



SMART GARAGE
GUIDE

SAVE MONEY AND IMPROVE THE PERFORMANCE OF YOUR GARAGE



The Nuts and Bolts of this Booklet

This booklet is aimed at the promotion of best practice in Irish garages. It outlines the different ways you can save money through small changes in the way you do your day to day work. By following the recommendations in this booklet, you can

- i SAVE MONEY**
- i MAKE A SAFER ENVIRONMENT FOR PEOPLE TO WORK IN**
- i SATISFY THE ENVIRONMENTAL LAWS THAT APPLY TO IRISH GARAGES**
- i REDUCE THE ENVIRONMENTAL IMPACTS OF YOUR BUSINESS**

There are many different wastes produced by the garage sector, many of which are hazardous. This booklet will outline how the various laws apply to each of these **and** how to best manage them. By doing this you can cut down on the amount of wastes you produce, save money and make sure you are not liable to prosecution.



The booklet deals with the main day to day operations of a typical garage under the headings of **Energy, Waste, Water** and **Documentation**. For each of the main headings there is a brief introduction, followed by information on best practice options, as well as the laws that apply to each area. At the end of each section there is a checklist which outlines:



MUST DO!

(1) Things you must do

These are the laws.



TRY TO DO!

(2) Things you should try and do

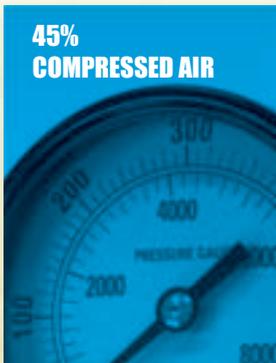
These will help improve your garage performance and save you as much money as possible.

Remember, through preventing wastes you save yourself money and protect the environment at the same time!



Energy...

Energy is the main cost for most garages each month. This is mainly due to electricity and while there is now increased competition in the electricity market, electricity costs are still on the rise. The main areas where electricity is used in Irish garages are:



Each of these main electricity using areas will be discussed individually. After each there is a checklist to help you help you identify saving opportunities.

i Saving money on electricity bills!

It is easy to make savings on your electricity bills by making sure that these areas are properly managed and maintained.

One Irish garage reduced their electricity bills by 20% in 6 months by improving the way they used compressed air and lights around their garage. This cost them no money, it just involved a change in the way they did things!



ENERGY - COMPRESSED AIR**Compressed Air...****Take the pressure off your electricity bills**

Producing compressed air is expensive as it uses a lot of electricity and is the largest part of most garages' electricity bills. To see the effect compressed air has on your electricity use, watch your electricity meter the next time your compressor kicks in. It flies around compared with when the compressor is off. So, you can make big savings if you make sure you manage your compressed air properly.

35%
FIXING LEAKS

These are the main areas where savings can be made across your compressed air system...

32%
BETTER CONTROL AND MAINTENANCE

20%
IMPROVED AIR TREATMENT

13%
OTHER MEASURES

FIXING LEAKS

The biggest problem, and the biggest waste of money, with compressed air use in garages is leaks - even a small leak can cost you money. Most leaks are found at fittings and at joints but small holes in hoses are also common. Usually leaks are not repaired straight away and, in most cases, they are only patched up and start leaking again quickly.



€easy Savings!
Compressed air leaking through a single 3mm hole could cost you as much as €700 a year!

By checking your system regularly for leaks and repairing them straight away you can make sure you are not wasting money.

ENERGY - COMPRESSED AIR

There are 3 main ways to find air leaks:

(For the majority of garages the first two options work perfectly well)

Listen



By listening you can identify the majority of leaks. Make sure you do this when it is quiet (after work) and there are no air tools in use. You can also try running your hand along the line to feel for leaks.

Look



Looking - if you can't identify exactly where a leak is by listening, then put some soapy water along the pipework. Using a sponge, soft paintbrush or spray bottle will help you cover all joints, flanges and valves. If there is a leak, you should be able to see the soap liquid bubbling up.



