

## Keeping you up-to-date

As requested by some of our clients, we are repeating this new letter as it would appear that in some cases it was not seen by some of you. The news letter is intended for building managers as it contains useful advice in conforming to regulations in the most cost effective way possible. It also contains some light hearted reading about some of our more interesting projects as they arise. We hope this is of some interest to you and we would appreciate your feed back 0800 731 9839 Ed

## Safety & Maintenance of Portable Electrical Equipment

This has still got to be the most contentious topic of all. Portable appliance testing has probably been the most hyped regulation ever introduced within our industry. It was introduced during the recession when work within the electrical industry was very tight and it was seen by contractors as a way of generating work.

The regulations were correctly introduced to reduce the number of electricians from portable appliances, mainly power tools. The actual regulations are applicable to all **portable** electrical equipment used from a 9 volt desk calculator to a 240 volt drill and the answer has been left to the employer to decide what equipment they feel needs testing. The definition **portable** is where the confusion started, in general terms, any appliance fitted with a plug, allowing it to be moved without the need of a qualified person can be classed as **portable**. However, within a modern office, most equipment including dishwashers,

photo copiers, computers, printers and fax machines, although fitted with a plug are far from **portable**.

True portable appliances, such as hand drills, grinders, soldering irons, inspection lamps and domestic appliances, such as irons, hair dryers, lawn mowers and other power tools suffer from damage to the flexible cable, mainly where it enters the appliance. This is caused by the continual movement of the appliance whilst being used. The result is the appliance either stops working when the internal cable cores break, or the cables touch together,

resulting in a bang and a flash, and as your wrist is right by the fault, often a nasty burn. These are the types of appliances that are classed as "high risk" appliances and need regular inspection and testing.

Within the average office you find computers, printers, fax machines, calculators and such like that once plugged in are rarely

moved. These are classed as 'low risk' appliances, as in normal use and do not suffer damage to the same extent.

To help understand the regulations, a HSE publication has been produced called: 'Maintaining portable electrical equipment in offices and other low risk environments'. which clarifies the misconception that all portable electrical equipment needs a rigorous and frequent system of testing.

The leaflet is aimed at employers and facilities managers and the key points are as follows: **The HSE consider that the risk of an electrical accident is relatively low in offices and that in the first instance, regular visual inspection, rather than testing should be enough to secure compliance with the legal requirement to maintain electrical equipment.**

A visual inspection of the plugs, leads and fuses on computers, printers and fax machines will generally be sufficient to keep this type of electrical equipment safe. The HSE also detail the types of equipment for which less frequent testing may be necessary.

The HSE also point out **that in a low risk environment, you do not necessarily have to call in an electrician to carry the visual inspection.** This can be carried out by any 'sensible' member of staff following some simple training on electrical safety. The final point is the records. There are NO legal requirements to keep track of the condition and age of your equipment and may even allow you to increase the time between inspections.



*The HSE publication Number (G) 160 (L), ISBN0717607194 can be ordered direct from HSE by calling 01787 881165 and is around £ 7.00 for 15 copies.*

## The Humble Vacuum Cleaner

The humble vacuum cleaner seems to have escaped most of the safety regulations intended for this type of electrical appliance. The first is the length of the lead. Have you ever wondered why, when you buy a power drill or hair dryer, the power lead is only 2 meters long? This is because the regulations state that appliance power leads should be no more than 2 meters long to prevent damage to trailing leads. However, this regulation has not been implemented on the vacuum cleaner.

In one days use, the vacuum cleaner lead is pulled around the floor, trapped under doors, pulled around sharp edges on walls and often, run over by the cleaner, skinning the cable and then after use, it is wrapped and twisted around the body of the cleaner. Of all the damaged leads that we have seen, the worst have been on vacuum cleaners. Some of the leads we have seen look more like barber poles, covered in multi coloured insulating tape. The other problem is that often, due to the use of contract cleaners, the leads are never tested or inspected for use within your building. Whilst all the testing is going on, the vacuum cleaner is generally locked away, only to come out once the test gear has been long put away.

