

# Products by application

[www.marshall-tufflex.com](http://www.marshall-tufflex.com)

**Marshall-Tufflex cable management solutions are suitable for many different environments including: Educational, office, transport and industry, data and IT and laboratory and healthcare.**



## Cable management for educational environments

Marshall-Tufflex has been supplying trunking systems to the UK's educational facilities for over thirty years. We are dedicated to ensuring that our comprehensive range of products meets the needs of clients, designers and contractors working in the education sector.

We understand that there is increasing demand for cable management products that enable the distribution of power and high speed data services. As the largest UK manufacturer of cable management products, we apply our vast experience and technical knowledge to not only meet these requirements but to provide future proof cable management solutions.



### What we offer

- Cable management products that are already proven and have been selected for use in the classrooms, workshops and offices in the education sector.
- A comprehensive range of trunking systems available in PVC-U and aluminium, combining the latest technology in plug & play power connection to reduce installation time on site.
- Designs, dimensions and cable capacities to meet the latest cabling standards and to accommodate building designs and construction parameters.
- Products to comply with Part M of the UK Building Regulations (Disability Discrimination Act for Visual Impairment).
- Antimicrobial Trunking Systems with an integral formulation preventing 99.9% of harmful bacterial growth.
- Stylish and practical trunking systems that complement modern classroom environments.

## PVC-U trunking

### Twin165

**160 x 65mm**

A mid-size, two-compartment system, Twin165 offers high capacity for Cat 6, Cat 6a and Cat 7 data cabling for specification in educational environments.



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### Sterling Profile 1

**167 x 50mm**

A popular stylish medium sized trunking system for dado and skirting application with three segregated compartments with pre-punched knockouts. Sterling Profile 1 has been tried and tested within the educational environment over many years.



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### Odyssey trunking

**180 x 57mm**

Curved profile dado trunking with one main compartment and two smaller compartments designed specifically for heavy traffic areas such as classrooms. Odyssey's curved profile is designed to prohibit clutter, avoid dust traps and makes cleaning easy. Compartments can be sub-divided and screened if required.



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### Twin Plus trunking

**210 x 57mm**

An attractive high capacity segregated two compartment containment system which is ideal for schools colleges and universities requiring large quantities of Cat 6 data cabling throughout classrooms and computer suites.



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### Compact 2 trunking

**130 x 50mm**

A compact two compartment dado and skirting systems suited to fit within areas that have trunking height restrictions for example to negotiate radiators or window sills.



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### Mono Plus 20 trunking

**140 x 50mm**

An economical and stylish three compartment dado trunking for use where space is limited. Mono Plus has one piece fittings with a single lid for improved security.



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### Bench trunking

**105 x 105mm**

An easy to install robust, angled trunking that can be mounted directly on workbenches or angled under shelving. Compartment can be sub-divided and screened if required.



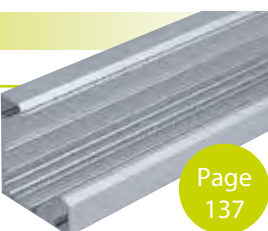
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## Aluminium Trunking Systems

### Bench trunking

**105 x 105mm**

An easy to install, robust, angled trunking that can be mounted directly on laboratory and medical workbenches or angled under shelving. Compartment can be sub-divided and screened if required.



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### Elegance 170 trunking

**170 x 55mm**

An attractive, light to handle, rectangular dado trunking system with a single cover lid. Elegance 170 has mechanical strength and impact-resistance that is superior to steel particularly useful for workshop or laboratory supply where extra mechanical strength is necessary. Can be single, twin or three compartment with easy to fit dividing fillets with pre-punched knockouts.

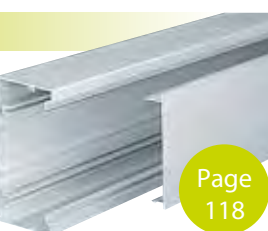


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### Elegance 110 trunking

**110 x 55mm**

An impact resistant compact rectangular dado trunking system with a single lid cover. Elegance 110 is an excellent choice for educational areas requiring a stylish yet robust trunking system, particularly effective where a high quality of screening performance and security is required.



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### Twin Plus

**210 x 57mm**

A strong and attractive high capacity segregated two compartment containment system which is ideal for schools, colleges and universities requiring large quantities of Cat 6 data cabling throughout classrooms and computer suites.



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## Case Study 1

### Curved cable management for Tretherras School in Newquay



Building designers and electrical contractors looking to bring a new dimension to their work can take inspiration from a project carried out on behalf of a specialist technology college in Cornwall.

Architectural practice, The Bazeley Partnership, was tasked by Cornwall County Council with designing a new IT department within the sixth form of Tretherras School in Newquay. The architects came up with a design that included curved cable containment wrapped around a central workstation, the focal point of the room. When it came to sourcing a cable management system for the scheme, the county council's senior electrical engineer David Shuff turned to Marshall-Tufflex for advice on a solution that could cope with the curved external and internal bends, all at dado level.

Marshall-Tufflex recommended its multi-compartment PVC-U perimeter cable management system, Sterling Profile 1, of which 40 metres was pre-curved to order.

Mr Shuff said: "With the nature of this circular design, the trunking was a key element. Only Sterling could give us scope to achieve the architect's vision, and the end result has met everyone's expectations."

## Case Study 2

### Marshall-Tufflex trunking in double act for Ealing schools



Two schools in the London Borough of Ealing had their 'large and complicated' power/data supply needs met by Marshall-Tufflex's Twin165 and Sterling Profile1 trunking systems.

Balfour Beatty Engineering Services required good-looking DDA/Cat 6 compliant trunking with the capacity for large amounts of power/data and the flexibility for re-configuration for the re-building of Dormers Wells High School, Southall, and the remodelling of Cardinal Wiseman School, Greenford. In total some 9,000 linear metres of the cable management solutions were installed into both schools.

The £30m Dormers Wells High School project replaced an old building with a new three-storey structure fitted-out with the latest facilities, including a new ICT suite where double compartment Twin165 PVC-U perimeter trunking in white was installed with lids and DDA compliant accessory boxes in charcoal to cater for special needs students. The trunking was also installed in approximately 300 classrooms.

