rest of the mold, slightly under-filling it, then settle again and trowel smooth.

Phase 3: The Curing Timeline

Time Elapsed	Action Required
0–4 Hours	Leave the filled mold open to the air. If the mix was correct, no excess water should form on top.
4 Hours+	As the concrete begins to dry, cover it with plastic sheets.
8 Hours	Remove Pipes: If the concrete is solid and firm, insert a nail into the pipe hole, pull, and rotate to remove. Wipe off excess petroleum jelly.
Days 1–3	Wet Cure: Spray water over the concrete and cover with a thick plastic vapor barrier. Mist under the plastic 1–2 times daily to keep it wet.
Day 3	Demold: Concrete should be grey (not wet greenish). Gently pull the plastic flange to free the sides, then alternate lifting ends and pressing the back until the casting releases.

Demolding Tip: If the casting sticks, gently warm the mold (while upside down) with a heat gun or hair dryer for 1–2 minutes to help release it. Do not overheat.

Phase 4: Finishing and Assembly

6. Long-Term Curing Allow the panel to cure for a few weeks to gain strength.

- **Standard:** Wrap in plastic and spray occasionally with water.
- **Optimal:** Bury the castings in wet sand for three weeks for the best results.

7. Dressing the Edges Once cured, smooth sharp edges near the fill line.

- Use a **rub brick** (takes a few minutes) or an **angle grinder with a diamond disc** (faster but creates dust).
- *Safety:* Always wear a mask, goggles, and hearing protection if grinding.

8. Cleaning the Molds Hose off the molds and scrub the cavity to remove concrete bits. Wipe inside surfaces with a soft cloth and rinse before drying.

9. Installation

- **Ground Prep:** Create a level spot using compacted fine crushed rock or sand.
- **Assembly:** Set panels square and level. Pin them together using **1/2" epoxy-coated rebar**. Use 2-foot rebar lengths pounded into the ground for straight connections.

Important Notes

- **Mold Durability:** The molds are tough ABS plastic but can break with hard impacts; handle with care to maximize their lifespan.
- **Patience:** If you are new to concrete, take your time. Good mixing and casting techniques require practice.