Detect

Detection - this is mainly for large complicated sites where ultrasonic leak detection equipment is the best way to locate all leaks.

Once you have identified leaks make sure you fix them properly!

When repairing any compressed air system make sure you consider the following:

- ✓ Compressed air can be dangerous so you should always make sure that the system is completely de-pressurised before attempting any repair.
- ✓ In low-pressure systems, which are the ones mainly used in garages, it is usually possible to 'patch' small leaks with a sealant or patch but this repair method should only be a temporary measure.
- ✓ Otherwise, replace or remove damaged fixtures and fittings. Tighten and seal any suspect joints, valves and flanges (use PTFE Teflon tape) and then recheck them.
- ✓ If there is little improvement it could be that an internal seal or washer has perished and needs to be replaced.



ENERGY - COMPRESSED AIR**TRY TO DO!**

The following checklist gives you an idea of the easiest ways to make sure you are not wasting electricity and money on compressed air.

ELECTRICITY USE BEST PRACTICES What you should do with compressed air	Are you doing it?
<p>Check the compressor, hoses and other piping and fittings for leaks regularly. Weekly is best.</p>	
<p>Generate compressed air close to where it is used – the longer the pipes the bigger the chance of leaks.</p>	
<p>Turn air compressors off when they are not needed e.g. lunch time. If there are no leaks in the system the pressure won't drop.</p>	
<p>Don't use too high a pressure in your system – 7 bar should be fine for garage work. The higher the pressure the higher the cost!</p>	
<p>Take the input air from a cool source – if the compressor is in a hot room, fit a pipe that leads outside to supply the air.</p>	
<p>Clean air inlet filters regularly - these cost only a few cents but can save you euros!</p>	
<p>If you are buying a new compressor invest in a good quality type (e.g. variable speed drive). They are more expensive to buy but cheaper by far in the long run. They are also quieter and this makes a big difference in small garages.</p>	
<p>Many leaks occur in hoses, especially if they are left on the ground. Use retractable hoses to save on this expense.</p>	
<p>If you have a public air supply for tyres or use it for a car wash, make sure these are checked for compressed air leaks daily. These are usually away from the main part of the garage and can be leaking for quite a while if not checked regularly.</p>	
<p>Inform workers of the costs of producing compressed air.</p>	

ELECTRICITY - LIGHTING

See the light... and save money from your lighting

Lights are usually turned on for the whole day in garages so lighting can be a big part of your electricity costs. There are three main parts to your lighting: **bulbs, housings (reflective fittings) and controls (switches & timers)**. Obviously bulbs are essential but equally important are the housings and controls. Good housings can improve lighting by 100% - this means you only use 2 bulbs instead of 4, allowing you to halve your costs while maintaining the same level of lighting. People are the main reason for lights being left on when they aren't needed. Good lighting controls can help with this.

Before we even get to the electricians, there may be savings to be made on daylight. Many garages have skylights resulting in much more light getting in without the expense of changing all their lights. Remember, these get dirty over time and they should be cleaned at least every 4 years. This can make a huge difference.



CASE STUDY

Recently a large garage was going to change all their fittings for brighter lights. Instead they cleaned the skylights with huge improvements in the light getting in and didn't need to change their light fittings at all.



**In general, there are 3 main ways you can reduce
ENERGY EFFICIENT BULBS • REFLECTIVE**

ELECTRICITY - LIGHTING

Energy Efficient Bulbs

For most garages bulbs are only changed as the old bulbs fail. If this is the case in your garage make sure you replace them with efficient ones - even though they cost more you will save money every time you use them - especially if you have lights on all day in your garage. The costs of completely overhauling your lighting system may not make sense if you run a small garage but remember, everyone will make the same saving per bulb. However, if you have a large fleet or franchise garage it may be worth getting an energy audit done. This will provide advice on all aspects of energy management in your garage as well as costs and payback periods.