At Cardinal Wiseman Catholic School, Sterling Profile1 perimeter trunking in white was supplied with DDA compliant accessories in charcoal. Sterling Profile1 is a multi-compartment PVC-U perimeter trunking available in different heights, designs, cable capacities and numbers of compartments to suit all installation requirements. The £26m building programme at this specialist technology school comprised a four-storey new block plus refurbishment works. The school now benefits from improvements including a new library, sixth form area, Special Educational Needs (SEN) unit, chapel, sports hall and cafe. As the first phase new build was to be followed by later refurbishments to the existing school, a compatible and flexible cable management system was required.



## Cable management for office environments

Marshall-Tufflex has a wide range of cable management products in a variety of materials which are designed to transport power and data throughout office environments. We are dedicated to ensuring that our comprehensive range of products meets the needs of clients, designers and contractors working in the commercial sector.



### Underfloor to desk solutions

A comprehensive range of underfloor to desk cable management and prefabricated wiring systems developed for fast, easy and adaptable installation. Designed for the distribution of power and data services from beneath raised access floors and in-screed systems, several wiring options are available, including the MT32 prefabricated technology that provides seamless connection all the way from the incoming feed to the desktop.

#### Powertrack

Powertrack is a comprehensive range of underfloor 63Amp powertrack that comes complete with pre-assembled coupler, end cap and floor mounting brackets.



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#### Raised floor boxes

A high quality range of raised floor boxes to provide power and data to desks within the modern office environment. Available as standard or heavy duty versions, boxes are supplied with dividers for quick and easy configuration as either a three or four compartment box. Designed with quality in mind, the standard support plate is 3mm thick and allows for high traffic levels. In the case of very heavy traffic a robust steel sub-frame can be used to support the lid. The sub-frame doesn't restrict space for wiring and accessories and also allows for fine adjustments to be made to accommodate uneven flooring.



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#### In-screed flooring systems

A range of floor outlet boxes, and plates in galvanised with choice of PVC-U or steel ducting.



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#### MT32 Pre-wired underfloor distribution

A prefabricated wiring system that incorporates 32Amp plug and play connector technology. The system provides a range of pre-wired, pre-tested products which can be used alone or in conjunction with powertrack, desk modules and other pre-wired systems to accommodate various underfloor layout options.



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#### Desk surface units

A range of surface mounted power and data modules for use with office furniture. See page 42 for a typical office installation using our underfloor to desk solutions.



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## PowerPoles and PowerPosts

PowerPoles and PowerPosts are a practical, elegant and efficient solution for the management of power, data and communication services to island work stations.

### PowerPoles and PowerPosts

Aluminium body for strength and rigidity PowerPoles are suitable for suspended and solid ceiling applications whilst PowerPosts are suitable for all floor applications. Cabling to PowerPoles can be fed from the ceiling, from the floor or both. Single and double sided options



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## PVC-U trunking

PVC trunking is a practical solution for office environments. Its light weight material makes it easy to install and clean. Our trunking systems provide first class screening performance.

### Odyssey

#### 180 x 57mm

Curved profile dado trunking with one main compartment and two smaller compartments designed specifically for heavy traffic areas. Odyssey's completely curved profile is designed to prohibit clutter, avoid dust traps and makes cleaning easy. Compartments can be sub-divided and screened if required.

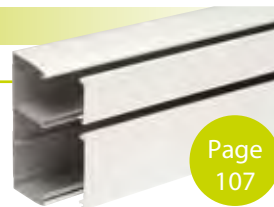


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### Twin165

#### 160 x 65mm

A mid-size, two-compartment system, Twin165 offers high capacity for Cat 6, Cat 6a and Cat 7 data cabling for specification in office environments.



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### Twin Plus trunking

#### 210 x 57mm

An attractive high capacity segregated two compartment containment system which is ideal for carrying power and data services. Compartments can be sub-divided and screened if required.



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### Sterling Profile 1

#### 167 x 50mm

A popular stylish medium sized trunking system for dado and skirting application with three segregated compartments. Sterling Profile 1 has been tried and tested within the office environment over many years. Compartments can be sub-divided and screened if required.



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## Aluminium Trunking Systems

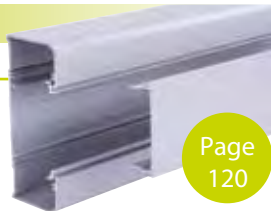
Aluminium perimeter trunking systems provide the Specifier, Contractor and end-user with elegant, stream-lined containment that offers the practical advantages of inherent LSOH and screening properties making it ideal for office environments.

Aluminium is light to handle with a mechanical strength and impact-resistance that is superior to steel. Extruded sections provide attractive profiles and products are finished with a high quality, powder-coat that provides a blemish-resistant surface.

### Elegance 170 trunking

#### 170 x 55mm

An attractive, light to handle, rectangular dado trunking system with a single cover lid. Elegance 170 has mechanical strength and impact-resistance that is superior to steel. Can be single, twin or three compartment with easy to fit dividing fillets with pre-punched knockouts.

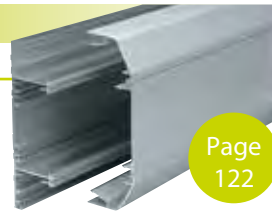


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### Sterling Profile 3001 - 3003

#### 167 x 50mm

A popular and stylish trunking system that offers a variety of trunking profiles with three separate compartments and individual covers for each compartment for ease of access.



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### Twin Plus

#### 210 x 57mm

A strong and attractive high capacity segregated two compartment containment system which is ideal for offices requiring large quantities of Cat 6 data cabling.



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## Steel Trunking Systems

Steel has a mechanical strength that makes it a robust and durable option for areas where there is a high footfall, like an office.

Our steel trunking provides Specifiers, Contractors and end-users with reliable, practical systems and hard-wearing, clean lines with all the advantages of inherent LSOH and screening properties.

