Step 1: Site Preparation

- **Clear vegetation, debris, and topsoil**.
- Establish site boundaries and layout the building plan using pegs, string lines, or total stations.
- Conduct a final **geotechnical inspection** to confirm soil suitability.

Possible Issues:

- *Soft pockets or organic soil layers found*: Replace with compacted granular fill or lean concrete.
- *Wrong layout*: Always verify layout with surveyor or project engineer before excavation.

Step 2: Excavation

- Excavate trenches or pits according to footing dimensions and depth as per drawings.
- Maintain **vertical side walls** and proper **bottom levels**.
- Use manual tools or machinery depending on the scale.

Possible Issues:

- *Over-excavation*: Fill back using compacted granular material or lean concrete to achieve the required level.
- *Water ingress or seepage*: Use sump pumps or temporary drainage trenches. For high water table areas, consider well point dewatering.
- *Sidewall collapse*: Use timber or metal shoring as needed.

Step 3: Excavation Bottom Preparation

- Remove any **loose material** from the bottom of the excavation.
- Level and compact the soil (use plate compactor or manual rammers).

Possible Issues:

- *Uneven surface*: Use lean concrete blinding to level.
- *Unstable soil*: Replace with compacted granular material or increase footing size as advised by the engineer.

Step 4: PCC (Plain Cement Concrete) Blinding

- Lay a 50–75 mm thick layer of lean concrete (1:4:8 mix) over the compacted bottom to create a clean, level, and dry base for rebar placement.

Possible Issues:

- *Inadequate curing or poor surface finish*: Ensure proper curing for at least 24 hours and use leveling boards.

Step 5: Reinforcement Placement

- Place steel reinforcement bars as per design drawings with specified cover using concrete cover blocks or chairs.
- Tie bars properly and keep them raised above blinding layer.

Possible Issues:

- *Insufficient concrete cover*: Leads to corrosion. Use proper cover blocks (typically 50 mm for footing).
- *Incorrect bar placement*: Verify bar positions and overlaps before concreting.

Step 6: Formwork (if needed)

- For footings above ground or with vertical sides, use wooden or steel shuttering.
- Ensure formwork is **stable**, **level**, and **watertight**.

Possible Issues:

- *Leaking joints*: Seal using tape or grout.
- *Poor alignment*: Recheck level and alignment with spirit level or laser level before pouring concrete.

Step 7: Concrete Pouring

- Pour concrete continuously and **compact using vibrators** to remove air pockets.
- Finish surface and cure adequately.

Possible Issues:

- *Honeycombing or voids*: Due to poor compaction—use needle vibrators properly.

- *Cold joints*: If delay in pouring, roughen the surface and use bonding agents.
- *Segregation*: Avoid dropping concrete from excessive height; use chutes or pump if necessary.

Step 8: Curing

- Start curing after 12–24 hours and continue for at least 7–14 days.
- Cover concrete with wet burlap or use sprinklers or curing compounds.

Possible Issues:

- *Insufficient curing*: Leads to cracks and low strength. Maintain continuous moisture during curing.

Step 9: Backfilling

- After 7 days of curing (or as directed), backfill using excavated soil in layers (150–200 mm thick).
- Compact each layer with manual rammers or mechanical compactors.

Possible Issues:

- *Poor compaction*: Leads to settlement. Compact each layer adequately.
- *Rock/debris in backfill*: Use only approved soil; remove large stones.

🛠️ Common Construction Issues and Amendments

Issue	Cause	Remedy
Soft soil at excavation bottom	Poor initial investigation or variation in subsoil	Replace or stabilize with granular fill or lean concrete
Water in excavation	High water table or rainfall	Dewatering by sump, well point system, or pumps
Steel corrosion	Improper cover or exposure to rain	Provide proper cover and storage of rebars

Issue	Cause	Remedy
Cracks in concrete	Rapid drying or shrinkage	Ensure proper curing and use admixtures if needed
Misalignment of formwork	Poor workmanship	Check and align before pouring