

Polished concrete is a durable floor finish that is being implemented on many of our projects. Polished concrete has certain requirements that we should understand in the bidding phase and construction phases.

This bulletin goes over special needs of polished concrete and lessons learned for bidding and construction. *Corey Zussman, AIA, NCARB, RBEC – QA/QC Vice President*

- ❑ Install a 15 mil vapor barrier as preferred by the Concrete Polishing Council (CPC).
- ❑ If the existing SOG that is being polished does not have a vapor barrier, we will need to manage the color expectations that is likely to vary due to moisture. Talk to your Architect/Owner.
- ❑ Most manufactures recommends evaporation control and wet curing concrete slabs according to *ACI 308R-01: Guide to Curing Concrete* **without the use of topically applied curing compounds.** (While topically applied curing compounds may assist with curing during the first few days after concrete placement, they retard concrete drying in the weeks and months after curing and may cause the slab to be too wet and possible discolor the concrete when the time comes for diamond polishing or floor covering application)
- ❑ Either eliminate fly ash or slag in the concrete mix or limit to 20%...*Fly ash will limit the uncombined alkalis needed for chemical reactions with densifiers that aid in polishing, this will also inhibit colored/stained concrete which also needed these chemical reactions per ACI 310.*
- ❑ Admixtures in the slab, such as plasticizers, retarders, accelerators, can cause random variations in set times, which could cause variations in color and finish of the concrete.
- ❑ Concrete shall be at least 28 days cured prior to the polishing.
- ❑ CPC recommends specifying the following tolerances  $F_F - 50$  overall / 35 min. local value &  $F_L - 30$  overall / 20 min. local value. **NO BURNISHED CONCRETE FINISH.**
- ❑ A decision should be made early to determine if the polishing is to happen prior to the wall installation. Floor protection will need to be considered for the remainder of the construction, if this is the course of action (see protection requirements below).
- ❑ The downside of waiting for the walls to be installed is that the edges will need to be hand polished at the walls, which will have a different profile/look to the polishing.
- ❑ Discuss finishing at the slab edges, all edges, columns, etc. Hand finishing will produce a different polished concrete finish when polishing.
- ❑ CPC recommends saw-cutting slabs as soon as possible after finishing using a saw blade that has a triangular arbor configuration to reduce edge raveling or dislodging aggregates. *If dry-cut method is used, make sure that there is a vacuum attached...the residue will stain the concrete at the joint and it will show when polishing.*
- ❑ The soft cut machine will need to be reviewed so that the skid plates do NOT create scratches in the concrete, as these scratches will not come out in polishing, unless cutting 1/8" deep.
- ❑ CPC recommends the following spacing to minimize slab curling and cracking (24x slab thickness):
 

4" slab = 8'-0" o.c. each way	5" slab = 10'-0" o.c. each way
6" slab = 12'-0" o.c. each way	8" slab = 15'-0" o.c. each way
- ❑ Identify concerns regarding **construction traffic and protection needed** based on type of polished concrete floor and the anticipated construction time and trades to be in the area.

1. Sweep up all debris immediately...do not use oil-based sweep compounds	7. Use pre-approved cleaners ONLY
2. Immediately report all accidental spills	8. Do not eat or drink on slab
3. Obtain proper authority to use an equipment on slab	9. Diaper all wheels and protect slab with proper protection and absorbent drop cloths when working on slab
4. Do not store materials on slab	10. Only use breathable protection
5. Do not tape anything to slab	11. Do not allow any markers, spray paint, etc..
6. Do not park any equipment on floor	12. No pipe cutting operations

## Concerns with Fiber in Concrete



Fiber in concrete could cause issues – the fiber will need to be burned off and will still create ascetic and surface issues

## Saw Cut Joint Concerns



If concrete is exposed or polished, discuss installing the soft side of Velcro® or similar to the skid plates to prevent trail marks.

Scratches from trail marks will NOT go away, unless an 1/8" concrete is removed.

## FF & Existing Concerns



Polished concrete surface is dependent in the floor flatness. The polishing will not flatten concrete, only emphasis its issues.

## Storage Issues



Do NOT leave ANY equipment, boxes, etc. on the concrete. It will produce a shadow that will not go away.