# HOW FLAT IS FLAT?

**Slower speeds and shorter lifespans for vehicles are two consequences of that warehouse floor not being flat enough. So just how do you get to the right flatness level?**

Flat is flat, right? Well, not necessarily. When it comes to concrete floors, there are degrees of flatness. They range from "conventional" to "moderately flat," to "flat," to "very flat," to "superflat". It may seem like hairsplitting, but it does make a difference. Floors that are not flat and level inevitably cause forklift trucks to slow and pallet placement to become less accurate.

A superflat floor greatly improves safety for operators of narrow aisle trucks, and substantially reduces vibration-related wear and tear on the vehicles. And with rack heights in warehouses now regularly exceeding 13 meters and the accuracy of pallet placement becoming more exaggerated the higher the pallet is lifted, floor conditions and surface uniformity can be crucial.

The UK Concrete Society recommends several steps to ensure that you wind up with the degree of floor flatness you need:

- Define your flatness/ levelness specification requirements and the method of measurement that will be used to determine compliance with those requirements.
- Confirm your contractor's ability to meet your floor tolerance standards by having the contractor "profile" previous floor installations.
- When feasible, use test slabs to confirm the effectiveness of your installation procedures before doing the actual installation.
- Test within 24 hours of slab placement to make sure tolerances are being met. Reports should be in the hands of all parties no later than 72 hours after placement.

## ESSENTIAL REQUIREMENT

To the facilities managers at logistics firm Sankyu, the benefits of specifying a superflat floor for a key new facility were clear. Its regional logistic hub, named Tuas Distribution, is spread over 40,000 square meters, making it the largest warehouse in Singapore to use very narrow aisle (VNA) technology.

[ Working to get that superflat warehouse floor. ]

"There was no question that we wanted a superflat floor for the distribution center," explains Lewis Kiew, General Manager. "Based on past experience, we've come to understand that this requirement is essential for our operational needs... maximising our operational safety, efficiency and productivity..."

Contractor FPRO International, a specialist-flooring contractor in concrete flatwork, laid the concrete floor by the long bay method, with bays just four meters wide to achieve the exacting tolerances and avoid cracking problems.

Tolerances were inspected by Monofloor Technology, a UK based industrial flooring consultant to ensure superflat classification – which was achieved with no grinding operations throughout.

## FINE FINISH

Special floor finishing techniques were applied on the Sankyu warehouse concrete floor using Ride-On Power Trowel. This results in high abrasion resistance of the floor surface and ensures a smooth, highly reflective finish.

[ Special floor finishing techniques were applied on the Sankyu warehouse concrete floor to produce a smooth, highly reflective finish. ]

Reflectivity, a function of surface density and the quality of the final toweling operation, not only helps to provide an environment that is pleasing to the facility's employees (particularly where colored dry-shakes are used) but also offers real saving in term of reduced lighting costs and enhanced productivity.

Similarly, a smooth surface, free of defects, is easier to clean and maintain (and hence reduces costs), and enhance corporate image of the warehouse operator. This can be of a surprising importance, particularly in the case of third-party contract distributors, and account for the frequent requirement for monolithic colored topping in such facility.

"We are further impressed by the unique reflective color flooring system constructed for our VNA warehouse floor, added Lewis Kiew, General Manager. "The light color reflective concrete floor was excellent finishing with very good aesthetic appearance as well. The high durability will even reduce our long-term maintenance cost." ■

Based on information from FPRO International (www.fpro-intl.com)