The extra depth provided by Marshall-Tufflex steel perimeter trunking systems offer increased capacity for power and data services. All earth bondings are 'friction fit' to eliminate the need for unsightly screw fixings.

- Easy to install steel trunking system
- Well known, proven and stylish design
- Increased space internally
- Lighter weight to make installation easier
- Simpler to cut

### System 130

#### 130 x 63mm

Steel System 130 is stylish compact pre-galvanised trunking system with extra depth and a resilient white powder-coat finish that helps to prevent smearing and marking.



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### System 170

#### 170 x 63mm

Steel System 170 is a mid-sized pre-galvanised trunking system with extra depth and a resilient white powder-coat finish that helps to prevent smearing and marking.



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## Case Study 1

### Twin165 ticks performance & looks boxes for medical specialist



Marshall-Tufflex's Twin165 double compartment cable management system was a perfect solution for building services firm, Jonathan Richard Associates, which required a CAT 6 compliant trunking for large volumes of data and power services in a highly specialised fit-out of a six storey building in Birmingham city centre.

"Twin165 fulfilled the client's requirements in terms of look, specification and finish," said Jonathan Richards, Electrical Design Engineer of Jonathan Richard Associates, which was tasked with the mechanical and electrical provision of the 80,000ft<sup>2</sup> building.

Twin165 is a robust CAT 6 compliant medium-sized PVC-U trunking conveniently split to accommodate power delivery and data supplies. Having a far greater capacity for data cabling than standard trunking of a similar size, it provides a new solution for the growing number of installations with higher than average levels of data cabling in commercial and educational establishments.

"It was the complexity of the client's system and use of exceptionally specialised equipment that necessitated high quantities of data and socket outlets," explained Richard Twist, Jonathan Richard Associates' Mechanical Design Engineer for the project. "In order to implement the client's requirements we needed a CAT 6 data cabling system with a flexible bend radius to carry large levels of complex power and data services to more than 300 workbenches. Twin165 was reviewed and found to be suitable. Its future proofing capability was also essential to enable a large degree of flexibility for reconfiguration at later dates."

Twin165 was supplied with contrasting Part M accessory boxes to comply with DDA regulations. It was installed by Spectrum Electrical. "Twin165 is a high quality product that was appropriate to the client," added Mr Twist. It went in exceptionally quickly, without problems and it looks great!"

## Case Study 2

### Marshall-Tufflex trunking keeps Pace with prestigious project



The impressive refurbishment of the Pace Building within Durham University's Palace Green Library demonstrates how well-specified cable management can enhance the final look of a project. The 1960s part-listed Pace Building unites wood, exposed steelwork, concrete and glass to provide users with a beautifully executed modern, hi-tech environment in which to do research and to study.

Each of the many desks within the library have power delivered by Marshall-Tufflex's charcoal-coloured Sterling Profile 1 dado trunking where a perimeter cable management solution was required.

Project mechanical and electrical building design consultant Desco, turned to Marshall-Tufflex to provide cable containment that combined looks and performance and was in-line with the architectural aesthetic of the building. Sterling Profile delivered the required style, colour and finish for the project together with functionality: as well as looking good the 167x50mm trunking has three segregated compartments that can be further sub-divided as required, making it an attractive and flexible solution.

The second key requirement of the project was an underfloor power delivery solution suited to the open plan environment of the building. For this Marshall-Tufflex's in-screed floor distribution system was specified.



## Cable management for transport and industrial environments

Marshall-Tufflex has a wide range of cable management products in a variety of materials which are designed to suit specific on site or installation needs, where particular hazards or harsh environments require a specialised solution. We are dedicated to ensuring that our comprehensive range of products meets the needs of clients, designers and contractors working in the transport and industrial sector.



Marshall-Tufflex is registered with the RISQS Railway Industry Supplier Qualification scheme.



### What is RISQS?

RISQS, formerly known as Achilles Link-up, has been developed to provide a service for the qualification of suppliers for all products and services that are procured by the industry. RISQS supports Network Rail, LUL/Transport for London, train operators and other rail products and services providers in the management of supply chain risk. RISQS is an independent, third party qualification assessment of a supplier's capability to supply products and services.

### GRP cable management systems

Glass Reinforced Polyester (GRP) cable management systems are well suited to aggressive environments, such as extreme weather or high temperatures.

The systems are extremely robust, considerably lighter than traditional metal systems, and have excellent resistance against fire and corrosion resulting in a very long life span. GRP systems have a large cable capacity, and offer fast and flexible installation solutions, with the ability of on-site assembly and configuration. Marshall-Tufflex can offer a wide range of GRP systems including trays, ladders, ground ducts, troughing, accessories and fittings, fixings and supports.

#### GRP cable management systems

Large cable capacity. No need for painting means low maintenance costs. Self extinguishing, without toxic fumes. Zero Halogen. Resistant to temperatures from -80° to +130°. Excellent cable protection.

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#### GRP vs. Steel

GRP is 40% lighter

Completely corrosion resistant. No rusting even when in contact with salt spray, H2S, acid built up from exhaust gases, or brake dust along roads and railways

Fast installation with fewer fasteners

Easy to cut and drill

Slow rate of heat transfer

Earthing not required

Antimagnetic and therefore resistant to electromagnetic pulses

Lower life cycle cost

## MT Supertube LSOH Conduit

MT Supertube is a three-layer, heavy gauge, impact-resistant conduit giving excellent EMI capabilities. Available with steel or polycarbonate fittings, MT Supertube is manufactured to comply with BS EN 50086.



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### MT Supertube LSOH Conduit

LSOH Polyethylene-coated aluminium. Can be formed by hand and no bending spring is required. No special tools necessary. MT Supertube FR Plus version is fire tested in accordance with, and meets criteria for, Category 'EQ/I' of the London Underground Limited Engineering Standard 2-01001-002:Issue A1:December 2003

#### Contractor cost and labour saving example (based on contractor purchase price)

Costs calculated on using 100m of 20mm conduit with 8 off 90° bends and estimated manpower costs of £30 per hour.

