

Retail Training Course



The Lighting Association Retail Training Course

The Retail Training Course is an essential guide for everyone serious about improving their sales potential. The Retail Training course is a correspondents course, written by experts, specifically designed to help lighting retailers and their employees increase their understanding of lighting and its many applications

The Training Course is a six month home study course in which students can enroll at any time during the year to suit themselves or their employers.

Studying a broad range of topics from Basic Electrical Knowledge, Lamp Functions and Uses, Luminaires - Product Knowledge, Design Lighting In The Home and Safety & The Law.

Students will also be required to complete assignments to support their learning and understanding.

As part of the course you also have exclusive access to a special student hotline that is available during normal office hours to help with your studies.

Course Modules

Basic Electrical Knowledge

- Introduction to the nature and effects of electricity.
- Common terms and measurements.
- Basic safety precautions.
- Advantages and limitations of low voltage systems.

Lamps Function & Usage

- Identification of various lamp types.
- Lamp construction and production methods.
- Comparison of lamp types including efficiency, running costs, life expectancy and other properties.

Luminaires - Product Knowledge

- Luminaire versatility, adaptability and safety.
- Style and period lighting.
- Installation and maintenance.
- Outdoor, security and bathroom lighting.

Designing Lighting In The Home

- Style shape, colour and materials.
- Task lighting and safety.
- Creating attractive lighting environments.

Safety & The Law

- Basic introduction.
- Health and Safety.
- Retailer's responsibilities.

Optional Modules

A choice from one of the following

Basic Selling Techniques

- Self analysis.
- Importance of product knowledge.
- Mechanics of selling.

Marketing For Retailers

- Know your customers.
- Need for marketing and marketing devices.
- The Marketing mix.
- Making your promotion pay.
- The Media maze.

If you would like to enroll on this specially designed Course. Please fill in your information and faxback or return by post. Alternatively, contact Barbara Wiley on 01952 290905.

Cost £245 (+VAT)

or £195 (+VAT) if Associate Retail Member

Interested in enrolling on the course or require more information, please fill in your details below.

Name: _____

Position: _____

Company Name: _____

Address: _____

Email: _____

Tel: _____ **Fax:** _____

Yes I would like to enroll on the course. Please contact me to discuss in more detail.

Yes I am an Associate Member of the LA

Please tick if you would like to be informed of other course/services the Association provides.

Faxback on 01952 290906

Alternatively, please post to: The Lighting Association Stafford Park 7 Telford Shropshire TF3 3BQ.

Retail Training Course

Introduction

Welcome to the Lighting Retail Training Correspondence Course.

The core course is made up of 6 modules or 'Workbooks' which contain information on the following subjects:

1. Basic Electrical Knowledge
2. Lamps - their functions and uses
3. Product Knowledge - Luminaires
4. Designing Home Lighting
5. Safety and the Law
6. Optional Module (choice of one)
 - Basic Selling Techniques
 - Marketing For Retailers

The workbooks will be sent to you at monthly intervals in the above order. We expect that on average, you will need to spend about 3-4 hours each week studying the work books and completing the set activities.

The amount of time individuals spend on each module will of course vary, depending on, amongst other things, previous knowledge and experience and the particular subject in question. Our figure is meant as a guideline. If you find you need to spend more time on a particular workbook, then do so; another module will probably take less time.

Activities

Throughout each workbook you will find certain activities. We strongly recommend that you complete these to your own satisfaction. They have been included to reinforce the knowledge you will have acquired from the workbook and to help you decide whether your understanding is good enough.

We do not ask you to return these activities to the tutor. They are purely for your benefit.

Assignments

At the end of each workbook there will be some assignments. When you have completed the workbook and are sure you understand the information, you must complete these assignments and return them to the tutor in the envelope provided, **by the deadline for each module.**

Now that you know what to expect from this Course, here are a few hints to help you.

Working in your own time

One of the distinct advantages of a correspondence course is that you decide when you do your studying. You do not have to attend a tutorial at 2.00pm and absorb the pros and cons of fluorescent lamps at that particular time. If you work best while jogging around the park at 5.30am, then take your pages on fluorescent lamps with you!

Most of your Course work time should be spent in the store. It is hoped that during the four weeks for each module you can find or be found, enough time for most of the reading and all of the stock examination required.

The disadvantage to distance learning is that there is no tutor on hand to guide you through the course or answer any questions you have when they arise. This means that you must be resourceful in identifying sources of help and be willing to use them.

The store situation for you is very varied; you may know experts in your store to whom you can go for assistance when necessary, those who have been in lighting retailing for a long time or who have technical experience on which you can draw. On the other hand you may well feel rather isolated in this respect and this is where we must assist you if we possibly can. After all, we wish you and the industry to benefit to the maximum from this Course and we will direct our efforts to that end.

The Hotline

On this Course we have tried to lessen the problem of isolation by providing you with a Hotline number:

Tel: 01952 290905.

During office hours (9-5 Mon to Fri) there will be someone available to talk to about your concern, however small you may think it is, and if they cannot immediately help you it can be arranged for further contact to be made to try to sort things out.

Retail Training Course

Introduction

Read through the workbook

It is **vital** that you read through the whole new workbook at the beginning of each month. There are several reasons for this. It is fatal to leave the work untouched until the end of the month and then rush to get it done. You will never get the most out of it this way. If you read it first and then 'forget' it until the last week this is not much better but at least having read it some of the ideas, without you knowing it, will have been working away in your brain and you will be more prepared to work on those ideas when the time comes. Ideally you will read it thoroughly as soon as you can after receiving it, without trying to do anything or making an effort to learn anything, just to see what is involved in the work book as a whole. You will then know what you have to complete during the next few weeks and can plan accordingly.

