

VIBROGARD

HD & HDE Industrial Ceramic Floor Tiling System



DESCRIPTION

Originally considered a revolutionary departure from the conventional concepts of industrial ceramic flooring. The VIBROGARD system, has over the past twenty five years proved that the combination of a brilliant original concept, allied to careful and painstaking development is capable of producing what is probably the finest industrial ceramic floor finish available.

Ultrasonic vibration industrial tiling was conceived and developed in Germany over 35 years ago. In 1988 the system was introduced into the U.K. by John L. Lord & Son Ltd. John Lord with its unrivalled experience in all spheres of industrial flooring and well established reputation for quality products and installation has further developed the concept culminating in the present VIBROGARD system. Throughout Europe more than one million square metres of ultrasonically vibrated industrial ceramics provide an on-going testimony to design and installation integrity.

In 1999, John Lord launched VIBROGARD HD - the most significant development and performance improvement in the system's 30-year history.

Developed for the Food Processing, Chemical Processing and Pharmaceutical industries VIBROGARD HD system is never the less suitable for a wide variety of environments. In areas where aggressive chemical or physical conditions prevail, VIBROGARD HD is capable of satisfying the demands of many of the harshest environments. Chemical and high temperature spillages, impact, abrasion and constant trafficking are well within the system's long-term capability.

VIBROGARD HD is not a ceramic tile, an installation technique nor a unique resin jointing medium, it is a total system - relying on the sum of its component parts and installation method to provide unrivalled performance characteristics.

VIBROGARD -HD SYSTEM

Design Concept

The principle behind the VIBROGARD concept is to produce independent panels of floor finish with extremely high compressive, flexural and tensile strength. These panels can be bonded to or isolated from the structural substrate and are bounded by designed flexible joints. Each panel can be laid flat or with inbuilt falls to specially designed drainage units.

The multi-panel concept creates flooring installations with maximum in-service flexibility and practicality.

Installation Technique

Reliance upon traditional operative disciplines for certain key sections of the installation has been significantly reduced. Mechanically aided compaction of the bedding medium, ultrasonic vibration to consolidate and level the ceramic ware and mechanically aided jointing technique all conspire to ensure dramatically improved physical properties and consistency in quality.

Substrate Interface

Structural considerations and in-service conditions influence the decision to install bonded or isolated VIBROGARD floor systems.

Bonded System

The concrete substrate must be thoroughly prepared by mechanically shotblasting or scarifying prior to the application of resin polymer/cement bonding grout. The bonding grout is immediately overlaid with the bedding medium.

Isolated Systems

Suspended floors, and floors subject to high thermal stresses are particular candidates for the isolated method of construction. The VIBROGARD system offers three qualities of isolated membrane. The basic polythene slip membrane is supplemented by two comprehensive chemical resistant multi layer sheet membranes, which bond to drainage units providing a completely impervious sub-barrier.

Bedding Medium/bonding Grout

The VIBROGARD system relies on a "thick bed" method of installation. Bedding medium is laid to a minimum 40mm thickness when bonded and 50 mm when isolated and comprises; aggregates to BS882, O.P. cement, modified resins and additives. The mixed material is laid to desired levels in a semi-dry consistency incorporating structural steel mesh fabric to B196 or random fibres and is mechanically compacted for maximum density.

When fully compacted and levelled a polymer/cement bonding grout is applied and the ceramic tiles are placed in position.

Tile Installation/jointing System

Upon placement the VIBROGARD HD hexagonal tiles are subject to ultrasonic vibration. This technique has significant advantages over traditional methods of installation.



- (a) The vibration removes all entrapped air from beneath the tiles (aided by the specially designed groove profile on the underside of the HD hexagonal). This ensures total bonding grout contact.
- (b) The vibration compacts the tile into the bonding grout and in turn, the grout into the bedding medium. This technique provides a system of unrivalled density and strength.
- (c) The ultrasonic vibration equipment levels out any slight lipping between adjacent tiles producing a finish to high tolerances.