Galvanised steel conduit		MT Supertube coiled conduit	
Material Cost	£0.78 per metre + fittings = £120	Material Cost	£1.92 per metre + fittings = £263
Labour @ 30 mins / metre	2 metres / hour	Labour @ 10 mins / metre	6 metres / hour
50 hours @ £30	£1,500	16.67 hours @ £30	£500
<b>Galvanised steel overall costs</b>	<b>£1,620</b>	<b>MT Supertube overall costs</b>	<b>£763</b>

The savings on this job amounts to £857 - 53% cheaper than galvanised steel.

## Steel Trunking Systems

Steel has a mechanical strength that makes it a robust and durable option for public areas where there is a high footfall. Our steel trunking provides Specifiers, Contractors and end-users with reliable, practical systems with hard-wearing, clean lines and all the advantages of inherent LSOH and screening properties.

The extra depth provided by Marshall-Tufflex steel perimeter trunking systems offer increased capacity for power and data services. All earth bondings are 'friction fit' to eliminate the need for unsightly screw fixings.

- Easy to install steel trunking system
- Well known, proven and stylish design
- Increased space internally
- Lighter weight to make installation easier
- Simpler to cut

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## Case Study 1

### Marshall-Tufflex keeps London Underground in the picture



Marshall-Tufflex's MT Supertube FR, formulated for applications where fire safety regulations are at their most stringent, was a key component in the upgrade of London Underground's Victoria Line OPO CCTV camera system, with more than five miles (8,100m) of the high-performance conduit installed.

Manufactured from a special three-layer LSOH conduit, MT Supertube FR delivered a superior design solution to protect cables that transmit images of the platforms to the train driver. MT Supertube FR is an alternative to steel trunking, offering much faster fit times. It is supplied in coils of up to 100m and therefore produces little wastage from cut lengths.

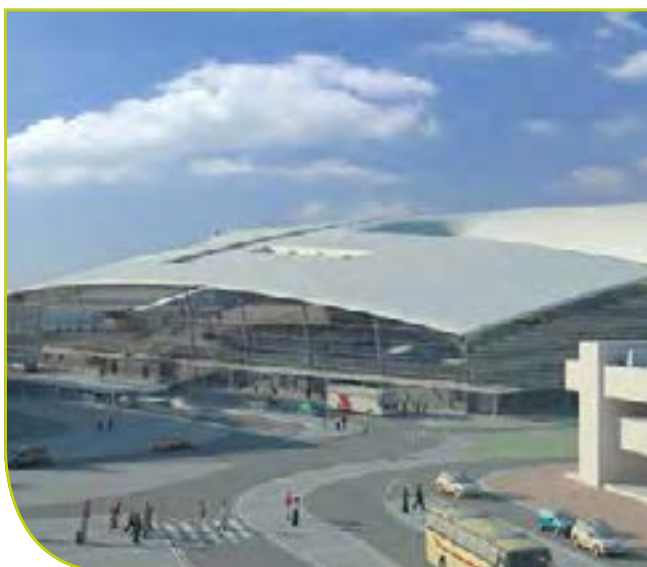
For the London Underground project MT Supertube FR's EMC shielding capabilities were of paramount importance, as the specifying contractor explained: "We chose MT Supertube for its ability to provide EMC shielding. It has proved a better way to segregate cables, which is greatly beneficial in London Underground applications where there are a lot of unknown cables to contend with."

MT Supertube FR meets London Underground's fire and materials specification, having undergone a series of tests conducted against the rigorous requirements set out by London Underground Ltd.

A Marshall-Tufflex spokesman said: "Having product specified for use in the London Underground system is of immense importance to us and a big rubber stamp for MT Supertube FR. The Underground is a demanding environment that calls for products of the highest calibre and performance."

## Case Study 2

### Marshall-Tufflex systems ensure no delays at €600million Dublin Airport passenger terminal



Behind the scenes at Terminal 2, the flagship project of the €2 billion redevelopment of Dublin Airport, are thousands of metres of Marshall-Tufflex trunking products, selected for their ease and speed of installation, good looks and short lead times.

Substantial amounts of three-layer LSOH MT Supertube conduit are installed at high level and within ceilings in the main Terminal building, satisfying the project consultant's requirement for mechanical protection/segregation and a good architectural aesthetic.

Client Dublin Airport Authority had originally specified steel conduit but the project's engineering contractor, Mercury Engineering, gained agreement for a specification change to MT Supertube. A spokesman said: "It was a really tight construction programme which I knew would benefit from the time-saving features of certain Marshall-Tufflex products. MT Supertube offered two specific advantages over steel conduit. Not only is it much quicker to install, delivering significant labour saving benefits, it is also much lighter. This meant that when installed at height it was a one man, rather than a two man, lift."

Thousands of metres of Marshall-Tufflex's unique, all-curved profile trunking Odyssey were also installed in some 150 offices within Terminal 2. The good-looking Cat 6 compliant profile was also installed in passenger booking kiosks, immigration booths, car rental offices and other front-of-house desk areas.

All Marshall-Tufflex products were supplied by its sole Irish distributor, Core Electrical Ltd.

### Case Study 3

#### Marshall-Tufflex GRP system for Shoreham Harbour gantries



Marshall-Tufflex's corrosion resistant Glass Reinforced Polyester (GRP) cable management trays, which are designed to withstand extreme weather conditions, have been used to carry all power and lighting services to an unloading station at Shoreham Harbour in West Sussex.

Built on the wharf, the station provides harbour side docking and storage facilities for large quantities of steel as it arrives aboard incoming ships.

With four 9m high x 120m long gantries plus cranes to power and suspended gantries to light, the mechanical and electrical services contractor needed cable trays for the entire length of the gantries that would not corrode in the harsh coastal location.

Approximately 500 linear metres of Marshall-Tufflex's GRP cable management trays, which are corrosion resistant and equal in strength but up to 40% lighter than steel, were specified. They are easier to handle than steel and can help to reduce the overall weight of heavy structures.

To simplify installation, Marshall-Tufflex GRP products require fewer fasteners and benefit from interlocking and self-adjusting couplings for fast, on-site assembly without modification, earth bonding or de-burring.