Although most vacuum cleaners used in commercial premises are

owned by contract cleaning companies, you are still responsible to ensure that they are safe when used on your premises. To help prevent electrocution from damaged leads, either when they are damaged or if the damaged lead is not spotted, we would



recommend that the plug on the cleaner be replaced with a plug fitted with an internal 30mA RCCD.

It is well known within our industry that most electrocutions from damaged leads are caused by the individual picking up the lead to inspect the damage.

***Have you checked the vacuum cleaners being used in your building?***

## Static Shocks

Static electricity can not only be harmful to all sorts of electronic equipment, it can also be very painful. Whilst installing a UPS within a building in London recently, we were surprised to see a queue of people standing by the lift, but the lift had not been called. As we approached the lift, all eyes seemed to be on us. Not to appear intimidated, we pushed the call button on the wall, 'Crack, what a static shock! so that was why nobody had called the lift. The problem is mainly due to the materials used in some carpets and soles on some shoes. As you happily walk around, you are charging yourself up due to the rubbing of your shoes on the carpet. As soon as you come into contact with any earth, even another person, you discharge. The spark actually comes from your bone and punches a minute hole right through your skin.

The most effective way to overcome the problem seems to be to apply an antistatic spray to the carpet. This has to be reapplied at intervals dependant on the wear on the carpet so it is better to select an antistatic carpet from day one. The

## Digital Mobile Telephones

Since their introduction some years ago, digital mobile telephones have allowed people to have their mobile conversations in private. However, the down side of these new phones seems to be that they cause interference to some electronic equipment. One of our clients had problems with their computer network which they feel was a result of this type of phone. Whilst transferring data via a modem, the mobile phone that was on the desk went into search mode. The result was the corruption of some data that was being transferred. Most of us are users of these phones and have become use to the affects that they have on radios and fixed telephones when in use.

When working in clients buildings we have started to notice more and more signs, banning these types of mobile phones from Computer Suites and Comms Rooms. Although the problem only appears to arise when the phone is searching for a new network, until this problem is overcome, we would recommend that the use of digital mobile phones near computer network equipment be avoided. If you have had any experience of these phones effecting computer equipment, we would be pleased to hear about it.

## A Network Nightmare

During the summer, The cable Corporation, based in Langley near Slough, asked Pensdown if they could 'tidy' up their structured cabling patch panels within their Computer Room. The enclosures house field patch panels that serve over 1000 outlets, they also house all 10 base T panels, voice patch panels for around 500 lines, vax ports, ASYNC ports and 100 pair copper link cables to 3 other buildings all terminating on patch panels. All in all, around 225 'U' of network equipment & patch panels, spread through-out four 45 'U' enclosures, front and rear.

Due to moves and changes, the enclosures had become a real mess. The patch cables completely concealed the patch panels in all enclosures making any further alterations virtually impossible. The installation had completely out grown the cable management system supplied with the enclosures.

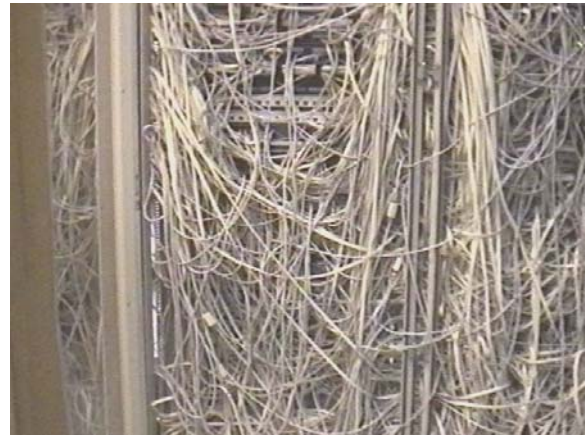


So we set about the task in hand. We decided that it would be impossible to simply re-patch the enclosures on a one for one basis so, the first thing we did was to set up a simple but effective data base to identify each end of every patch lead, by port number, type of services, 'U' & cabinet number. This was to be data filled as the patch leads were removed. The second and most important step was to design and have manufactured a new form of vertical cable management for each enclosure. Although there are a number of propriety horizontal cable management panel available, most of the enclosure manufactures are not aware of the need for good vertical cable management. We designed a steel, open loop type of system as this enabled the patch cables to be installed quickly. Our thinking was that if the patch cables could be installed quickly, people would use the management rather than just throwing in patch leads. The new management panel were delivered and we were ready to start.