Reference Sections

The role of the technical reference sections needs to be understood. You are not expected to work through these in the same way as the workbooks themselves. Students who have a good scientific background may possibly use them as a handy ready reference but more importantly it is hoped that students with no technical experience will not find them daunting.

The references expand on, and give background to, topics which crop up in the modules. It is hoped that use of them can aid understanding of the main module. They have been written so that they can be read straight through in entirety if the student has the interest to do so.

Rest assured **it is not expected that you learn all the reference content.**

You will be assessed on this Course more on how you use the knowledge than on how much you know. Nobody expects you to be a lighting technician, interior designer, electrician, etc. But the more you know about these terms, the easier it should be for you to do your job effectively. If you have to refer to voltage, wattage, light output, etc. you should know what these terms mean.

So when a technical topic crops up for the first time in the text of a workbook you will see a reference given to one or more of the items in the Reference Sections. To get maximum benefit from the reference you should look up the item and read through the explanation or description each time you come across the reference until you are quite certain you understand what is meant.

Two Important Definitions

Although your customer will more often than not use the term "bulb", the vast range of types and shapes now available renders this term inappropriate. The industry uses the term "**lamp**".

The lamp is the device which produces the light.

It is important to clarify this in your own mind and not to confuse the terms "lamp" and "**luminaire**". "Luminaire" is a term not usually used outside the industry but refers to **the whole object which controls, directs or delivers the light**. It therefore includes everything from nightlights to spotlights to chandeliers and table lamps.

It is important to remember these definitions as they will be referred to throughout this course.

Last, but definitely not least, we re-emphasise that you **must** return your assignments on time. This is for your benefit. Unless you keep up to date with completing the work, we cannot detect any problems or difficulties which you may be experiencing. These assignments are vital for us to ensure you are learning and understanding.

Important Notice

Whilst it is intended to improve your overall knowledge of lighting, the electrical advice given in this course is by no means comprehensive. Because of the wide variation in conditions and use of customer premises, customers should always be advised to seek the advice of a Professional Electrician.

It is important to remember that as time passes, technological advances and changes within the Law may affect the accuracy of the information in this course.

Note

Throughout all of the Modules and the Reference Manual, Domestic Supply of Electricity in the UK is referred to as being 240V. At the time of going to print Europe is harmonising on a 230V supply. Although legislation will say that the UK conforms with this harmonisation, the UK will continue to supply 240V for the foreseeable future.

Electrical Reference

E.1

We can use a unit called the **VOLT** (named after an Italian scientist called **VOLTA**) to measure the force or pressure applied to the electrons to cause them to move. The symbol for volt or voltage is a capital **V**. Once the electrons are moving we can use their energy to get something to work. Without this driving force, the voltage, we have no useful electrical energy at all. The bigger the voltage available the larger the driving force and so more energy is obtainable from the source. For example, at home we use small driving forces from batteries in transistor radios and toys. Each single 'battery' (properly called a **cell**) gives a pressure of about 1.5 volts. Four of the cells together in a line provide 4 times 1.5 volts or 6 volts pressure, and eight will give 12 volts.

Here the pressure is provided by chemical reactions in the battery.

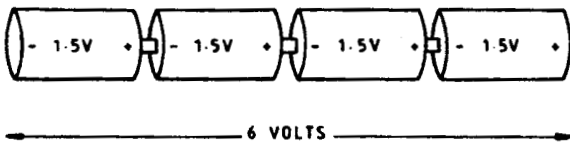
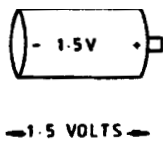


Figure RM-01

The 'mains' electricity supply to our homes has a complete driving force about 160 times larger than a single cell, i.e. 230 volts, and we are all made well aware that such a supply is quite capable of killing us.

Voltage is measured between two points in the circuit, for example between the terminals of a battery. You will sometimes see the terms potential, potential difference or p.d used for electrical pressure. All are voltage measurements.

VOLTS MEASURE PRESSURE

E.2

Metals have been singled out from all other substances because the electrons in metals will move along so freely and make a flow of electricity or electric current. We call metals **CONDUCTORS** of electricity and nearly all other substances are called **INSULATORS** because they tend to insulate or stop electricity from flowing. Actually this is dividing substances a bit too simply as will be seen later (**E.21**) but this will do for the moment.

E.3

You may have noticed that a battery, or cell, has two ends to connect, one labelled with a + sign and the other a - sign. The portable transistor radio, torch, cassette player, car etc. will not work at all unless both ends of the battery are connected to the correct terminals. This shows us an important condition which has to be satisfied: for electricity to flow, there must be a return path for the electrons. The connection from the voltage supply to the electrical device (lamp for example) and the return from the lamp to the other side of the voltage supply make up a **ELECTRIC CIRCUIT**.

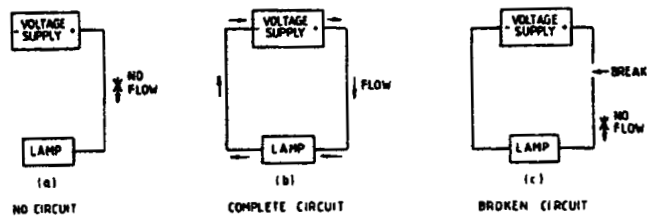


Figure RM-02

In Diagram (b) the electricity can flow because the loop of wire is complete, but in (a) and (c) the lamp cannot light up because there is no complete path for the electricity to flow along.

E.4

It is often very useful to compare electricity with something we **can** see in order to make the ideas clearer but we have to be very careful with any analogy because there is nothing quite like electricity! Electricity flowing in wires, and circuits is often compared with water flowing in pipes and, with caution, we can begin to see how it works.