Marshall-Tufflex GRP systems are developed for challenging environments such as rail, road and sea installations, petrochemical and processing plants, where extremes of weather and temperatures are commonplace. They are manufactured from long lasting, low smoke classified, zero halogen, glass reinforced polyester resin, which remains effective in temperatures ranging from  $-80^{\circ}\text{C}$  to  $+130^{\circ}\text{C}$ . They also have a slow rate of heat transfer with low conductivity and self-extinguishing properties and are resistant to electromagnetic pulses.



## Cable management for data capacity

We manufacture and supply a broad range of cable management products to ensure that, whatever the design and specification; there will always be the perfect product to suit. We work closely with electrical consultants, contractors and clients in order to provide the best possible technical and sales support.

Marshall-Tufflex cable management solutions are designed to accommodate the increasing performance levels of current and future data networks. It is important that cable containment systems measure up to the demand and offer the flexibility for reconfiguration whilst having a large data capacity to allow for future data requirements.

Decisions on the right system for any application are based on many factors. Marshall-Tufflex has a wide selection of Cat 5e, Cat 6, Cat 6a and Cat 7 perimeter trunking systems, so whatever your application, we are confident we have a solution for you.


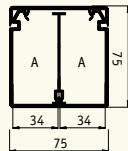

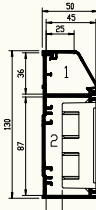

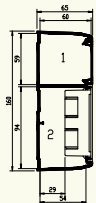

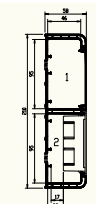

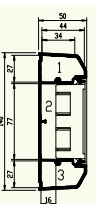

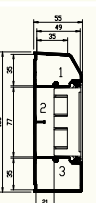
- Bend radius of 25mm and 50mm
- Steel screening divider to BS EN 50174-2
- 50mm power/data separation to BS EN 50174-2
- Full compartment copper spray screening (to assist in meeting EMC Directive) with NO reduction of compartment capacity
- Adjustable depth data boxes
- Cat 6 data outlets
- Trunking systems that can be extended to accommodate any number of data cables
- 100% recyclable materials



1 compartment trunking


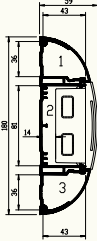
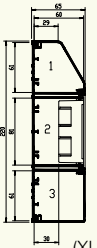
2 compartment trunking

3+ compartment trunking

System		Dimensions	Cable Capacity based on typical values for Ø6.5mm and Ø7.0mm data cables*					
MAXI		 <p>MTRS50: 50 x 50mm MTRS75: 75 x 75mm MTRS100: 100 x 100mm (MTRS75)</p>			Comp 1	Comp 2	Comp 3	
			MTRS50	Ø6.5mm	9	9	-	
				Ø7.0mm	8	8	-	
			MTRS75	Ø6.5mm	23	23	-	
Ø7.0mm	20	20		-				
MTRS100	Ø6.5mm	25	15	43				
	Ø7.0mm	21	13	37				
COMPACT 1, 2 & 3		 <p>Compact 1: 130 x 50mm Compact 2: 130 x 50mm Compact 3: 181 x 50mm (Compact 1)</p>			Comp 1		Comp 2	
			Compact 1	Ø6.5mm	13	-	40	15
				Ø7.0mm	11	-	34	13
			Compact 2	Ø6.5mm	16	-	40	15
Ø7.0mm	14	-		34	13			
Compact 3	Ø6.5mm	40	15	39	14			
	Ø7.0mm	34	13	34	12			
TWIN165		 <p>160 x 65mm</p>			Comp 1		Comp 2	
			Twin165	Ø6.5mm	35	-	58	33
				Ø7.0mm	30	-	50	28
			TWIN PLUS		 <p>210 x 57mm</p>			Comp 1
Twin Plus	Ø6.5mm	50				25	50	25
	Ø7.0mm	43				22	43	22
MONO PLUS 20		 <p>140 x 50mm</p>						Comp 1
			Mono Plus 20	Ø6.5mm	10	-	43	12
				Ø7.0mm	9	-	31	10
			MONO PLUS 30		 <p>155 x 55mm</p>			Comp 1
Mono Plus 30	Ø6.5mm	15				-	45	16
	Ø7.0mm	13				-	35	14
								Comp 3
					NO BOX	WITH BOX	NO BOX	WITH BOX
					17	-	15	-

	Bend radius control	Material	Application	Description	Steel insert	Copper spray
	Contact our Technical Team on 01424 856688	PVC-U	Main feeder runs	<p>A mid-size feeder and distribution trunking.</p> <ul style="list-style-type: none"> <li>90°-135° slow bends provide generous radius</li> <li>Fabricated tees and crossovers will accommodate radius greater than 50mm</li> <li>Available as clear trunking for High Security applications</li> </ul>	N/A	N/A
	25mm	PVC-U	Perimeter dado	<p>Compact 1 &amp; 2 is a smaller, fully segregated two-compartment trunking system suited to fit within areas where physical outside dimensions are important. Compact 3 is a fully segregated trunking system with two main compartments suited for installations requiring larger cable capacity.</p> <ul style="list-style-type: none"> <li>Moulded horizontal bend assemblies include Radius Control Inserts</li> <li>Adjustable data box 32 – 40mm</li> </ul>	✓	✓
	50mm	PVC-U	Perimeter dado	<p>Twin165 trunking is a mid-size, two-compartment system, designed as a compact variation of Twin Plus. Twin165 offers high capacity for Cat 6 and Cat 6a data cabling for specification in commercial, industrial and educational environments.</p>	✓	✓
	50mm	PVC-U and aluminium	Perimeter dado and skirting	<p>Twin Plus is a large, segregated, two-compartment skirting and dado trunking system.</p> <ul style="list-style-type: none"> <li>Cable control performance exceeds international category standards</li> <li>Adjustable data box 32 – 47mm</li> </ul>	✓	✓
	25mm	PVC-U	Perimeter dado and skirting	<p>Mono Plus 20 is an economical and stylish three-compartment trunking.</p> <ul style="list-style-type: none"> <li>Compact design</li> <li>Adjustable data box 32 – 40mm</li> </ul>	N/A	N/A
	25mm	PVC-U	Perimeter dado and skirting	<p>Mono Plus 30 is an economical and stylish three-compartment compact skirting system.</p> <ul style="list-style-type: none"> <li>Adjustable data box 32 – 40mm</li> <li>Particularly suitable for general office applications</li> </ul>	N/A	N/A

