BLENDED CEMENTS (TYPE 1L)

BEST PRACTICES QUICK GUIDE

MICHIGAN CONCRETE ASSOCIATION

MIX DESIGN & PLACEMENT

- **Water Demand:** Expect slightly higher water demand and reduced bleeding; this may vary on the type of blended cement.
  Strictly control w/cm ≤ 0.45.
- **Air Content:** Maintain 6.5 ± 1.5% entrained air for freeze – thaw durability.
- **Admixtures:** Adjust water reducers, accelerators, or retarders as needed—trial batches strongly recommended.
- **Placement Timing:** Anticipate variable set times and plan for proper manpower/equipment.

FINISHING

- **Window of Finishability:** Type IL often has a shorter and less predictable finishing window. Other blended cements may variable finishing windows.
- **Avoid Overworking:** Delayed bleeding can trap water at the surface, leading to delamination.
- **Finishing Aids:** Use colloidal silica products (e.g., Day 1, E5, etc.) to reduce crusting, improve surface density, and extend workability.
- **Evaporation Retarders:** Use evaporation retarder products to reduce plastic shrinkage cracking, rapid evaporation on the concrete surface
- **Weather Sensitivity:** More prone to plastic shrinkage and crusting—monitor evaporation rate (stay below 0.2 lb/ft²/hr).

CURING

- **Start Immediately:** Apply curing methods as soon as final finishing is complete—do not wait for bleed water.
- **ACI 308 Guidance:** Initial, intermediate, and final curing should all be planned.
- **Methods:** Use curing compounds (ASTM C309 or C1315 compliant), wet curing, or coverings. Ensure continuous, uniform coverage.
- **Duration:** Maintain curing until at least 70% of design strength is achieved (often 7+ days depending on conditions).

SEALING & LONG-TERM PROTECTION

- **Cure-then-Seal Sequence:** For best durability, apply a curing compound first, then follow up with a penetrating sealer (silane/siloxane, ≥ 40% solids) ~45 days after placement.
- **Cure-and-Seal Blends:** These provide good curing but only moderate sealing; consider a secondary treatment for improved durability.
- **Cold-Climate Consideration:** Apply clear penetrating sealer before the first winter season to reduce scaling and spalling risk.

KEY TAKEAWAYS

- Type IL cement is not “plug-and-play” with Type I/II practices. Success depends on:
  - Adjusting mix designs
  - Monitoring finishing windows closely
  - Starting curing immediately and maintaining it diligently
  - Following with a two-step cure-and-seal approach for long-term durability
- Plan ahead, test locally, and communicate expectations with your supplier to ensure durable, trouble-free concrete.