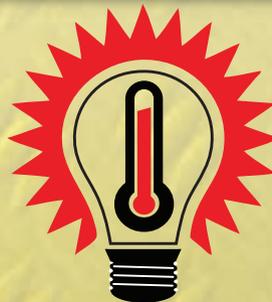
There are so many types of bulbs now available that it can be very confusing to know what is right for your garage. Most garages will use fluorescent strip bulbs on the ceiling, regular tungsten bulbs for drop lights and work lights and where used, halogen lights in work stands.



CASE STUDY

A large Dublin garage recently reduced their electricity costs by 17% based on the lighting changes they made after an energy audit!

As a general rule, if your bulb is giving off a lot of heat then you could probably get a more efficient one. The following pages give information on the main bulbs in use in Irish garages along with typical savings you can make.



**Reduce the amount of money you spend on lighting:
E HOUSINGS • LIGHTING CONTROLS**

ELECTRICITY - LIGHTING

BULB TYPE	ALTERNATIVE	COMMENTS
<p>Incandescent or tungsten bulbs</p>  <p>A 100W bulb running all day will cost you €42 a year.</p>	<p>Compact Fluorescent Lights (CFLs) & Light Emitting Diodes (LEDs)</p>  <p>A 20W equivalent CFL bulb will cost you €8 a year - SAVING OF €34 PER BULB EACH YEAR</p> <p>A 4W equivalent LED bulb will cost you €1.66 a year - SAVING OVER €40 PER BULB EACH YEAR!</p>	<p>Tungsten bulbs, the traditional type of bulb, generate a lot of heat when being used. This is a waste of electricity and CFLs, the typical energy saving bulbs, give off the same light but generate much less heat. They save up to 70% on electricity costs.</p> <p>While CFLs and LEDs are more expensive to buy don't forget they last much longer. Compared to an incandescent bulb CFLs last 8 times longer and LEDs last 20 times longer.</p>
<p>Fluorescent tube</p>  <p>A 58W bulb running all day will cost you €24 a year.</p>	<p>The Smaller T8 and T5 fluorescent tubes</p>  <p>A 28W T5 equivalent will cost you €12 a year - A SAVING OF €12 PER TUBE EACH YEAR</p>	<p>Strip fluorescent bulbs are common in garages but there are different types and these use different amounts of electricity. To know how much electricity your bulbs are using look at the end of the bulb for a number like: TLD 58W/33. The important part is the 58W - this is the amount of electricity used.</p> <p>The lower this number the better. The first fluorescent tube used was the T-12. These wide tubes have been replaced by the narrower and more efficient T-8 and T-5. T-8s can replace T-12s directly, T-5s require changed fittings or special adaptors.</p>
<p>Incandescent spot lights or downlighters</p>  <p>A 50W bulb running all day will cost you €21 a year.</p>	<p>CFLs and LEDs</p>  <p>An 11w equivalent CFL will save you €16 per bulb each year while A 3W LED WILL SAVE €20</p>	<p>Spot lights or downlighters have become popular in recent years and are often found in show rooms and offices. They are very inefficient and tend to blow or fail a lot due to the large amount of heat they generate. There are replacement CFLs and LEDs now available. These fit straight into old fittings, use less electricity and due to less heat generated last of much longer.</p> <p>While CFLs and LEDs are more expensive to buy, don't forget they last much longer!</p>

① Ask your local electrical supplier for more information on the energy efficient bulbs and fluorescent tubes they have available.

ELECTRICITY - LIGHTING

For the larger garages...

Larger garages that are in warehouse type buildings and use external flood lights, could consider other alternatives. There are new bulbs coming on the market all the time and these are designed to save you money on your lighting bills. Some of the newer bulbs are described here.