\*All calculations allow for a 45% space factor

System		Dimensions	Cable Capacity based on typical values for Ø6.5mm and Ø7.0mm data cables*									
STERLING PROFILE 1, 2 & 3		  167 x 50mm  (Sterling Profile 2)		Comp 1		Comp 2		Comp 3				
				NO BOX	WITH BOX	NO BOX	WITH BOX	NO BOX	WITH BOX			
			Profile 1	Ø6.5mm	14	-	41	15	14	-		
			Ø7.0mm	12	-	35	13	12	-			
Profile 2	Ø6.5mm	14	-	41	15	16	-					
	Ø7.0mm	12	-	35	13	14	-					
	Profile 3	Ø6.5mm	16	-	41	15	16	-				
		Ø7.0mm	14	-	35	13	14	-				
ODYSSEY		  180 x 57mm		Comp 1		Comp 2		Comp 3				
				NO BOX	WITH BOX	NO BOX	WITH BOX	NO BOX	WITH BOX			
			Odyssey	Ø6.5mm	13	-	42	12	13	-		
			Ø7.0mm	11	-	36	11	11	-			
STERLING XL		  220 x 65mm  (XL202)		Comp 1		Comp 2		Comp 3				
				NO BOX	WITH BOX	NO BOX	WITH BOX	NO BOX	WITH BOX			
			XL201	Ø6.5mm	30	-	50	26	30	-		
			Ø7.0mm	25	-	43	23	25	-			
			XL202	Ø6.5mm	30	-	50	26	37	-		
			Ø7.0mm	25	-	43	23	32	-			
XL203	Ø6.5mm	37	-	50	26	37	-					
	Ø7.0mm	32	-	43	23	32	-					
	STERLING PROFILE 4-13		  Profile 4 & 5: 218 x 50mm Profile 6: 269 x 50mm Profile 11, 12 & 13: 255 x 50mm  (Sterling Profile 12)		Comp 1		Comp 2		Comp 3		Comp 4	
					NO BOX	WITH BOX	NO BOX	WITH BOX	NO BOX	WITH BOX	NO BOX	
				Profile 4	Ø6.5mm	14	-	41	15	38	-	-
				Ø7.0mm	12	-	35	13	33	-	-	
Profile 5				Ø6.5mm	16	-	41	15	38	-	-	
Ø7.0mm				14	-	35	13	33	-	-		
Profile 6				Ø6.5mm	38	-	41	15	38	-	-	
Ø7.0mm				33	-	35	13	33	-	-		
Profile 11				Ø6.5mm	14	-	41	15	37	-	12	
Ø7.0mm				12	-	35	13	31	-	10		
Profile 12				Ø6.5mm	14	-	41	15	37	-	15	
Ø7.0mm				12	-	35	13	31	-	13		
Profile 13	Ø6.5mm	16	-	41	15	37	-	15				
	Ø7.0mm	14	-	35	13	31	-	13				



	Bend radius control	Material	Application	Description	Steel insert	Copper spray
	25mm	PVC-U and aluminium	Perimeter dado and skirting	<p>Sterling Profile systems 1-3 are popular and stylish looking perimeter dado and skirting systems that are easy and cost-effective to use.</p> <ul style="list-style-type: none"> <li>• Moulded horizontal bend assemblies include Radius Control Inserts</li> <li>• Further segregation may be achieved by using dividing fillets</li> <li>• Adjustable box data 32 – 40mm</li> </ul>	✓	✓
	25mm	PVC-U	Perimeter dado	<p>Odyssey is a three-compartment trunking system with a completely curved front profile.</p> <ul style="list-style-type: none"> <li>• No mitre-ing of corners is required</li> <li>• Built-in cable tray</li> <li>• Tamper-resistant trunking</li> <li>• Adjustable &amp; fixed bends are available</li> <li>• Recessed boxes for curved accessories maintain Odyssey's smooth lines</li> </ul>	✓	✓
	Contact our Technical Team on 01424 856688	PVC-U and aluminium	Perimeter dado and skirting	<p>XL Trunking sizes 201 to 203 comprise a range of deep, large capacity three-compartment, segregated containment systems.</p> <ul style="list-style-type: none"> <li>• 65mm deep with extendible 88mm compartments for larger capacity</li> <li>• External bends feature internal segregators for greater retention and alignment of fitting</li> <li>• Adjustable data box 32 – 50mm</li> </ul>	✓	✓
	25mm	PVC-U and aluminium	Perimeter dado and skirting	<p>Sterling Profile systems 4 to 13 are perimeter dado and skirting trunking systems.</p> <ul style="list-style-type: none"> <li>• Compartment can be screened against EMI with no reduction in cable capacity</li> <li>• Adjustable data box 32 – 40mm and screened data boxes</li> <li>• Steel screening divider available</li> <li>• Can be fed from larger trunking systems for increased cable distribution</li> <li>• Boxes available to comply with Part M (DDA)</li> <li>• Comprehensive range of flush power and data accessories</li> </ul>	✓	✓

\*All calculations allow for a 45% space factor

## Trunking for laboratory and healthcare environments

Marshall-Tufflex has many years of experience in providing cable management solutions for medical and healthcare environments. The company ensures that products and product ranges meet the highest possible standards for individual product requirements.

Trunking systems for this much specialised type of application are available in both aluminium and PVC-U, to carry gas, power, data, telecoms and nurse call, providing first class screening performance and optional antimicrobial protection.



### PVC-U trunking

PVC trunking is a practical solution for laboratory and healthcare environments. Its light weight material makes it easy to install and clean. Our trunking systems provide first class screening performance and optional antimicrobial protection.

