Set in stone

A new European standard on warehouse flooring is due to come out for public comment in the spring. But already it is re-igniting the debate on just how flat a warehouse floor needs to be. James Falkner reports.

The Concrete Society's Technical Report 34 (TR34) sets out guidelines for designing and constructing warehouse floors. As there is currently no recognised British standard, the TR34 has become the flooring bible for designers and contractors alike. In 2003, the Concrete Society amended the report, with a controversial addendum known as "Appendix C".

This outlines increased standards for measuring the flatness of warehouse floors and suggests that a very narrow aisle's centre wheel track must be taken into account as well as the outer two, which are currently measured. Most VNA trucks operate on a magnetic wire guidance system or with fixed rails, which run down each side of the aisle with guide wheels mounted on the truck.

Some believe this extra measurement is vital to achieving the flattest floors and the best possible efficiency of the VNA trucks, others think it is an unnecessary expense. Now a new European standard, due to be released next year, could pull the concrete out from under the feet of those looking to install new VNA operations.

On the 31 January, users, truck suppliers, contractors, floor grinders and surveyors will meet at the headquarters of the Concrete Society to debate the issue. Tony Hulett from Face Consultants, a member of the Concrete Grinding Group, and Martin Rogers from Combined Flooring Services, who are both close to the issue, are due to speak at the meeting, outlining their opposing views.

Hulett believes that Appendix C is basic common sense and a positive step forward, bringing the UK flooring industry in line with the rest of the world. By not measuring the centre wheel track, the industry is not taking into account the imperfections and undulations that exist there. This, he says, is a serious flaw and argues that modern VNA trucks, with operating heights of as much as 14 metres, need floors which are especially flat, to operate at their full potential. Measuring this centre wheel is absolutely necessary to allow the customer to get the best out of their investment in VNA trucks. The industry needs to get to grips with this new measurement. "We need to move from where we are to where the rest of the world is."

Roger Williams, director general of the UK Warehousing Association agrees that the measurement must be taken into account and says: "If the new standard is approved, as I think it probably will be, the implications for warehouse operators with VNA operations may be that they will have to re-grind their current floors, and

TNT's Hams Hall distribution centre has been brought up to a new standard of flatness.

CASE STUDY

It's a grind at Hams Hall

TNT Logistics [now renamed Ceva] has re-ground its floors at its Hams Hall distribution centre bringing it into line with the TR34 DM2 flatness standard. Concrete Grinding completed the work and TNT has installed VNA racking to provide 2,000 more pallet spaces.

The warehouse is the UK national distribution centre for Chubb Fire which needed to stock 35 per cent more equipment than before and also accommodate a production facility in the building. Stock had previously been stored on racking in a wide-aisle format.

TNT designed a new racking layout with half the storage being VNA and half wide-aisle. Following a profileograph survey six 60-metre-long aisles were ground to TR34 DM2 standard with Concrete Grinding's Laser-Grinder machine.

MEZZANINE FLOORS

Property boom fuels mezzanine growth

The market for mezzanine floors has been fuelled by a recent boom in property prices.

Debby Spokes of Hi-Store says that many businesses throughout the UK are using their 'dead' space by investing in existing assets, rather than larger premises. She says this trend has fuelled the demand for mezzanine flooring, as it is possible to double the floor area of a building for less than half the price of investing elsewhere. "The current market has also seen a rise in the one-stop-shop culture. Large organisations are amalgamating different trading divisions to bring all their fruits together under one roof, much to the satisfaction of consumers and controllers of capital expenditure alike."

Hi-Store has installed both front and back of house mezzanine floors.

Today's storage solution designers and warehouse operation managers are having to get to grips with new and constantly increasing health and safety regulations that necessitate full accountability being taken for their actions. This has increased the need for more innovative design solutions, as in some circumstances, the result of an inspection can impose a business restructuring.

The advancement of planning software and computer aided design, has increased the proficiency of storage solution designers. Spokes says customers are increasingly demanding short lead times and even working 24-hour days when it is required. The trend in retailers exploiting dead space by investing in their existing assets rather than larger premises, has risen in recent years. For Hi-Store, this has meant a rapid demand for its floors both at front of house, and back of house storage.

operators installing new VNA aisles will have to have a higher spec floor.

"The extra cost may be a factor against going for VNA operations and therefore against buying VNA trucks."

The UKWA will be attending the meeting at the Concrete Society next year. "Previous standards only covered the across-axle tilt measurement and the short wave-length characteristics of the outer wheel tracks. They did not include measurement of the positions of all wheels or of a long-wave control." As a result, Williams says, warehouse operators do not receive data that could have implications on future productivity. "More productivity is potentially available with the right floor, and the operator needs to know the potential running speeds of floors."

This argument has split the industry and divisions are appearing as the need for increasingly sophisticated measurements pressures flooring companies to adopt more sophisticated and expensive equipment.

Mike Hawkins, warehouse systems and projects sales manager at Linde, is opposed to the new standard. "At this moment in time, there is no proof at all that rear wheel measurement actually gives any benefit to the truck's operations."

He points out that researchers at Munich University have been looking at whether there are any benefits to the end user and supplier in using the Appendix C combined rear wheel and outer load wheels method as the datum for surveying the floor in very narrow aisle system applications.

"The findings of this research have only just been published and are currently being translated and evaluated by interested parties.

"Our advice to anyone who is considering a very narrow aisle system truck installation would be to first contact the equipment supplier to ensure a perfect interface between all the operational elements of the very narrow aisle application, including the floor," says Hawkins.

Martin Rogers, of Combined Flooring Services argues that Appendix C is not a new specification. The concept of needing to measure the wheelbase has been around since 1980, but was rejected in previous rewrites of TR34.

Although it sounds like a great idea in theory, every customer is different and one universal standard covering the industry is not the correct direction to take. If high speed operation is not the most critical requirement for a company, then a lower floor specification might be acceptable, he says arguing that ultimately the decision should lie with the end-user. "It comes down to the client's needs. The client has to decide how he wants to spend his money."

MEASUREMENT

Model simulation

Included in the Appendix C TR34 2003 specification is a truck simulator which has been developed to help gauge the correct flatness of floors. The simulator method has been used in the US for nearly thirty years and was also used in the UK in the early 1980s.

A sensor on top measures height differences between front and back of the truck and the other from side to side, resulting in data which provides differential height measurements and rates in change of those measurements for forward movement of the truck. The simulator replicates how a VNA truck acts.