BULBS	DESCRIPTION
<p>Discharge lamps</p> 	<p>Discharge lamps, like sodium street lights and the metal halide ones used in warehouses and larger garages, are very efficient and have a long life span. They are usually take a little time to warm up but use little electricity and are ideal in large garages where lighting is used all day.</p>
<p>Light Emitting Diodes (LEDs)</p> 	<p>LEDs are very efficient lights and are used in all applications. In garages they are now used regularly for work lights as they are more durable, provide very good clean light, do not generate heat and last much longer.</p> <p>They are now being used for floodlights. While expensive to install they will pay back the investment in under two years.</p>

Housings

How bulbs are used can be as important as the bulbs themselves. Housings reflect light and a good housing will allow less bulbs to be used (for the same light given out). As a rule of thumb: good reflectors permit the removal of two lamps from a dirty four-lamp fixture. If you don't have housings for your lights using good reflective paint can be just as effective.

Housings are dust traps – so beware!

Dirt build-up in garage lights can be significant and this affects both the bulb and housing. Not only does dust reduce the amount of the light coming out (you can lose up to 35 percent of the light output from a dirty fitting) but it also reduces the lifetime of the bulbs.

Some larger garages use metal halide lights. These are usually very high up and can only be accessed with a cherry picker. Some of these have a glass cover over the fitting - this prevents dirt buildup on the bulb and the reflectors. If you don't have these it is a good idea to get them fitted the next time you are changing your bulbs. Make sure to get the fittings cleaned each time you change bulbs.



ELECTRICITY - LIGHTING

Lighting Controls

People are good at turning lights on but not so good at turning them off - every household and business is affected by this. Lighting controls are a good way of reducing lighting costs, especially in areas that don't need light all the time. The main types of controls are:

Manual. Make sure that all light switches are labelled. Where possible try not have all the lights on one switch. Instead arrange lights so that they are controlled in banks - especially if you have light coming into the front of garage where you may not need lights on all the time and have darker areas at the back where lights are needed all day.

Motion sensors. These are very useful in toilets, stores and other areas that are not used all the time. Lights can be left on all day in these locations without anyone noticing, and motion sensors can eliminate this problem.

Time controls. If the working hours in a garage are fixed then it may be worth installing a time switch so that most of the lighting is switched off at that time.

Photo-electric controls. These control lighting based on the amount of natural light present. These ensure that lighting is turned off when daylight alone provides the required light.

The best control setup is mixed control. In general, a mixed control system (using a number of the above controls), based on what is best needed in your particular garage.

Whatever control systems are chosen you should always have a manual control!



TRY TO DO!

ELECTRICITY USE BEST PRACTICES

What you should do with lighting

ARE YOU DOING IT?

Use energy efficient and long life bulbs - they can give you up to 70% savings on your electricity bill.

Can fewer lights be used ?
Cleaning the lighting housings and/or painting the roof with reflective paint, will give more light from your fittings.

If you have skylights in your garage clean them regularly. You'll be amazed the difference this can make.

Use timers and motion sensors in areas where lights are used infrequently but are often left on all day, e.g. toilets, stores.

Label all light switches.

Ensure all lights are turned off when they are not needed (inform staff).

ELECTRICITY - OTHER AREAS

The other areas to think about...

Even though compressed air and lighting may be your biggest costs there are still other ways to make sure you are not wasting money on electricity. For example, many garages will use plug in 'blow heaters' around the garage and in offices. These are often left on all day and can be expensive to run, especially in draughty buildings.

One garage saved money by draught proofing the building and putting a porch door on the office area to keep in the heat.



The following checklist gives an overview of some of the different things Irish garages could do to reduce their electricity costs.



