

INSTALLATION GUIDELINES

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CONDUCTIVE ELASTOMERIC LIQUID FLOORING

Sikafloor® Electrode Set

EARTHING KIT FOR CONDUCTIVE & ANTISTATIC FLOORS

Description An electrostatic charge, which occurs during the contact and separation of bodies or materials, should be discharged via an earthing point if sensitive equipment or products are not to be damaged and personnel are to be safeguarded. Sika® supplies, in addition to the highly regarded Sikafloor® ESD resin systems, the Sikafloor® Electrode Set; a unique 'tool box' containing all of the necessary components to establish up to 10 connection points. The following guidelines are intended to provide an understanding of what the Sikafloor® Electrode Set consists of, how earthing points are installed and some of the detailing associated with such works. Sikafloor® ESD resin systems are best installed by skilled and experienced contractors (Consult Sika Canada Inc.) and the connection of earthing points to the ring-main to ground them must be carried out and certified by a suitably qualified and registered electrical engineer.

Set Contents		
1. Heavy-duty plastic plugs		x 10 (Item 1)
2. M6 threaded Allen rods		x 10 (Item 2)
3. Conductive copper tape (150 mm length)		x 20 (Item 3)
4. Metal disks 60 mm diameter		x 10 (Item 4)
5. Metal washers 30 mm diameter		x 10 (Item 5)
6. M6 metal nuts		x 10 (Item 6)
7. M6 x 4/6 mm cable lugs		x 10 (Item 7)
8. M6 self-locking nuts		x 10 (Item 8)
9. PVC/plastic assembly tube		x 10 (Item 9)
10. M6 Allen key		x 1 (Item 10)



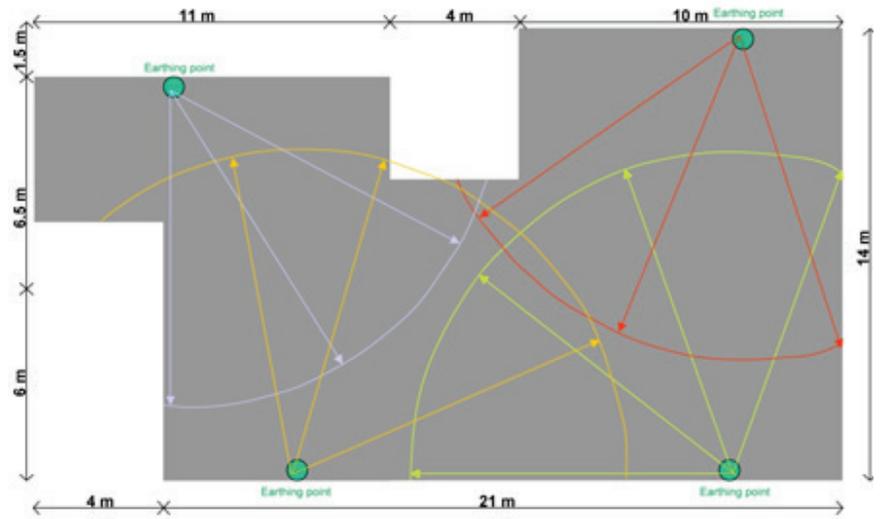
Positioning Earthing Points One earthing point has the capacity to discharge, from a continuous, jointless area of approx. 93 m² (1000 ft²). The floor space must be divided and earthing points positioned so that the furthest distance between each connection point is no more than 10 m (32.8 ft). In larger areas with longer distances, additional earthing points must be installed in accordance with the electrical engineer's requirements.

Where site conditions or other constraints do not permit the positioning of additional earthing points, then distances greater than 10 m (32.8 ft) must be bridged with the use of additional copper tape in accordance with relevant specifications.

Locate the centre of the earthing points (the M8 drilled hole) 40-100 mm (1½ - 4 in) away from the wall. There must be at least 2 earthing points per area of 93 m² (1000 ft²) or less. The optimal number depends on local conditions and regulations and should be clearly detailed by the responsible engineer in accordance with local standards.

All earthing points must be connected to an appropriate ring-main to ground/earth them and this work must be undertaken and certified by a suitably qualified and registered electrical engineer.

Conversions
 1.5 m = 4.9 ft
 6.5 m = 21.3 ft
 6 m = 19.6 ft
 4 m = 13.1 ft
 21 m = 68.9 ft
 14 m = 45.9 ft
 10 m = 32.8 ft
 11 m = 36.1 ft



Installation Instructions

The following works should be undertaken subsequent to preparation and priming of the complete floor, both of which must be conducted in accordance with the project specification and the relevant Sikafloor® Product Data Sheets. The step-by-step process of creating an earthing point is detailed on documents within the Sikafloor® Electrode Set and are as summarised below:

1. Drill 8 mm (1/3 in) diameter and 50 mm (2 in) deep holes in the locations identified to become the earthing points. Remove all dust, preparation residue and loose, friable material by suitable means, including vacuuming.
2. Insert a heavy duty plastic plug (Item 1) into each hole, being careful, where hammer tapping, not to damage the plugs. The top of the plugs must be flush with the adjacent floor surface.
3. Fix M6 threaded Allen rods (Item 2) into the plugs and tighten with the Allen key (Item 10) supplied, until 16 mm (2/3 in) of each rod remains protruding.

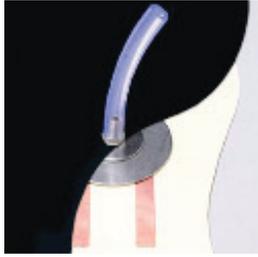


4. Take two 150 mm (6 in) long strips of the copper tape (Item 3) and secure them parallel to each other, approximately 10 mm (1/2 in) apart and either side of the plugged holes. Where necessary, bond bridging copper tapes in the same way. Press the copper strips down carefully and securely, ensuring that all edges are well bonded to the primed floor.
5. Place large, 60 mm (2½ in) diameter metal disks (Item 4), followed by smaller, 30 mm (1 1/5 in) metal washers (Item 5), over the threaded Allen rods and onto the floor surface. Ensure that the plate is in contact with the copper tapes, previously bonded either side of the plugged holes.