A full weekend was allocated for the works which would involve removing and logging every patch lead, moving the patch panel support frames back to allow the new vertical cable management sections to be fitted and then reinstalling new patch leads. We started work at around 8 o'clock on the Friday night and at 8 o'clock the following morning, the pile of patch leads on the floor was still growing along with the data base. It was time for a shift change and some sleep. The day shift continued removing and logging patch leads and at 10 o'clock on Saturday evening, we finally re-

moved the last patch lead.

The sight of the pile of patch leads on the floor was frightening. The whole of the voice & data network disconnected and in a pile! The only record of



the whole installation was held in the data base. At this time, although backups had been taken as we went along, panic set in. The data base was backed up again, then copied to disk, then backed up, then copied to another disk. We decided that we had enough copies to cover every conceivable failure and it was time to carry on.

The horizontal 'U' supports in each cabinet were unbolted and very carefully moved back with all of the patch panels in situ. Whilst carrying the works, we decided to move some of the more fixed services to the rear of the centre enclosure, mounted on new rails. This freed up around 20 'U' in one of the other cabinets, allowing for an imminent expansion in floor ports. Once this had been done, the new vertical cable management system was fitted over night and at around 3 o'clock Sunday afternoon we were ready to



start re-patching using the information from the data base. This was the easy part and by 4 o'clock on Monday morning, it was complete. This left us a few hours for testing & checking the patches against the data base.

To prevent the same mess reoccurring, the cabinets are now locked and only authorised personnel are allowed to patch any services and the photograph above was taken 4 months after completion so it must be working!

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### Bon Voyage

During 1994, Pensdown was contacted by a company which specialises in water features. This company design and install very specialist art based water features and they contacted Pensdown to find out if we could assist on a number of projects they were working on.

They needed a control system quickly for a water feature that was being installed on a cruise ship, the Crystal Symphony, being built in Finland as they had been let down by their normal supplier. As a controls company, we design & manufacture control systems for all types of plant, but at that time, we had no experience with water features, let alone on cruise liners. When we asked about other control systems for features on ships, we were then informed that there were not any others, these were the first, ever.



The control system for the Crystal Symphony seemed quite straight forward as their Managing Director had a very clear vision of how the feature was to operate. The feature consisted of 600 tiny laces which water flowed down, and 1,500 fibre optic pixels sparkling through the falling water. There were a number of tanks & pools which delivered and collected the water. With our knowledge of computer based control systems and electronic water sensors, we soon put a design together which would allow the feature to work at sea which was the more tricky part. The system was installed and was a complete success.

The next contract was on the Oriana operated by P&O and this was more of a challenge. The control system had been designed and the panel manufactured by another company but due to problems, we were asked to go to Germany and commission the system.



After a few days on board in Germany we were ready to run the feature, however, due to circumstances outside of our control this could not be done. We returned to Germany a few weeks later, by this time the Oriana had left the Meyer Werft ship yard in Papenburg and was in Eemshaven in Holland ready for sea trials. We commissioned the water feature and left 2 engineers on board to test the system at sea. A

week later we had a call to say that the system worked very well and P&O were over the moon with the feature, which has now become famous in its own right.

When the Oriana arrived at Southampton, ready for the naming, we all went on board to see the finished feature. It consisted of around 600 tiny laces, allowing the water to cascade down the four deck Atrium, some 50ft. Fibre optic lights shone through the laces down its length which made the water sparkle. It



is a magnificent feature which we are proud to be associated with.

Since the Oriana, we have designed and commissioned water feature controls systems on 7 other cruise ships, a full size dyke break in Holland in which 80,000 litres of water is discharged in 20 seconds, 9 fun features for Lego Land, and most recently, the worlds largest reflecting pool outside the commonwealth games stadium in Malaysia.

If you ever visit the Rain Forest Cafe in the Trocadero London or in the new Trafford centre Manchester, Pensdown were also behind the controls systems for the water and fog systems on these projects.

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