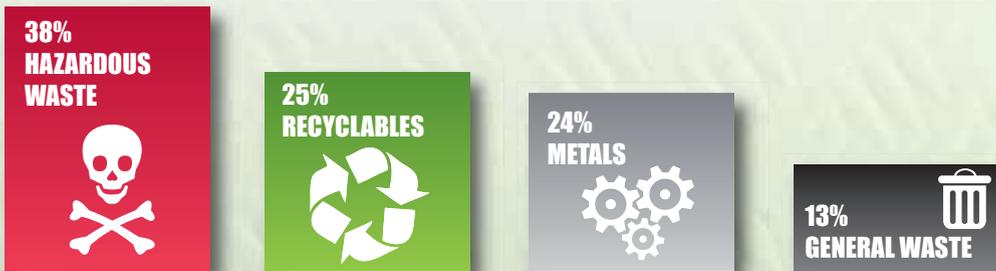
TRY TO DO!	ELECTRICITY USE BEST PRACTICES What you should do around the site	ARE YOU DOING IT?
	Read your electricity meter on the first day of each month and submit the reading to your supplier (by phone or internet) – this means you are only paying for what you use each month.	
	Are you on the right electricity tariff? Talk to your supplier to get the best deal for your garage. Usually the General Purpose tariff is the correct one for Irish garages.	
	If you charge batteries and other rechargeables then it may be worth being on a General Purpose Night Rate - this has reduced rates for night electricity so you can charge these for less overnight.	
	Investigate alternative electricity suppliers – there are savings to be made!	
	Examine your bills for wattless charges. If you have wattless charges on your bill something isn't working properly (probably a motor on a lift) – get your electrician in to check this out.	
	Switch off office equipment when not in use (especially on weekends and holidays).	
	Purchase 'A' rated electrical equipment – they may be more expensive to buy but will save you money in the long run.	



Waste...

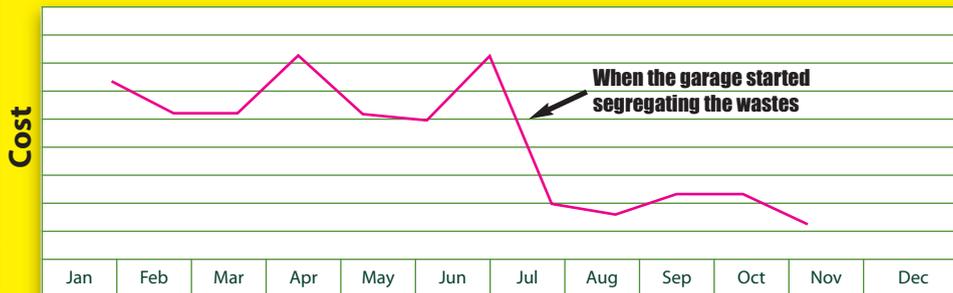
Most Irish garages separate their main hazardous wastes (waste oil and used oil filters) but the majority of other wastes often ends up in either an open skip or wheelie bins. While this is the traditional way of doing things it is also the most expensive way. The cost of mixed wastes has been increasing steadily and in the future is expected to increase even more. By managing your wastes correctly you should keep as much waste as possible out of the mixed waste bin - thereby cutting costs.

The main types of mixed wastes found in Irish garage bins are:



Through separating out your metals, recyclables and hazardous wastes there is the potential to significantly reduce your waste costs. Recyclables are usually collected for free and you can get money back for metals, so through good waste segregation you can save a packet.

This is exactly what one County Cork garage did recently and halved their monthly waste bill costs. In addition to less waste going out in the mixed waste bins, they now get money back for their metals. **They saved over €6,000 in 2009 alone!**



① **And remember**, waste management has changed a lot in the past few years and there is value in metals and auto batteries. So discuss these with your waste contractors and make sure that you are getting as good a deal as possible. Also, talk to other garages in your area about getting your wastes taken away at the same time this will reduce your costs even further.

WASTE - MANAGEMENT

In this Waste section we will go through the main waste types typically generated by Irish garages and show you how best to manage your wastes and keep your costs down, while complying with the various laws.



First...

BIN YOUR SKIP!

The most important thing when it comes to mixed wastes is to get rid of a skip if you have one. Skips are magnets for waste - both yours and other people's. If you have one - go and have a look in it, you'll be surprised what you'll find in there. Skips always result in poor segregation and poor waste management.