Pressure in water is easy to experience and works very well as an equivalent to voltage. In the majority of houses the water taps in the kitchen will provide an example of high and low pressure supply. If you put your thumb or palm of the hand hard against the end of the cold tap and turn it on you may well squirt water right across the room immediately, even without purposely releasing the pressure slightly on one side of your thumb.

With the hot tap however it is much easier to stop the water coming out with your thumb and much less easy to soak the opposite wall with a jet of water! The cold tap has water at high pressure from the water main and the hot tap delivers water at much lower pressure from a tank somewhere above you, although this type of water system is being replaced with more energy efficient systems (but it serves the purpose of analogy).

Reference Manual

Electrical

E.5

A second measurement applied to electricity which is as vital as voltage is the actual **rate of flow** which is measured in **AMPERES** (after another scientist, this time a Frenchman called **AMPERE**). The unit is usually shortened to **AMP** (it saves having to put on a French accent!) and the unit symbol is a capital **A**.

The electric current is again comparable with water current or rate of flow. With water we might well measure current in gallons per minute or litres per second - the amp does actually measure a certain number of electrons passing round the circuit per second.

AMPS MEASURE CURRENT

Considering the water taps once more, it is not difficult to realise that there is a connection between the pressure of water at the taps and the current or rate of flow we can get from them. Given two taps of the same size but one delivering water at low pressure and the other at high pressure, which one would you prefer to use to fill a large bucket? You would certainly have to wait longer for the low pressure tap to fill the bucket because the current or rate of flow of water would also be lower. High pressure causes large currents, all other things being equal, and so it is with electricity; higher voltage gives rise to larger currents as long as the circuit is the same.

E.6

This brings us to the third basic measurement in electricity. If the 'circuit' for our flow of water or electricity is not kept the same what things can change? You may have noticed that the taps on your bath are a different size from the taps on the sink and also the pipes leading to the taps. As the bath holds so much more water than the sink the time taken to fill it from the same pressure supply is much greater so the plumber usually tries to increase the current or rate of flow to the bath by providing larger pipes and taps in order that it does not take quite so long to fill.

The larger pipes give less **RESISTANCE** to the flow of the water and the water flow is greater. In exactly the same way larger diameter wires give less **RESISTANCE** to the flow of electricity and for the same pressure applied a larger current of electricity can flow,

The resistance of a circuit or part of a circuit is a very important measurement because it tells us immediately whether large or small currents are likely to flow. Electrical resistance is measured in "**OHMS** (yet another scientist's name - a German this time!) and given the Greek letter omega as (Ω)

OHMS MEASURE RESISTANCE

E.7

The rule outlined at the end of **E.5** is really a statement of the fundamental law of electric circuits known as **OHM'S LAW**. If you apply more pressure to a pipe the water goes through faster - in fact if you apply twice the pressure you get twice the flow. That is all Ohm's Law says for electricity; that for any particular circuit or part of a circuit the current depends on the pressure applied. This means if the voltage is doubled the current in amps will double, ten times the voltage gives ten times the current, one fifth of the voltage gives one fifth of the amps, etc. Applying Ohm's Law to electric circuits can get complicated but the Law itself is very straightforward and should be quite easy to follow.

E.8

The resistance of a circuit or part of a circuit is actually a way of telling how many volts, are needed to push 1 amp of current through it. A circuit of resistance 10 ohms needs 10 volts applied to its ends to pass 1 amp of current through it. Also if ten times the voltages is used then ten times the current flows, so 100 volts applied to our 10 ohm circuit would result in 10 amps of current flowing.

QUESTION

How many amps would flow if the 230 - volts supply was applied to our 10 ohm circuit?

The relationship is summarised this way:

VOLTS = AMPS X OHMS

pressure = current x resistance

As we most often use the formula to work out the current taken by a device it is useful to express it in this way:

$$\text{AMPS} = \frac{\text{VOLTS}}{\text{OHMS}}$$

ANSWER

If 230 volts supply was connected to a 10 ohm circuit the current would be 230/10 or 23A - much too big a current for any of our lighting circuits.

Example:

If a lamp has a working resistance of 1 KILOHM (1000 ohms) what current will it take when connected to the 230 volt house supply?

Here the pressure = 230 volts,
resistance = 1000 ohms

So Amps = $\frac{230}{1000}$ or 0.23A

Module I

Basic Electrical Knowledge

Introduction

The use of electricity is treated with awe, mystery, fear, wonder and respect by millions of people, who during the second half of the 20th century became reliant on its applications and capabilities.

Cleaning, cooking, washing, heating, entertainment, practically every domestic activity is aided or even taken over by electrical gadgets. However, the very supply of electricity to our homes was set up and installed initially for **light**.

Power stations were built to generate electricity for the new 'electric light', so much more convenient than flame. Even now some members of the older generation can be heard referring to the 'light bill'.

One of the most vital problems we have in understanding electricity is due to the fact that it is invisible. It represents an invisible, lethal force. We can see or hear most of its effects when it is working for us but on switching off the light or the washing machine it is still there and must be treated with respect.

The lesson has been learnt that bare wires are dangerous. It is better to err on the side of safety than to be sorry due to carelessness. Dealing with electrical equipment is another case where true confidence can only come with experience.

Electricity, as we know, is an extremely versatile form of energy. It can produce movement, hot and cold temperatures, calculations and computing functions, moving pictures and sound and a whole host of other things, as well as light to enable us to see comfortably at all times.

To really understand the products in your store and to be able to advise the customers in the choice of these products you must have some understanding of how they work. You must be able to interpret the symbols and descriptions used by the manufacturer.

