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Levels of Concrete Polishing

How to achieve different levels of sheen and aggregate exposure on a polished floor by Anne Balogh, ConcreteNetwork.com Columnist

Polished Concrete Profiles: How to Achieve Different Levels of Sheen
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Compare the four classes of aggregate exposure and three levels of gloss outlined by the Concrete Polishing Association of America.

At a level 3 polish, your concrete floors will really begin to shine and clearly reflect side and overhead lighting.

Depending on the diamond grit you use to polish a concrete floor, you can achieve different ranges of aggregate exposure and different levels of sheen, from matte to a glassy mirror-like finish. The Concrete Polishing Association of America classifies finished gloss levels in ranges from 1 through 4 and aggregate exposures as A, B, C or D, depending on the degree of exposure. For coarse grinding, you'll generally start out using diamonds embedded in a metal matrix. As you begin to polish the floor in successive passes, you'll typically switch to finer diamond abrasives bonded in a plastic or resinous matrix to achieve higher degrees of shine. Here are the four levels of polishing and the degree of shine you can expect to achieve at each level. *(Source: Bob Harris' Guide to Polished Concrete)*

Level 1 (flat)
A level 1 ground polish usually can be obtained by stopping below the100-grit resin bond. When you look directly down at the floor, it will appear somewhat hazy with little if any clarity or reflection.

Level 2 (satin)
A level 2 honed polish is obtained by stopping at the 400-grit resin bond, producing a low-sheen finish. When you look directly down at the finished floor and at a distance of roughly 100 feet, you can start to see a slight overhead reflection. This grit level produces a low-luster matte finish.

Level 3 (semi-polished)
A level 3 polish is achieved by going up to an 800-grit or higher diamond abrasive. The surface will have a much higher sheen than that of level 2 finish, and you'll start to see good light reflectivity. At a distance of 30 to 50 feet, the floor will clearly reflect side and overhead lighting.

Level 4 (highly polished)
This level of polish produces a high degree of shine, so that when standing directly over the surface, you can see your reflection with total clarity. Also, the floor appears to be wet when viewed from different vantage points. A level 4 polish is obtained by going up to a 3,000-grit resin-bond diamond or by burnishing the floor with a high-speed burnisher outfitted with specialty buffing pads.

Measuring the gloss level
Once you have completed the entire polishing process, you'll be left with a beautiful, shiny surface. But how do you accurately assess the degree of shine, other than by simply visually inspecting the amount of light reflectivity or clarity of the polished surface? Today, specifications for polished concrete are now including specified gloss readings, determined using gloss meters (see table). Gloss values express the degree of reflection when light hits the concrete floor surface, and range from 20 to 30 (low gloss) to 70 to 80 (high gloss). For example, a gloss value around 30 will generally produce a low-satin sheen while a value of 80 will

produce a very high shine, especially after high-speed burnishing. You may want to consider investing in a gloss meter as you begin to tackle larger polishing projects.

GLOSS LEVEL TABLE

LEVEL	GRIT	SHEEN LEVEL	MINIMUM NO. OF ABRASIVE PASSES	APPEARANCE	GLOSS READING
1	Below 100	None to very low	4	Flat. Floor has little if any reflectivity.	n/a
2	100 to 400	Low to medium	5	Satin or matte appearance with or without slight diffused reflection.	40-50
3	800 and higher	Medium to high	6	Semi-polished. Objects being reflected are not quite sharp and crisp, but can be easily identified.	50-60
4	800 and higher	High	7	Highly polished. Objects being reflected are sharp and crisp, with mirror-like clarity.	60-80

Aggregate exposure

Aggregate exposures range from “cream,” with very little exposure (Class A), to large aggregate exposure up to ¼ inch (Class D). Because there is very little cut depth, a cream exposure will not remove existing blemishes or surface imperfections in the concrete. A Class D aggregate exposure is very attractive, but requires more aggressive grinding, which can increase the cost of the project and expose pits or divots in the concrete that will need to be filled. Note that varying degrees of sand and aggregate exposure, not to mention small pits and divots in the surface, can significantly influence gloss readings.

AGGREGATE EXPOSURE TABLE

CLASS	NAME	APPROXIMATE SURFACE CUT DEPTH	APPEARANCE
A	Cream	Very little	Little aggregate exposure.
B	Fine aggregate (salt and pepper finish)	1/16 inch	Fine aggregate exposure with little or no medium aggregate at random locations.
C	Medium aggregate	1/8 inch	Medium aggregate exposure with little or no large aggregate exposure at random locations.
D	Large aggregate	1/4 inch	Large aggregate with little or no fine aggregate exposure.