#### Odyssey trunking

**180 x 57mm**

Curved profile dado trunking with one main compartment and two smaller compartments designed specifically for heavy traffic areas such as hospitals. Odyssey's completely curved profile is designed to prohibit clutter, avoid dust traps and makes cleaning easy. Compartments can be sub-divided and screened if required.



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Odyssey is available as standard with Bio antimicrobial protection within the PVC-U material. See page 27.

#### Compact trunking

**130 x 50mm to 181 x 50mm**

A range of small and medium sized, two compartment, dado and skirting systems with varying compartment sizes suited to fit within areas that have trunking height restrictions for example to negotiate radiators or window sills.



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Compartments can be sub-divided and screened if required.

#### Sterling Profile 1

**167 x 50mm**

A popular stylish medium sized trunking system for dado and skirting application with three segregated compartments. Sterling Profile 1 has been tried and tested within the laboratory and healthcare environment over many years. Compartments can be sub-divided and screened if required.



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#### Bench trunking

**105 x 105mm**

An easy to install robust, angled trunking that can be mounted directly on laboratory and medical workbenches or angled under shelving. Compartment can be sub-divided and screened if required.



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#### Mono Plus 20 trunking

**140 x 50mm**

An economical and stylish 3 compartment dado trunking for use where space is limited. Mono Plus has one piece fittings with a single lid for improved security.



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#### Twin Plus trunking

**210 x 57mm**

An attractive high capacity segregated two compartment containment system which is ideal for carrying power and data services. Compartments can be sub-divided and screened if required.



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## Aluminium systems

Aluminium systems with multiple compartments providing LSOH containment for wiring, gas and air services, suitable for the healthcare and laboratory environments.

### Bench trunking

**105 x 105mm**

A robust, angled trunking that can be sub-divided and is suitable for laboratory and medical workbenches or angled under shelving. A PVC-U dividing fillet is available with screening if required.



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### XL trunking

**220 x 65mm to 308 x 65mm**

A range of large three and four compartment dado and skirting trunking systems with separate compartments and individual covers. XL Trunking can accept gas and air outlets and can be extended to provide additional compartments. A PVC-U dividing fillet is available with screening if required.



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## Bio trunking solutions



### Why use antimicrobial PVC-U trunking?

Certain microbial organisms are harmful to people and can proliferate to cause infections and disease. There is a need to control these organisms wherever infection control is of importance, particularly in environments such as:

- Hospitals
- Nursing and care homes
- Food processing plants
- Surgeries
- Schools
- Sports and health centres

Microbial organisms can also cause product deterioration, discoloration and bad odours and antimicrobial treatments help to prevent this and provide an extra level of protection when combined with normal cleaning procedures.

### Built-in protection

Where hygiene is a priority, we offer cable management systems with integral antimicrobial properties. By incorporating silver ions within the PVC-U based material the perimeter trunking will deliver ongoing antimicrobial protection that prevents 99.9% of harmful bacteria.

Because the Marshall-Tufflex Bio trunking solution is integral to the PVC-U material, there is no reduction in effectiveness of the trunking throughout its life – even if it is scratched or damaged.

Bio trunking uses a silver ion solution throughout the product, ensuring that 99.9% of harmful bacteria – like MRSA – will not survive on the surface.



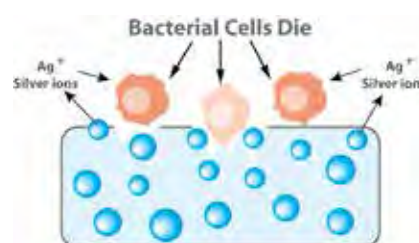
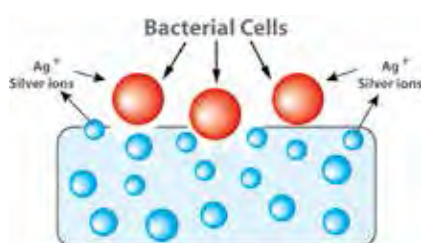
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Technical  
Information

## Bio trunking solutions offer:

- Prevention of harmful bacteria growth (for more details see test results on page 207)
- Antimicrobial properties inherently formulated within the PVC-U
- A durable, non-leaching antimicrobial treatment
- Testing to ISO 22196:2007
- Proven silver ion-based technology to neutralise any bacteria with which it comes into contact
- Registration with the Environmental Protection Agency (EPA).
- Compliance with the European Biocidal Products Directive (BPD).
- Proven reductions in bacterial viable count by more than 99.9%.
- Antimicrobial treatments provide an extra level of protection when combined with normal cleaning procedures.

Bio trunking can be recognised by checking for the 'Bio' mark on the inside of the trunking lid. They can also be tested by using a UV light on the external surface of the trunking. The Bio system will reflect blue under UV light rather than violet.



## Bio trunking from Marshall-Tufflex

Odyssey trunking is available as standard with Bio antimicrobial protection within the PVC-U material. The following trunking ranges are available in Bio but are made to order and therefore will incur set up charges and an extended lead time.

- Bench trunking
- Compact trunking
- Mono Plus 20 trunking
- Sterling Profile
- Twin Plus trunking
- XL trunking

### Bio trunking component chart

Trunking assembly	End cap (1 piece)	Coupler (1 piece)	Internal bend (1 piece)	Internal adjustable bend	External bend (1 piece)	External adjustable bend	Flat angles (up or down)	Flat tees (up or down)
DD1B Pack 1 x 3m	DD1233 Pack 2	DD1213 Pack 1	DD1313 Pack 1	DD1333 Pack 1	DD1353 Pack 1	DD1373 Pack 1	DD1413 Pack 1	DD1433 Pack 1

Odyssey trunking

180 x 57mm





# Test Results

TEST RESULTS: Marshall-Tufflex Report 2709051

LABORATORY: Thomson Research Associates Inc., Ontario, Canada

TEST ORGANISM: Methicillin Resistant Staphylococcus Aureus (MRSA)

Quantitative Assessment of Activity – ISO 22196:2007 MRSA				
Concentration of starting inoculum		4.94 x 10 <sup>5</sup> CFU/mL		
Sample Description	Number of bacteria recovered	Log Value	R = [log(B/C)]	% Survival
1. Flat profile – Blue Tape, White PVC – untreated control	7.19 x 10 <sup>6</sup>	6.9	-----	-----
2. Curved profile – Red Tape, White PVC – Treated with Ultra-Fresh CA-16	<2.00 x 10 <sup>1</sup>	<1.3	>5.6	<0.1%

The treated curved profile (Sample 2) showed excellent control of both MRSA and Klebsiella Pneumoniae with a greater than 99.9% reduction in bacteria compared to the untreated flat profile (Sample 1). The bacteria grew on the untreated sample.