By working through this module and making use of the electrical reference section provided you will:

- Have a basic understanding of the nature of electricity and its effects.
- Understand the common terms and measurements used in lighting.
- Be able to recognise the basic safety precautions which are employed in lighting.
- Be able to apply this knowledge to your stock to encourage customers to use the products safely.
- Understand the limitations and advantages of safety extra low voltage systems.
- Know the basic safety precautions for connection of plugs, lampholders etc.

Section One

The nature of electricity and the common terms use

1.1.1 What is the invisible power supply?

Electricity is the flow of incredibly small particles of bundles of energy through a substance (usually metal). These particles are called **ELECTRONS**. Although the electrons are found in every substance around us, in metal they are able to flow if given a push. Metal is a good **CONDUCTOR** of electricity. Once the electrons are moving we can utilise the energy produced to get an electrical appliance to work.

1.1.2 Voltage

Without the push the electrons do not flow and so when the push stops the electricity stops. Whatever the origin of the force which causes the flow, it is commonly called **VOLTAGE**.

We use the term **VOLTAGE** to indicate the potential driving force of a supply of electricity.

The **VOLT** is the unit used to measure the 'force' applied to the electrons to cause them to move. The symbol used is '**V**'.

So **VOLTS MEASURE PRESSURE**

The pressure of the mains supply in Europe is 230 volts (See Ref. E.1) and the note in the introduction booklet.

Module I

Basic Electrical Knowledge

1.1.3 Current

A second measurement which it is vital to understand is that of CURRENT.

Where pressure, (or voltage) is applied and the electrons move, the flow is called CURRENT.

Current is the rate of flow of the electrons through the conductor.

The AMPERE is the unit of measurement applied to the rate of flow i.e. it indicates the rate at which electrons pass around the circuit. The symbol used is '**A**'.

Note: The word 'Ampere' is usually shortened to Amp.

So **AMPS MEASURE CURRENT**
(See Ref. E.5)

1.1.4 Resistance

This brings us to the third measurement of electricity. That of RESISTANCE to flow. Any conductor will put up a certain amount of resistance to the flow of the electrons. Thicker wires have less resistance and thinner wires have greater resistance to the flow of electric current. The ohm indicates the electrical resistance. The symbol used is Ω

So **OHMS MEASURE RESISTANCE**
(See Ref. E.G, E. 7, E.8)

1.1.5 Power

The fourth most important term used in electricity is WATTAGE. Here we have to look at how much work an electric current can be made to do.

The rate at which we can get work done by an electrical device depends on both the current and the pressure. In other words the amps and the volts together determine the POWER, which is indicated in WATTS.

The symbol used is '**W**'.

So **WATTS MEASURE POWER**
(See Ref. E.11)

Section Two

Some important rules for electricity

1.2.1 Electricity needs conductors!

Metals are the best conductors of electricity because the electrons can flow so freely in metals. There are some other things which conduct electricity but most other substances are INSULATORS. Insulators stop electricity from flowing and we need to use them to make sure the electricity only flows where we want it to. (See Ref. E.2)

1.2.2 Electricity must have a circuit

Electricity flows when given a push but only if it has a return path as well. The connection from the supply to the lamp and back from the lamp to the other side of the supply makes up the circuit.

Any gap in the metal of the circuit will stop the electricity from flowing. (See Ref. E.3)

1.2.3 Resistance produces heat

The part of the electric circuit which has most **resistance** to the electricity will produce most heat.

A lamp filament must get hot so it is made to have a high resistance to electricity, with very thin wire. Cables are not meant to get hot so they are made with very low resistance, thicker wire is used.

1.2.4 WATTS = VOLTS X AMPS

Most pressure is needed to force the current through the parts of the circuit with most resistance.

The energy (heat) which is produced at these parts is because of the pressure working hard to get the current through.

The power (in watts) produced is easily calculated by multiplying the volts (pressure) by the amps (current).

So **WATTS = VOLTS X AMPS**
Power = pressure x current

1.2.5 A useful equation

We sometimes need to know what current a piece of equipment takes so that the correct cable or fuse is used.

Module 2

Lamps Their Uses and Function

Introduction

This module is devoted entirely to the light source itself - the lamp (bulb).

Product knowledge as far as lamps are concerned has to be based on the 'technical properties' of the lamp on which there has been a tremendous amount of work done and innovation employed in recent years.

So, if lamp types are new to you don't expect to learn about them all in one go. Remember that the first aim is to understand why a certain lamp is used in a particular luminaire and what the advantages of the lamp are over its alternatives. In this way reference can be more easily and usefully made, where the opportunity occurs, to the lamp properties during the selling process.

As you progress through this module, you will be taken step by step through the variety of lamps available to you. By using this module, in conjunction with the packaging and lamps themselves, you will:

- Be able to identify the various lamp types.
- Know their construction, main uses, light production method.
- Be able to compare the types in terms of efficiency, running costs, life expectancy and colour properties.
- Understand the advantages and problems of using reflectors.
- Understand which factors shorten the life of a lamp and how to guard against this.

All this will enable you to effect better design.

Understanding the lamps which you handle will automatically involve you with more technical terms, abbreviations and codes. Several of these are actually on the cartons or packets in which they are stocked even if they are in abbreviated form. The lamps themselves will most frequently have some information stamped or printed directly on them, some of which will be coding of use only to the lamp manufacturer. Other items of immediate importance such as **voltage**, and **wattage** will also be marked. Do you know what these actually mean?

Activity

Write down what you understand by the following terms:

VOLTS:

WATTS:

If you are not sure, look back to the summary in Module One. These most common terms must be thoroughly understood first of all.

Section One

The characteristics of light production

The lamp is originally responsible for the quantity and quality of the light available. Although the luminaire will direct and control the available light, it cannot add light which is not already there. Light is provided by the lamp in terms of power and colour. Luminaires are often used to:

- increase the apparent physical size of a light source, and therefore spread the light and reduce brightness.
- reduce the colours contained in the light.