In this picture of a skip from an Irish garage there was a lot of recyclable materials found. Skips are great for **fly tipping** of bulky goods. Garages generally don't have big bulky wastes so wheelie bins should be plenty. Skip rental is also more than the cost for a couple of wheelie bins.

The lid of this skip is also broken - each time it rains (which it does a lot in Ireland) the rubbish gets wetter, and heavier. Paper and cardboard can weigh 5 times more when wet. Rainwater will also gather at the bottom of the skip and the heavier it is the more you'll have to pay more to get rid of it! And while this is very common in skips (even closed ones - they are never that well sealed) an open wheelie bin will give you the same problems.



TRY TO DO!

IT HAS BEEN FOUND THAT BY REMOVING A MIXED WASTE SKIP, YOUR WASTE CHARGES WILL USUALLY DROP BY AT LEAST 1/3!

WASTE - MANAGEMENT

Second...

SEGREGATE YOUR WASTES

Segregate your wastes especially Metals & Recyclables.

Of all the wastes generated in garages the one that is most commonly incorrectly thrown into the regular waste bin is metal. If you collect your metal waste separately, then instead of paying for it to be collected, you can get money for it! Things like screws, brake pads (but not the old ones containing asbestos which are hazardous), shavings and any other metal wastes should be kept in a separate container. Usually a waste contractor will give you a small drum to keep metal waste in - have a chat with them about this.

In addition to metal you are required by law to recycle the things that are recycled at home. The main recyclable materials from garages are:

MATERIAL	COMMENT
Cardboard	Lots of this is generated in garages from motor factor supplies. When cardboard gets wet it can weigh up to 5 times more. If you have a recycling bin always keep it closed.
Paper	Paper instructions from parts, office paper and newspapers are all commonly generated in garages. Like cardboard, store in a recyclable bin and keep dry.
Plastics	While some plastic containers cannot be recycled from garages (e.g. those that contain oil) many can be - especially drink bottles, milk bottles, sandwich containers. Make sure they have been emptied first.
Tins and cans	Tin cans can be put in with the metal wastes - this will make you money instead of costing you. These are usually quite light in weight but should always be kept out of the regular bin.



CASE STUDY

A lack of space is often the main reason people don't segregate wastes. One Dublin garage has got around this problem and have been able to remove their mixed waste bin completely. They now have 3 bins on a small wheeled unit. Each bin is a different colour - one for metal, one for recyclables and one for hazardous wastes. This can be brought exactly where it is needed around the garage and saves on time and hassle for the mechanics.



Third...

CONSIDER OTHER AREAS

Consider the other areas around the garage.

- ① **If you have an office and/or a canteen** in your garage then don't forget about them. Canteens are often the biggest producers of waste because of the weight of food waste. Make sure you segregate your food packaging here. Contact your local authority about this or for more information on the regulations visit www.foodwaste.ie
- ① If you have an office, make sure that you **print double sided where you can**, and also recycle (or better again, reuse) your printer cartridges.
- ① So, if you **manage your wastes properly**, then your black bag/bin rubbish should be quite small. As this is expensive, the more you reduce it, the less you pay. If you find you still have more than you expect, just have a quick look through the bin before it is removed - you'd be surprised what you'll find in there.
- ① Finally, make sure you **talk to your waste contractors** about your wastes and how best to manage them. Waste management has changed a lot in the past few years and there are savings to be made through good waste management.

This checklist summarises the main tips for reducing your mixed waste costs.

WASTES	 GENERAL WASTE BEST PRACTICES What you should do around the site	ARE YOU DOING IT?
Metal	Always separate your metal wastes - metal is heavy and can cost you if thrown out in the mixed rubbish. Ask your waste contractors if they will take it for free, or better yet, give you money for it.	
Recyclables	Segregate as much of your recyclable wastes as you can. Using clear plastic bags is good for this. Always try and do your segregation as close to where the waste is generated as possible. Doing this when you generate it (at source) can save you money. If space is a problem, consider something like the portable bins shown above.	
General Wastes	Always keep the lid on your bin or skip closed. Water is heavy and could cost you money to be taken away!	
	Try and get suppliers to use less packaging and get parts without all the additional packaging materials - less materials for you to deal with.	
	Use double sided printing and photocopying if you can.	
	Recycle printer and toner cartridges.	

