



CPG Tools for Success

Residential Concrete – Durable Driveways and Patios

References:

- CPG 2025 Tools for Success: *Deicer Damage Protection*
- NRMCA CIP Concrete in Practice Series, <https://my.nrmca.org/Main/ItemDetail?iProductCode=2PCIPS&CATEGORY=ENG>
- ACI PRC-332.1-18: Guide to Residential Concrete Construction, https://www.concrete.org/store/productdetail.aspx?itemID=332118&Language=English&Units=US_AND_METRIC

Planning

- Thickness – 4 inches generally adequate, unless heavy trucks park on it regularly
- Base – firm, sound sub-soil, uniform and properly drained, granular base uniform and compacted
- Reinforcement – rebar (on chairs) and/or fiber reinforcement (more common), wire mesh highly discouraged
- Drainage – slope minimum of 1/8 inch per foot, ¼ inch per foot is preferred

Preparation

- No organic matter (leaves, tree roots, wood, etc.)
- Compact sub-soil uniform and even
- Stake forms securely, scrape base from edge of forms to create full depth slabs at the edges
- Isolation joints where new flatwork will contact existing buildings, steps, slabs, walls, etc.

Placing

- Addition of water on jobsite is discouraged – causes lower strength and possible surface defects
- Hot weather or cold weather precautions taken if needed
- Place concrete as close to the final position as possible, avoid over dragging or raking
- Screed to level the concrete, the less the surface is worked, the better
 - Avoid letting the surface “dry-out” from wind, sun, low humidity
- During the final finish, less is more, never work water into the surface
 - Do not use steel trowels/fresnos/pans, on exterior concrete slabs
 - Consider new polymer style trowels & tools, that won’t seal the surface like steel will!
- Control joints may be hand tooled or sawed, to a depth of 1/3rd the thickness of the slab

Curing and Sealing

- Cure immediately after finishing is completed
- Wait 28 days post-placement to apply a sealer (unless an integral sealer is used)
- Types of Sealers:
 - Admixture Sealers, mixed in the concrete at the ready-mix plant
 - Topical Sealers (Acrylic), sit on the surface, reapply as needed (homeowner education)
 - Penetrating Sealers (Silanes/Siloxanes, etc.), sit sub-surface, reapply as needed (5 - 7 years)

Deicers

- Avoid deicers the 1st winter for the pavement → Use sand instead
- Avoid harsh types:
 - Magnesium, Potassium, Ammonium products
 - "Super salts" (blended salts)
- If deicers are used, broom off excess after the weather event
- Alternative to deicers:
 - Sand (broom off after the weather event has passed)
 - Radiant heating system

Other Tips for Durable Concrete

- Wait at least 7 days to drive on your new driveway
- Protect it from drain water (can cause settlement if it undermines the slab)
- Keep dumpsters and heavy truck loads off your driveway, place dumpsters in your yard or grass (they are less costly to replace)
- Prepare owners expectations in reference to maintenance expectations, resealing, deicers, etc.

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