These properties of the light source depend on the type of lamp used and in turn, the type of lamp puts its demand on the:

- kind of electricity supply required.
- circuit in which it is used.
- thermal properties of the materials used around it.
- way it is switched and controlled.
- financial resources of the user!
- energy efficiency.

Module 2

Lamps Their Uses and Function

2.1.1 The three factors of light from lamps.

In terms of the light we receive, we can look at 3 variable factors.

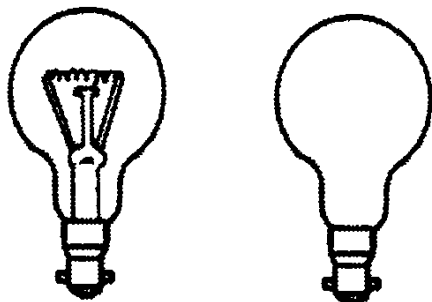
1. The physical size of the luminous surface.

This is smallest in a clear glass tungsten filament lamp where you can see the filament producing the light. It is larger if the glass is a pearl or silverlight finish as the glass envelope diffuses the light, so increasing the luminous surface. An even larger surface area is obviously the fluorescent tube. A larger surface giving out the same amount of light results in a lower brightness.



Fluorescent Tube

Clear Filament Pearl Filament



M2-01

Brightness:

the term brightness is used generally to mean all sorts of things. It actually is a measure of the intensity of light from a source. The easiest way of seeing this is to realise that a 100W clear tungsten filament lamp is a very bright source as the light is seen coming from the small filament. A 100W pearl tungsten filament lamp is a lower brightness source as the same light comes from a much larger area. (A diffuser makes it even lower brightness. See Module Three)

2. The quantity of light or the number of lumens produced by the lamp.

Lumen is a unit used to measure light emitted (See Ref. L.15).

Contrary to popular belief, the wattage guide can only be used to compare the amount of light emitted by two lamps if they are exactly the same type, e.g. you will not get twice the light from a lamp of twice the wattage if one is a 60W fluorescent and the other is a 120W pearl filament lamp.

This is because each type of lamp has its own **luminous efficacy**.

The **LUMINOUS EFFICACY** of a lamp is a measure of its ability to generate light from each watt of power.

Luminous efficacy is therefore quoted as the number of **lumens per watt of power** (See Ref. L.15).

3. The third property to bear in mind is that each lamp type has different **colour qualities**

COLOUR APPEARANCE is the way we react to the colour of the light emitted; usually described as a warm or cool light. This is shown on the packaging of the lamp and is given the term **correlated colour temperature** (See Ref. L.23 and L.25).

CORRELATED COLOUR TEMPERATURE is the scale used to measure the effect of colour appearance.

Another aspect of the colour quality is the lamp's **colour rendering** ability.

COLOUR RENDERING is the ability of the lamp to give faithful presentation of the colours of objects seen in its light.

It is shown as a colour rendering index and is denoted by a number, (up to 100) and the symbol **R_a**. The higher the number the more faithful the rendering of the colours (see Ref. L.26).

2.12 Summary

There are three basic properties to consider when comparing lamps in terms of the light they emit:

- The luminous surface and 'brightness' of the light.
- The luminous efficacy or its ability to generate lumens of light per watt.
- The colour properties of the lamp 'correlated colour temperature and colour rendering'.

Make sure you understand these terms and properties before continuing.

Question

For some particular decorative lamps there is little point in listing for them an **R_a** index.

Which type is this and why?

Module 3

Product Knowledge

Introduction

Lighting is frequently analysed into functional and decorative components. Luminaires direct and control light. They are used to increase the physical size of the lightsource, spread the light, reduce brightness and reduce or enhance colours in the light.

They also form a very important part of the furnishing of a home. This is of course of an almost purely visual nature. The customer chooses a luminaire because he/she likes the look of it, it complements their existing or intended décor as well as performing the function they require.

A further point is that the customer may also consider enhancement of the value of their property. In this case the quality of the product, its individuality and life span may also play a role. Perhaps the location of the product is critical, especially where outdoor luminaires are concerned where ease of maintenance has to be considered.

These are just a few of the factors that a customer may be considering while he/she is in your store. There may be factors which you could bring to your customer's attention.

It is very difficult to distinguish between the decorative and functional components of an individual luminaire. You will need to take all factors into account when making a sale.

This emphasises the importance to the salesperson of good product knowledge. To assist a customer in making a choice, the salesperson must be able to point out all the customer benefits.

You must be able to look at any product and point out the benefits to that particular customer; those relevant to his/her particular requirements.

Good product knowledge also gives you confidence when answering questions from customers. When they discover they can get accurate and efficient information from the salesperson in a shop they will return.

Good product knowledge does not only mean knowing all the various styles and ranges of luminaires. It also means knowing what they are made of, how they function, the manner in which they control and direct the light, how they are installed and maintained and so on. Possibly most important of all is where to find the information if you do not know it yourself.

We have said before, and it cannot be overemphasised that you should always advise your customers to consult a qualified electrician when installing luminaires, (except portable ones of course). It is still useful, however, to be aware of how your merchandise is installed and any problems which may arise. The most obvious examples of this are recessed luminaires which may involve false ceilings or perhaps reinforcement for heavy chandeliers.

Throughout this module we will look at the luminaires and shades themselves.

You will be able to use the information to identify customer benefits of particular products and to answer questions confidently and accurately so you must bear this in mind as you progress.

We will look at the following areas:

- Function of luminaires - versatility, adaptability and safety.
- Materials, workmanship and their perceived value.
- Style and period lighting.
- Installation and cleaning considerations.
- Particular features of outdoor, security and bathroom luminaires.