WASTE - MANAGEMENT

Finally...

MANAGE HAZARDOUS WASTE

Finally, and most importantly, manage your Hazardous Wastes correctly. There are many different laws that apply to how Irish garages must manage their hazardous wastes. These can be confusing and difficult to figure out. This section will outline how the different types of wastes should be managed and at the end there are a number of tips that can save you money and make sure you comply with all the relevant laws.

Some hazardous wastes end up in the general waste bin so make sure you take care with these. The main ones are:

- i** **Oily rags** should be managed separately as they are hazardous and can catch fire easily.
- i** **Oily fines, which is mainly saw dust** used to clean up spills around the garage. This should not be thrown in the mixed wastes but managed with the oily rags (oily air filters should also go in with these).
- i** Other hazardous wastes, refers to things that should not have been in the bin - **oil filters, aerosols, waste electrical equipment, and oily air filters.**

Remember, if your hazardous wastes are not managed properly there are serious consequences for the garage. There are fines and possible imprisonment for offenders, so it is important to know what you should do with each different waste.

YOUR WASTE CONTRACTORS AND YOUR PAPERWORK

Keep records when you have hazardous wastes taken from your garage to prove that you have managed your hazardous wastes properly. **The following 3 points are very important to know.**

- i** Make sure you have the **relevant waste licence** and/or permit numbers from the people that take the hazardous wastes from your garage. You can ask them when they come to your garage or get them to send it to you at the start of the year. If they have a licence/permit they must manage your wastes correctly and it also protects you if they do anything wrong with your wastes. If you give your hazardous wastes to someone without the appropriate licence/permit then you may be liable to prosecution. To get a list of companies permitted to collect hazardous waste in your county contact the Environment section of your local authority.
- i** **For waste oil you must keep your records for a minimum of two years** and the waste docket must contain information on the volume/quantity of oil removed.
- i** **For all other hazardous wastes you should keep your records for a minimum of 3 years** and each docket should be accompanied by a form called a Consignment Note - or a C1 form. Make sure this is filled out completely by your waste contractor.

WASTE - MANAGEMENT

Hazardous wastes and how you must manage them!

This Section goes through the main hazardous wastes that might come from your garage and how you must manage them according to laws. More detailed information is available in the Garage Sector Best Practice Guidance Notes document available at www.epa.ie.

HAZARDOUS MATERIAL	MUST DO!	SOME TIPS!
<p>WASTE OIL</p>  <p>IS A HAZARDOUS WASTE!</p>	 <p>Always store waste oil in a suitable drum or metal storage tanks.</p> <p>Never burn waste oil in a (waste) oil burner - it is illegal and may pose a risk to you and your employees health.</p> <p>Ensure that your waste oil is only removed by a permitted waste collector and you always obtain a written record from them.</p> <p>Keep your oil removal records for at least 2 years.</p>	<p>One of the best things for managing waste oil is an air powered waste oil drainer. These get as much of the oil out as possible, remove it quicker, reduce spills almost completely and as they are on wheels they are easy to manoeuvre around your garage.</p>  <p>Keep your waste oil tanks or drums in a contained or "bunded" area. This should be a water tight area to catch spills or leaks. These can be built or you can get simple units.</p> 
<p>Oil filters</p> 	<p>These must be stored separately and handled as a hazardous waste.</p> <p>You must get a properly filled in C1 form when these are removed.</p>	<p>Usually these are stored in 240L wheelie bins that your waste contractor will supply.</p> <p>Make sure you drain as much oil as possible from the used filters.</p>
<p>Oily solid wastes - like rags, saw dust or air filters</p> 	<p>Oily solid waste should never be thrown into the regular rubbish. They should be stored separately in a drum and treated as a hazardous waste.</p> <p>You must get a properly filled in C1 form when these are removed.</p>	<p>Currently much of these materials end up in the general rubbish. This is one of the main areas where garages may get into legal problems for bad waste management. These can catch fire easily so treat with care.</p>

WASTE - HAZARDOUS MATERIAL

HAZARDOUS MATERIAL

MUST DO!