## Bio trunking has demonstrated effectiveness against:

- Methicillin resistant Staphylococcus aureus (MRSA): an antibiotic resistant, opportunist pathogen that can survive on surfaces within the hospital environment.
- Klebsiella pneumoniae: an opportunist pathogen affecting people with a weakened immune system.
- Streptococcus pyogenes: tonsillitis, scarlet fever, necrotising fasciitis (the 'flesh-eating bug').
- Vancomycin-resistant Enterococcus faecalis: E.faecalis: a concern when antibiotic resistance is acquired.
- Escherichia coli: All of us are colonised by E.coli in our gut but this bacterium can cause infections if it is transferred to a wound or a different part of the body causing severe food-associated illness.
- Pseudomonas aeruginosa: a common bacterium found in water and other environments and is associated with burns infections, medical device infections and food spoilage.
- Acinetobacter baumannii: is associated with HAI and is often resistant to antibiotics.
- Bacillus subtilis is a spore forming bacterium with the ability to form resistant spores that cause a problem for cleaning and disinfection.
- Salmonella: the Salmonella species cause food-borne illness.
- Legionella: Legionellosis is a severe form of pneumonia caused by inhalation of infected aerosols, for example via air conditioning systems.
- Lactobacilli are essentially non-pathogenic: they are often used as probiotics. Some species cause spoilage, for example in the brewing industry.
- Corynebacterium pseudodiphtheriticum; associated with respiratory infection.

## White Paper

Joanna Verran is Professor of Microbiology in the School of Biology, Chemistry and Health Science at Manchester Metropolitan University. Her research is interdisciplinary, involving collaboration with materials scientists, polymer and dental technologists and surface engineers focusing on the interactions occurring between microorganisms and inert surfaces. In 2008, Professor Verran wrote a 6-page White Paper on the effectiveness of silver ion pregated antimicrobial trunking for Marshall-Tufflex. Here are a few extracts from that paper:

"In the hospital environment, patients are particularly susceptible to infection, thus reduction in the transfer of microorganisms directly from person to person and indirectly via inanimate objects, is a key objective. The microorganisms present may also be more resistant to antibiotics.

"... 'silver ions' .... exert a bactericidal effect at very low concentrations. Unlike antibiotics, which have specific targets present in microbial cells thus demonstrating 'selective toxicity' ... silver, like other biocides, is toxic to multiple components of bacterial cell metabolism. These include damage to the bacterial cell wall and membrane permeability.

"... damage leads to blockage of transport and enzyme systems, alterations of proteins, ... and binding of microbial nucleic acid, which prevents protein synthesis and cell division.

"... rapid or sustained release is important ... demonstrated by impregnated surfaces where the silver is mobile and essentially renewable to the surface. Coatings might, in contrast, be lost or exhausted more rapidly."

To download the White Paper in full, please go to [www.marshall-tufflex.com](http://www.marshall-tufflex.com)

## Case Study 1

### Selby project showcases benefits of Twin Plus trunking



**Antimicrobial Bio Twin Plus trunking proved the perfect choice for the £22 million Selby Community Project, collaboration between the NHS and local authority to locate a community hospital, health clinic and council offices into a shared new build in the North Yorkshire town.**

Large capacity Twin Plus is available in standard and antimicrobial versions, allowing consulting engineers DSSR to specify antimicrobial Bio Twin Plus for the hospital and standard Twin Plus for the council offices, creating a continuous aesthetic throughout the building. The hospital has 24 GP-led beds, a minor injuries unit, diagnostic facilities and minor surgery suite. It achieved a rating of 'excellent' against BREAAAM, the international environment assessment tool.

DSSR said: Bio Twin Plus offers the really valuable properties of an antimicrobial trunking system where it matters most, in the healthcare environment. Infection control is a huge issue and Bio Twin Plus supports cleaning regimes by working 24/7 in the fight against harmful bacteria."

Silver-ion protection is added to Bio's PVC-U formulation during manufacture, meaning that the bug-busting solution is incorporated within the Twin Plus. As a result it works 24 hours a day for the life of the trunking to kill bacteria such as MRSA, E-Coli and Salmonella, even if the trunking is scratched or knocked.

Bio Twin Plus has been tested to the quantitative standard ISO 22196:2007. Results show the survival rate of tested bacteria to be less than 0.1%. Marshall-Tufflex's Bio formulation is registered with the Environmental Protection Agency (EPA) and compliant with the European Biocidal Products Directive (BPD).

## Case Study 2

### Kettering General Hospital NHS Trust



**As part of a major £1.1m refurbishment to the pathology departments by Kettering General Hospital NHS Trust, Odyssey Bio antimicrobial cable containment system was chosen to enhance infection control measures within the sterile services section of the hospital.**

The project has involved the fitting of more than 400 linear metres of Odyssey Bio in a phased 18 month programme of works whilst the department remained up and running. The project also used Odyssey's coloured back boxes, in red, to provide Part M compliance at a competitive cost and Marshall-Tufflex also supplied Bench Trunking with Part M box assemblies.

Jens Hugaard, from Building Services Design, the Consulting engineers for the refurbishment, chose Odyssey bio in the research laboratories for these reasons: "Its new qualities were appealing. I like the fact that the antimicrobial formula is integral to the plastic so that, despite what happens to it, it will continue to do its job. Additionally its curvature is easy to wipe clean."

Bob Farmer of Mann Electrical Services, who installed the products, is also happy with the performance of Odyssey Bio. He said: "It looks good and the necessary specification changes to the special bench trunking units were dealt with efficiently."