Note: We have not attempted to itemise features of the enormous range of products and materials available today. It is intended as a starting point for you. Product knowledge is a continuous process so remember that extra information is also available from manufacturers, packaging and brochures.

Module 3

Product Knowledge

Section One

General lighting and luminaire terminology

The majority of illumination originates from above our heads and is directed to eye level or below to be of use to us. This light can come directly from the luminaire in a downwards direction or it can be directed upwards and reflected back. We will briefly look at the terms used to describe lighting techniques because they are relevant when looking at the function of luminaires (methods of lighting a room will be covered in more detail in a later module).

3.1.1 Light distribution

Direct lighting

Where nearly all the light (90% or more) comes directly from the luminaire.

Indirect lighting

Where nearly all the light is reflected from the ceiling or a wall.

General diffusion

Where the light is spread practically equally upwards and downwards.

Semi-direct

Where more light is sent down than up but both amounts are significant.

Semi-indirect

Where more light is sent up than down but both amounts are significant.

Armed with these definitions we can now look at some other useful terms.

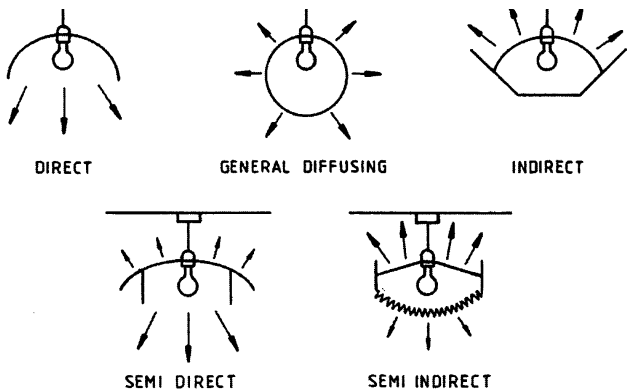


Figure M3-1 Picture of light distribution

3.1.2 Uplight

The majority of rooms in the home have light coloured ceilings which provide good diffuse reflection and are suitable for some form of UPLIGHT. An uplight is an indirect lighting system where the luminaire directs all of its light towards the ceiling to be reflected downwards.

3.1.3 Downlight

The term DOWNLIGHT is used rather loosely for any fitting which directs the light downwards in a direct lighting situation. It should strictly only be applied to those luminaires with special design to limit side spill.

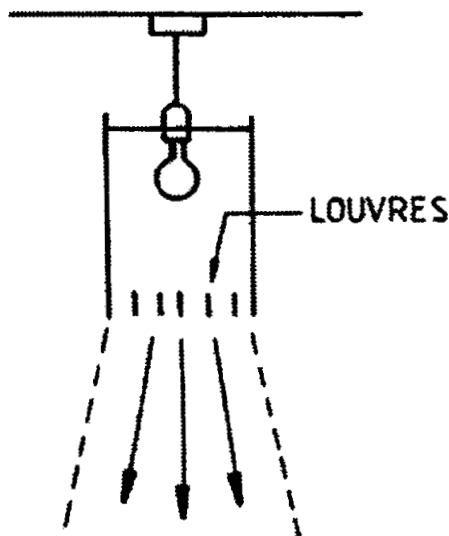


Figure M302 A true downlighter

3.1.4 Sidespill

As it indicates, SIDESPILL means light which comes out sideways from luminaires and which is not really desirable as it tends to produce glare. For example, true downlights provide illumination of a limited area beneath them and the light source is not visible from the side.

3.1.5 General lighting

GENERAL LIGHTING is provided by a luminaire or group of luminaires to give an even, overall lighting effect to a whole room.

Module 4

Designing Home Lighting

Introduction

The fundamental requirements of good home lighting

Lighting is an essential 'comfort' ingredient of home life which should not be restricted to simply ensuring that there is sufficient light to be able to read, prepare a meal, etc. as it is also a critical element in determining how pleasant and suitable the overall visual scene will be within each of the various rooms and areas of a home.

The three fundamental requirements of good home lighting are that:

1. the light fittings are of a style, size, shape and colour which is compatible with the furnishings, dimensions and decor of the interior.
2. together with the incorporated lamps, the light fittings provide sufficient light for the likely visual tasks and for safety of movement.
3. the manner in which the lighting fittings distribute light throughout the interior, coupled with the colour characteristics of the lamps, create an attractive and appropriate visual scene.

It must be appreciated that people's likes and dislikes vary and, although there are certain guidelines and rules which assist in the design of home lighting and selection of light fittings, the ultimate decisions should be taken by the occupants of the home, they have to live with and be happy with the final result.

The fact that many people seem to be content with poor or mediocre home lighting is because they are not aware that something better and more appropriate can be achieved and it is in this context that advice, relating to the above criteria, should be offered.

This Module looks at some of the principles of lighting design in relation to interior decor. There is no intention to try to turn you into a designer of lighting schemes, rather it is hoped that an improved understanding of some of the principles will be of help to you in designing and assisting your customers to reach a purchasing decision.

On completing it you should have an increased awareness of:

- the importance of size and shape of pendant and wall fittings in a room and how the effect of size can be investigated.
- the approximate illuminance values required for activities about the house and the factors affecting illuminance.
- how the required illuminance may be achieved for different light distribution systems. The importance of light distribution and colour in creating an attractive interior.
- the various functions of exterior lighting and the types of luminaire to be used most effectively outside.

Section One

Style, size, shape and colour of light fittings

4.1.1 Style

This should be compatible with that of the furnishings and decor of the interior. It may be suggested that interior lighting fittings should conform with architectural period or style of the property but this will result in conflict in those instances where the interior has been decorated and furnished in a different style/period from that of the property itself.