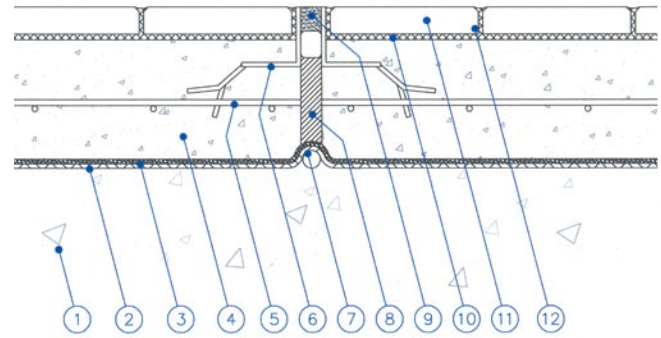
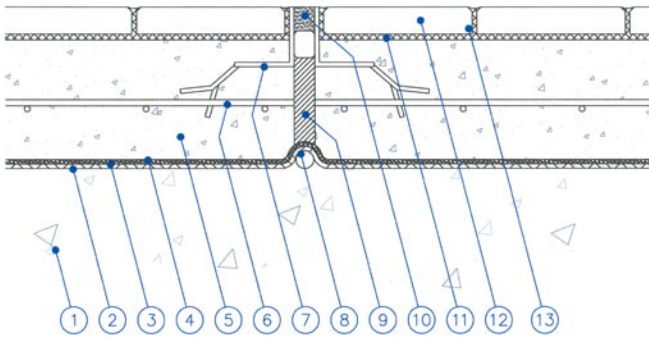
Upon initial cure the tiles are fully jointed with low viscosity resin. The resin type being dependant on chemical resistance requirements and installation limitations. The HD tile with or without cavity profile joint ensures effective resin impregnation. The mechanical jointing technique further ensures complete resin impregnation providing a completely sealed and chemical resistant surface.

Stainless Steel Drainage And System Reinforcement

The VIBROGARD system is available with a wide range of specially designed stainless steel drainage and reinforcing details.

Aspen prefabricated stainless steel drainage channels, gully units, service sleeves, hopper units etc. are top quality, ensuring long-term durability with low maintenance costs. Many novel and some unique features of the ASPEN drainage systems provide the client with high performance units, which comply with all safety and hygiene requirements, yet remain durable and practical.

Stainless steel angle reinforcement of movement joints and vulnerable, exposed edges are available to protect the investment and minimise future maintenance.



VIBROGARD INDUSTRIAL FLOOR SPECIFICATION WITH BITUGARD MEMBRANE SYSTEM

- 1 The 'Vibrogard' industrial floor is applied to an existing or new concrete slab. The surface of the concrete slab should be smooth and flat. Any contamination and excessive laitence should be removed.
- 2 Apply bituminous bonding primer.
- 3 Apply 4mm thick glass fibre reinforced damp-proof membrane sheet with a minimum of 100mm overlaps.
- 4 Membrane sheet is sealed & coated with hot melt bitumin mastic for protection during Vibrogard installation.
- 5 Semi-dry bed consisting of O.P.C., sand to BS 882 coarse to medium grade, resin/polymer based additive and reinforcing fibres.
- 6 Structural mesh fabric to BS reference B196 (optional)
- 7 Stainless steel angle reinforcement to sides of expansion joint (optional)
- 8 Movement joint facility within membrane
- 9 Flexible filler to movement joints
- 10 Chemical resistant 'Epiflex' or Neoprene movement joint
- 11 Resin/Polymer modified cement adhesive slurry, or full resin/cement slurry (H.D.E.).
- 12 'Vibrogard' hexagonal industrial flooring tiles, 100 x 110 x 18mm (other dimensions available)
- 13 Low viscosity chemical resistant epoxy cement to tile joints

VIBROGARD INDUSTRIAL FLOOR SPECIFICATION WITH PLASTIC 2000 GAUGE MEMBRANE SYSTEM

- 1 The 'Vibrogard' industrial floor is applied to an existing or new concrete slab. The surface of the concrete slab should be smooth and flat. Any contamination and excessive laitence should be removed.
- 2 Apply bituminous bonding primer.
- 3 Apply 2000 gauge polythene self adhesive damp-proof membrane sheet with a minimum of 100mm overlaps.
- 4 Semi-dry bed consisting of O.P.C., sand to BS 882 coarse to medium grade, resin/polymer based additive and reinforcing fibres.
- 5 Structural mesh fabric to BS reference B196 (optional)
- 6 Stainless steel angle reinforcement to sides of expansion joint (optional)
- 7 Movement joint facility within membrane
- 8 Flexible filler to movement joints
- 9 Chemical resistant 'Epiflex' or Neoprene movement joint
- 10 Resin/Polymer modified cement adhesive slurry, or full resin/cement slurry (H.D.S.).
- 11 'Vibrogard' hexagonal industrial flooring tiles, 100 x 110 x 18mm (other dimensions available)
- 12 Low viscosity chemical resistant epoxy cement to tile joints

Vibrogard can also be installed as a fully bonded system to a prepared concrete floor.

