

## INSTALLATION INSTRUCTION

# ESTRAD ULTIMATE SD

### OVERVIEW

Estrad Ultimate SD is designed to meet specific resistance requirements. It does have static dissipative (SD) properties. These products when tested to the test methods identified in our literature have a resistance to earth between  $1 \times 10^6$  and  $1 \times 10^9$  ohms.

Product is designed to minimise or eliminate the risk of Electro Static Discharge (ESD) and it is essential that the correct product be selected for the intended application. An electrical performance specification must be identified at the outset. This will not only stipulate the maximum and minimum electrical resistance requirements of the installed floor, but will also identify the method of test, the electrodes to be used, the method of measurement and the testing environment.

### ISOLATION OF SUBFLOOR

The electrical conductivity of a solid subfloor can vary greatly, and as a result the installed floor may have resistances lower than the minimum stated in the specification. Cementitious underlayments provide an isolating barrier of known resistance beneath the vinyl floor covering.

It is recommended, that all solid subfloors should be covered with a cementitious underlayment which must be at least 3 mm thick.

The choice of underlayment is dependent upon the end use location and consideration should be given to such properties as point load resistance. The underlayment should be allowed to dry prior to the application of the floor covering.

### CONDUCTIVE ADHESIVES

Use always recommended conductive adhesive for floor coverings.

### CONDUCTANCE TO EARTH

Installing an earth system is a prerequisite for all ESD floors. This gives the end user the ability to test to earth. It ensures the conductance of the installed floor is to a known earth via a predetermined and controlled path.

- The choice of material used for the earth system are usually brass, copper or stainless steel strips or tapes.
- The use of at least two connections to earth is recommended; if the first is disconnected or damaged, the second is a security back-up.
- Connection of the earth system to the building earth is normally carried out by a qualified electrician and not the flooring contractor.
- The earth strip is laid 150 mm from one side of the room, in the same direction as the vinyl sheets are to be laid. This strip is connected to a known earth (Figure 1).

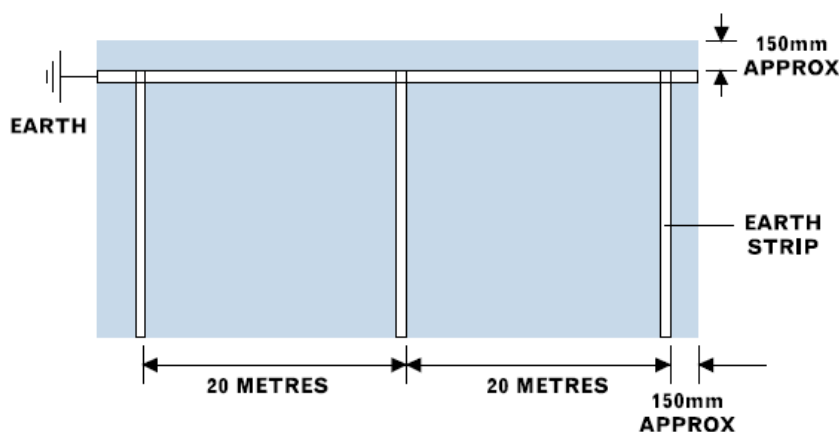


Figure 1. Earthing strip layout.

- A second strip is laid at 90° to the first, 150 mm from the edge and running full width across the room.
- Further strips are laid at 20 meter intervals as determined by the size of the room.

### INSTALLATION METHODS

The basic techniques for installation are the same as described for standard vinyl sheet; however there are a number of important differences:

Floor covering is recommended to be installed by the double drop method.

This is because electrical functionality needs good contact. Also as conductive adhesive contains carbon, it may result in lower tack, than traditional adhesives. These adhesives are also sensitive to trowel type and only recommended trowel geometries may be used.

- Once the adhesive has been spread, the vinyl sheet is laid into it and pressed all over to ensure an even transfer of adhesive.
- The vinyl sheet is then folded back and left until the adhesive becomes tacky.
- When the adhesive is tacky, the vinyl sheet should be accurately re-laid, ensuring it does not twist or trap air bubbles.
- Seams must be without gaps and any excess adhesive should be removed as work proceeds.
- The vinyl sheet is then rolled with a 68 kg articulated floor roller in the short direction first, then the long, and the rolling repeated between one and four hours later.

### **HEAT WELDING**

All installations (excluding access panels) must be heat welded. Ideally, the floor should be left for a minimum of 24 hours before welding the joints. This will prevent adhesive bubbling up into the seams when heat is applied.

### **TEST METHODS**

Worldwide, there are a great many test methods for electrical grade floor coverings and, with rapid developments in the electrical and electronic industries, standards are constantly being reviewed.

To ensure that the floor is tested to the latest specification, it is suggested that the architect or specifier obtain a copy of the test method and requirements from the local office of the National Standards Authority. This should then be attached to the specification prior to the ordering of materials and installation of the floor. The following procedure is recommended if a test method is not specified:

#### Test Conditioning

It is essential to condition the floor prior to testing. The floor should be cleaned at least 24 hours before testing, and then conditioned for 24 hours at 40-60 % RH and 20-25 °C.

#### Test Procedure (IEC 61340-4-1)

The electrical testing of the floor must be carried out with an insulation tester, operating at 10 volts D.C. / 100 volts D.C.

#### Test Electrodes (IEC 61340-4-1)

A compliant electrode consists of a brass cylinder 63.5 mm (2.5 inches) in diameter, weighing 2.27 kg. (5 lbs). On the underside is attached a round conductive rubber pad – of 5 mm thickness and 65 mm in diameter.

#### Test Method (IEC 61340-4-1)

One electrode should be placed on the floor. The second connection should be made to the earth point, the resistance being measured between the electrode and a known earth. One test should be made for every 2 square metres of flooring.

#### Testing to a Grid

The procedure of always testing the same points 'on a grid' is not recommended. The whole floor should meet the specification, not just selected points. To ensure continual performance of the whole floor, it should be periodically tested at random points.

#### Test Results

SD Floor coverings are manufactured to specific levels of conductance and are tested, prior to despatch, in laboratory conditions. On-site testing not only takes into account the floor covering, but also the adhesive, the subfloor and the environment. To ensure the whole installation meets the specification requirements

When installed and tested in accordance with the instructions and detailed in this manual, the electrical resistance to earth should be between  $1 \times 10^6$  and  $1 \times 10^9$  ohms

NOTE: The test may not be reliable if made within 24 hours of theing laid or cleaned.

### **STATIC CONTROL SYSTEMS**

In many instances floor covering is sufficient to give the necessary control, but in highly static-sensitive areas, additional precautions may be necessary.

These include:

- Dissipative clothing and footwear
- Wrist and heel straps
- Special work stations
- Dissipative packaging and sealing
- Ionisers and humidity controllers