Typical examples of this are where a very modern house is furnished in a Georgian or Victorian style or, the converse of this, where the interior of an Edwardian house is furnished and decorated in a modern style.

Whilst the general style/period categories, Modern, Victorian, Art Deco, Oriental, etc. give some guidance, allowance must be made for different interpretations of such descriptions plus the fact that within each category there are any number of variants.

Apart from the sub-divisions of each category, these variations may require the lighting fittings to be made of certain materials or have specific types of finish such as light or dark wood, bright or dull metal, crystal glass and so on.

4.1.2 Size

In some instances the sizes of light fittings are limited by practical considerations, such as whether the ceiling height is sufficient to allow the use of a pendant type fitting, but apart from such constraints the sizes of light fittings should relate to the dimensions and proportions of a room and/or its furnishings.

Module 5

Safety & Law

Introduction

Salespeople in their shop or store, like all of us are surrounded by rules and regulations. They are intended to make life safe and smooth running but they can be very involved and sometimes even seem to be aimed at making life difficult.

There are three areas in which the Law applies to you in your work and in which you have some responsibility whatever your position in the store:

1. Your responsibility to sell safe goods as dealt with mainly by The Consumer Protection Act 1987,
2. Your responsibility to bring about fair and lawful transactions. In legal terms a sale is a contract which must be fair, lawful and enforceable on both sides. This is covered mainly by The Sale of Goods Act 1979 and partly by The Consumer Protection Act 1987.
3. Your responsibility for the Health and Safety of yourself, colleagues and customers stated in Workplace (Health, Safety and Welfare) Regulations 1992.

First a word of warning

For the laws to be effective they have to allow for all the variables and situations occurring in the millions of transactions which take place daily in this country. So they do become extremely involved and complicated. The laws also have to change in detail to keep up with new devices and developments which are introduced.

We cannot possibly go through all the legal points here, all we can hope to do is look briefly at some of the main regulations relevant to our work and get to know the important sources of reference. So this must not be taken as an authoritative legal document but merely as an introduction to the topic for those to whom this is a new field.

Although the laws have generally been created to protect the customer from the unscrupulous dealer, trades people must benefit from the trust generated in customers and by the existence and enforcement of the Laws; and, don't forget, all of us are customers some of the time!

Variations in the Law in the U.K.

Because of the separate provision for legal administration in Scotland (and to some extent in northern Ireland) students working in these areas had best make reference to their own local sources of information. The principles of the Laws are the same in all areas of the U.K. and, in most cases, the details are equivalent but the terms used and the paths through legal procedures can be quite different.

Throughout this module we will look at these three aspects of the Law in a bit more detail. On completion, you will:

- Have a basic understanding of the areas of the law which affect your work.
- Be aware of your legal responsibilities as a salesperson.
- Know the best source of reference if problems arise.
- Be able to do some basic safety checks on your stock.
- Be able to recognise all the labels and safety markings which are used on luminaires.

Section One

Safety

Today a large proportion of the merchandise which is in all stores is potentially harmful and the products in the lighting store are no exception. Indeed, the majority of electrical lighting products have the double-edged menace of electrocution and fire hazard to threaten us. This is why it is essential to maintain basic safety procedures in manufacture, handling, installation and use.

5.1.1 The law relating to the retail trade concerning unsafe goods

From October 1987 it has become a criminal offence to supply unsafe consumer goods in the United Kingdom. Enforcement of this Law is the responsibility of your local Trading Standards Department.

The General Product Safety Regulations 2005 make it a criminal offence to possess for supply consumer goods which are not safe under normal or reasonably foreseeable conditions of use.

The safety of a product will be assessed having regard to a number of matters and, in particular:

- the product's characteristics.
- packaging.
- instructions for assembly and maintenance, use and disposal.
- the effect on other information provided for the consumer, and
- the categories of consumers at risk when using the product, particularly children and the elderly.

Module 5

Safety & Law

A "safe product" is any product which under normal or reasonably foreseeable conditions of use presents no risk or only minimum risk compatible with the product's use and which is consistent with a high level of protection for consumers.

A product which is not "safe" is considered by the Regulations, to be "dangerous",

We will look more closely at the difficulty of defining a safe luminaire a little later. A court must have some criteria to judge whether a product is reasonably safe and this is why the above circumstances have to be taken into account.

In addition to the General Product Safety Regulations, luminaires having a supply voltage greater than 50V are also governed by the UK Electrical Equipment (safety) Regulations 1994 which also require provision of safe products.

5.1.2 Who can be prosecuted?

Under the Consumer Protection Act 1987 anyone supplying the goods or possessing the goods for supply is committing an offence and can be held responsible. This includes the retailer as well as the rest of the chain of supply.

and remember!

A sale does **not** need to take place, nor an accident to have occurred, for action to be taken against the supplier.

Neither is there any requirement for the prosecution to show intent on the part of the trader or his employee. In other words, it is not necessary for the prosecution to prove in court that the trader was aware that the goods were unsafe.

5.1.3 What defence does the retailer have?

Retailers do have an important defence. That is if they have no grounds for suspecting that the goods fail to comply with the general safety requirement or in other words, the statutory defences of reasonable precautions and due diligence are available to traders and their employees.

For example, if a luminaire was found to have faulty internal wiring and was therefore unsafe, the retailer who stocked the lamp couldn't have known it was faulty without taking it apart. As long as they had taken care when buying the luminaire from their supplier that it complied with the regulations, this would provide a defence.

If, on the other hand, a luminaire was found to be incorrectly labelled or not labelled at all, this is something of which the retailer should have been aware. The retailer could be found to have not taken all reasonable precautions.