VIBROGARD - HDE SYSTEM

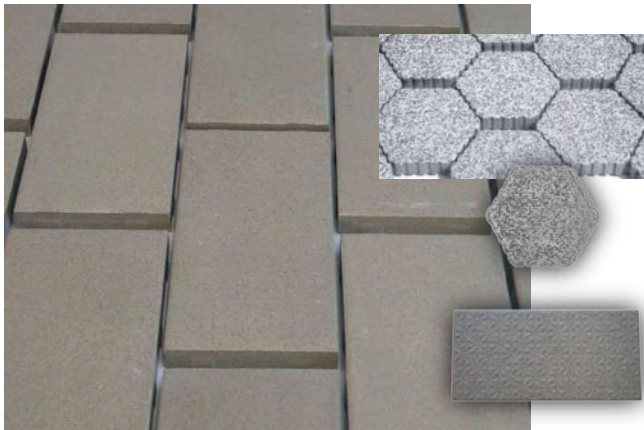
To further enhance the performance of the VIBROGARD HD system, the HDE performance plus system, incorporates a full epoxy resin based bonding grout beneath the ceramic tiles. This enhanced specification increases the already high level of durability and chemical resistance to new levels and should be considered in areas where the harshness of the working environment is liable to test the toughest of conventional floor finishes.

VIBROGARD - HD SYSTEM

VIBROGARD fully vitrified ceramic floor tiles with their legendary hexagonal format have a 35 year record of proven reliability. The introduction of the HD module with or without cavity joint profile provides the system with its most dramatic performance improvement since the systems introduction. The hexagonal format in itself provides significant advantages over square or rectangular tiles in terms of tensile and flexural strength and avoidance of tile "lipping". The cavity joint profile improves resin joint penetration to such a degree that the tensile and flexural strength in the cross section of the epoxy resin joint are greatly improved over straight, spacer joints.

Vibrogard HD is available in smooth or anti-slip profiles.

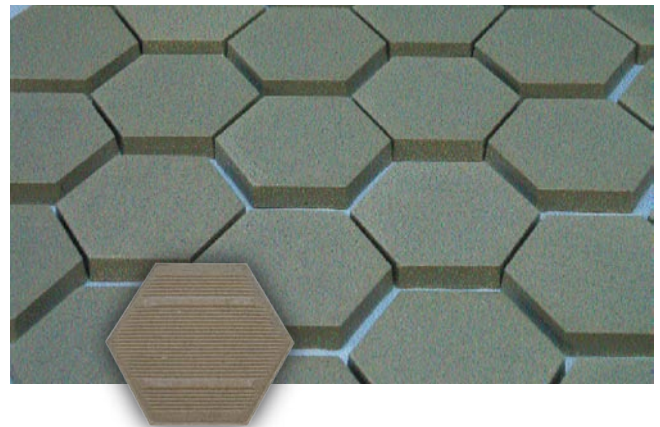
As an economical alternative to the range of top quality hexagonal ware, John Lord offer a limited number of carefully selected rectangular tiles. This selected range provide a worthwhile cost saving whilst maintaining system performance in all major categories.



Test certificate for VIBROGARD acid resistant ceramic floor tiles

Tests	Requirements to standards	VIBROGARD HD
Water uptake to EN99	max. 3%	0.5%
Flexural strength	min. 270kgf/cm ²	350-400kgf/cm ²
Compressive strength	-----	2500-3000kgf.cm ²
Linear thermal coefficient Of expansion		8 x 10-6 per °C
Scratch hardness of the ceramic tile to EN 101, measured on Mohs' scale	min. 6	7
Wear resistance to EN 102 (volume lost)	250 m/m ³	116m/m ³
Front resistance to EN 202	required	guaranteed
Resistance to thermal shock To EN 104	required	guaranteed
Resistance to chemicals to EN 106/DIN 18 158/DIN 18 155/EN 176	required	guaranteed

Resistance to hydrofluoric acid and its compounds was not required and has not been tested.



Disclaimer:

The information contained in this leaflet is provided as an introduction to the system and no guarantee is implied. Any specific requirements the clients may have should be discussed in detail with John L Lords Technical Department beforehand. John L Lord cannot accept any responsibility for work and the subsequent performance of their systems not controlled by their own contracting services.

John L Lord reserves the right to alter information contained in this leaflet without prior notification.



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