6. Fix the washers, and the disks beneath them, into position with M6 metal nuts (Item 6), tightening this on the M6 threaded Allen rod until the washers, and the disks beneath, are in tight and full contact with the floor and copper tape surfaces.

7. Fit PVC/plastic tubes (Item 9) onto each and every threaded Allen rod and fasten tightly, using a twisting motion, until the tube is in contact with the metal nut holding down the washers and disks. It is important that the tubes are securely positioned over the Allen rods before the application of subsequent Sikafloor® materials, to ensure that the Allen rods remain clean until after the resin flooring has been installed.

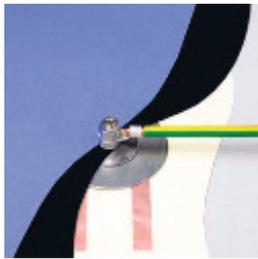


8. Apply the remainder of the selected Sikafloor® system, including conductive intermediate coats or Sikafloor® ESD top coats, ensuring that all plates, washers and copper tape are completely covered.

9. Following completion and curing of the Sikafloor® ESD system, remove the PVC/plastic assembly tubes and clean the head of the M6 threaded Allen rods thoroughly, removing any accumulated debris, flooring resin and contaminants.

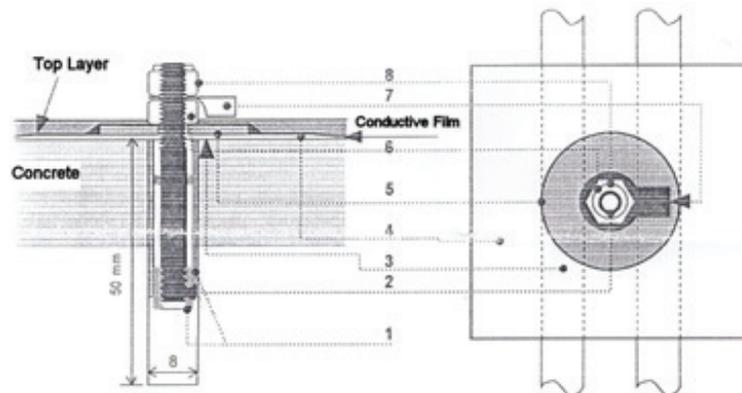
10. Place M6 4/6 mm cable lugs/eyelets (Item 7) onto the threaded Allen rods, with the cable socket points facing downward and towards the walls and secure into position using the M6 self-locking nuts (Item 8), ensuring the nuts are tightly secured and the lugs/eyelets are held firm.

11. Connect the earth cable to the lugs/eyelets of the earthing points, this being carried out by a fully qualified and registered electrical engineer.



Fundamental to the performance of the system is good contacts and the bonding of material; it is therefore essential to clean all surfaces thoroughly before proceeding with subsequent operations.

The diagram below illustrates the cross section of a typical earthing point and the copper tapes running beneath the metal disk as two parallel strips onto which the earthing point sits.



Governing Standards ANSI/ESD S 20.20

This Standard covers the requirements necessary to design, establish, implement and maintain an Electrostatic Discharge (ESD) Control Program for activities that manufacture, process, assemble, install, package, label, service, test, inspect or otherwise handle electrical or electronic components, plus assemblies and equipment susceptible to damage by electrostatic discharges greater than, or equal to 100 volts Human Body Model (HBM).

ASTM F 150

This Standard is a test method that covers the determination of electrical conductance or resistance of flooring, for applications such as hospitals, computer rooms, clean rooms, access flooring, munitions plants, or any other environment concerning personnel-generated static electricity.

None of the specific conductivity or electrical resistance values mentioned in any of the above Standards are mandatory. These values should be adapted to meet the requirements of the responsible local authorities.

Before applying an ESD, conductive or dissipative flooring system, Sika Canada Inc. recommends a detailed assessment of at least the following parameters, and then for the appropriate values to be agreed and accepted by all of the parties involved:

- Limits for the electrical resistance and body voltage generation
- Methods of measurement
- Equipment to make these measurements
- Any applicable standards or specifications

Measurement of Conductivity

Conductivity of intermediate coats, where used, has to be tested and checked, prior to the application of the top coats.

The number of measurements for conductivity of intermediate and top coats should follow the frequency recommendations of the governing standards.

A Surface Resistance Meter, such as the Prostat® PRS-812 pictured below, is typically the equipment that is used for the measurement of the conductivity or electrical resistance of ESD flooring systems. The Ohm (Ω) meter should be able to measure resistance from <0.1 to 1.0×10^{12} with a measurement accuracy of + 5 %. The metering voltage required for electrical resistances of $< 1 \times 10^6 \Omega$ is 10 V, whilst the metering voltage for an electrical resistance of $\geq 1 \times 10^6 \Omega$ is 100 V. Body Voltage Generation (BVG) is measured separately with an 'electrostatic field meter'.



The main differences between models and manufacturers of the measurement electrodes used for this work are not their size or the weight, but the type and hardness of their contact surface. This can sometimes generate misleading results and should only be carried out by suitably qualified and experienced people.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent SAFETY DATA SHEET containing physical, ecological, toxicological and other safety-related data.

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

The Information, and in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions, within their shelflife. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any recommendations, or from any other advice offered. The information contained herein does not relieve the user of the products from testing them for the intended application and purpose. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request or may be downloaded from our website at: www.sika.ca

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