5.1.4 What if damage or injury is caused by an unsafe product?

This is where the Civil Law also becomes involved! As far as compensation for damage is concerned, the Law now (since March 1988) allows for **anyone** suffering as a result of a defective product, (not just the purchaser), to sue the supplier (Consumer Protection Act 1987). So if a defective luminaire causes injury, or kills, or sets fire to property, etc. anyone suffering can sue.

This, however, will not normally involve retailers in the liability. Only if they fail to identify their supplier can the retailer be subject to action. This way the law ensures that the wronged party can always pin responsibility on someone.

5.1.5 What is safe?

In this and following sections we will look at the various precautions which you as retailers can take to ensure your products are as safe as possible.

Before looking at how we can tell if a product is safe, it is worth considering what 'safe' actually means. The safety of a product is very much related to its uses and its user. A car cannot be considered safe in the hands of a non-driver and nor would it be accepted as safe to peel potatoes with a butcher's knife and yet both items are 'safe' in the right situation. The D.T.I. employs the term 'a reasonable level of safety' vague perhaps, but necessary since 'absolutely safe' remains unattainable.

There are two interesting examples among our products where safety standards respond to particular interpretations of 'reasonableness', and which show how standards change with time.

Example 1

If anyone given the job of designing a connector for a lamp at the present time came up with a device which consisted of an aperture of well over 20mm diameter with two metal pins a few millimetres below the opening carrying 240 volts between them, it would not be allowed out of the design office! The standard bayonet lamp socket allows the easiest access to mains voltage in our homes, a child can get several fingers in the supply.

The Edison screw fitting is sometimes mentioned as being a 'safer' connector for lamps. It allows for a more positive electrical connection and this is why it is preferred for larger wattage lamps, but the device still has the live terminal accessible to probing fingers even though it is at the bottom of the socket.

Optional Module I

Basic Sales Technique

Introduction

So, you are a relatively new salesperson in a store which sells lighting and you've been asked (or have yourself asked) to take this Course. You've read the overall introduction and have some idea of what information the course will contain and how to go about it. This module intends to deal with "Selling", at first in general terms and then in specifics and will try to give you some techniques, ideas and tips that can be of help in your day-to-day sales work.

You will not find this module mentioned in the overall introduction because it is your choice from the three optional modules. All the hints and information still apply however, and when you have completed this module you will move on to the core Product Knowledge Modules.

One of the first things for you to remember as a 'lighting' salesperson is that 95% of the people who enter your store or department are doing so for a particular purpose. They might go into W.H.Smith's for a 'free read' in the magazine section, or wander into Marks & Spencer to check out the latest clothing fashions (without any real intention of buying), but they rarely go into a specialist lighting retailers, or the lighting department of a department store or D.I. Y shed unless they've got a specific reason for doing so. It may be just to buy a new bulb for their table lamp, but whatever their reason, they've got one.

That means that you don't have to worry about being rebuffed when you approach them. 95% of the people who enter your store are there because they want your help and 4.8% of the remaining 5% will at least be polite while saying "No thanks, I'm just browsing". That should make most of your contacts relatively easy. So, what do you need to do to turn those contacts into sales?

First of all you need to **know yourself**, to analyse yourself, or to paraphrase Robert Burns, to "see yourself as others see you".

Second you need to have a pretty good **knowledge of the merchandise** you are trying to sell.

Finally, you need to have some **knowledge of the mechanics of "selling"** and of the techniques which you can use to help your customers select the best product to meet their needs.

Optional Module 2

Marketing for Retailers

Introduction

This module takes a broad look at Marketing, a set of activities which can dramatically increase sales, yet which many lighting retailers have still to capitalise on. Every retailer does some marketing. The variations lie in how much and how often.

Marketing is more than selling. It's the total of all the work that goes into and supports the making of a sale.

At one level, Marketing can be a jargon-filled world filled with buzz words and bewildering statistical analysis and formulae. It's a world peopled by academics and grand planners. Its theories are much talked about and examined in educational establishments, and perhaps applied by some multi-national companies.

However, there is a practical side to Marketing, one which has lessons and methods that any lighting retail shop staff can learn from and put to good use. A practical programme which doesn't demand huge amounts of time is invaluable in giving retail businesses a strong sense of direction and increased profitability.

From the lighting retailer's standpoint, Marketing is about working out exactly who your likely customers are, what those customers need or desire, stocking the products to meet those needs and desires, and attracting the customer into the shop so they buy your goods and you make a profit.

What lies ahead

This module will give you an outline of the basic Marketing techniques and tools available.

The objective is to enable you to piece together a useful, attainable, Marketing Plan for your shop.

- In section One we stress the importance of analysing who your present customers are and deciding who your potential customers are likely to be. We suggest ways to do this.
- In Section Two we discuss the Needs and Desires of each of the target groups of customers, and how they differ.
- Section Three begins to work out a plan of Marketing action taking in PPPS -Product, Price, Promotion and Service.
- Section Four looks at how the business can develop a strong, positive corporate image.
- The subsequent sections discuss the various options open to a lighting retailer in developing a Marketing Plan. These include: Shop window and in-store displays; Polite, well-informed service; Point-of-sale literature; Wrapping paper and carrier bags. Ways to use newspapers and radio stations; Direct Mail; Yellow pages; Outdoor and other advertising; Use of personalities.
- The final section shows how to piece together the items suitable for your business, and formulate a planned Marketing campaign stretching over 12 months.

- d) If a television is to be positioned in the corner marked A in the room, will this affect the lighting layout you have decided upon? What light factors would you wish to consider in relation to this use of corner A?
- e) If the position marked B is to be occupied mainly by a person carrying out their hobby of lace making, what effect would this have on your lighting scheme?
- f) With reference to 4.3.9 suggest a way of achieving the required illuminance at position B using just local lighting?
Give details and reasons for the setup you envisage.