SOME TIPS!

Mixed fuels - petrol diesel, paraffin



Never mix with waste oils as it can make removal more expensive.

Body shop wastes (e.g. cleaners, thinners, etc.) should be managed with these.

You must get a properly filled in C1 form when these are removed.

Mixed fuels, including solvents from parts degreasing and cleaning, are classed as VOCs and are therefore hazardous.

They should be stored in a UN approved container as they are volatile and a serious fire hazard.

Always take special care when storing and handling fuel recovered from vehicles. If in doubt seek assistance from you local Fire Service.

Brake fluid and antifreeze



These can have a serious impact on water supplies and should NEVER be allowed go to the drain.

You must get a properly filled in C1 form when these are removed.

Should be stored in a labelled UN approved container.

These are usually topped up during a service but if the system has to be bled then these liquids should be stored separately and not mixed with the waste fuels or oils.

Car batteries



Make sure your batteries are sourced from validly registered producers - you can check at www.weeeregister.ie

If you supply auto batteries, (even if you are replacing one) you must:

- register with an appropriate compliance scheme
- take back batteries similar to the ones you sell and/or replace

Only transfer waste batteries to collectors that are authorised to collect them.

Ensure that these are sent to appropriately permitted or licensed waste recovery facilities.

Always store them with the lids on and keep them out of the rain. Never drain batteries.

If you are storing in a battery box, make sure the lid fits properly and rain water doesn't get in.

You can get money back on your batteries. you should discuss this with your hazardous waste contractor.

Beware of people calling to your premises to take them away - make sure they have the proper paper work. Waste batteries are often stolen from the back of garages so keep them secure.

Tyres



If you supply tyres make sure you are registered with an appropriate compliance scheme or with your local authority. There are two compliance schemes - TRACS and TWM.

You must also put up a sign indicating which scheme you are involved with.

While tyres aren't hazardous they are a special waste as they cannot be disposed of in landfills.

Only transfer waste tyres to appropriate collectors and ensure these are sent to an appropriately permitted or licensed recovery facility.

WASTE - HAZARDOUS MATERIAL

Other Wastes. Other hazardous wastes that are generated in Irish garages, though in smaller quantities, must also be managed accordingly. The following sections briefly outlines these.



HAZARDOUS MATERIAL	MUST DO!
<p>Small batteries</p> 	<p>Putting these batteries into the regular rubbish is a serious problem in Ireland. They damage landfill sealants and can poison water supplies. Battery boxes are freely available from WEEE Ireland and ERP Ireland.</p> <p>Also, most co-ops and motor factors will accept these at their counter.</p>
<p>Waste electrical and electronic equipment</p> 	<p>Not much of this is generated in garages, but what is should be stored and given to your local Civic Amenity Site , ERP Ireland or WEEE Ireland.</p>
<p>Unused airbags</p>	<p>These are a hazardous waste due to the fact they are explosive. They have a resale value so should always be kept separately and given to your waste collector.</p>
<p>Old brake pads</p> 	<p>Modern brake pads are mainly metal and should be managed with your waste metals. Older pads can contain asbestos so beware and contact your hazardous waste collector for more information on how best to manage them.</p>
<p>Fluorescent lights including tubes and CFLs</p> 	<p>These should never go in the mixed waste as they contain small amounts of mercury. Even small amounts of mercury can cause huge problems with water supplies so try and ensure that they are not broken during storage.</p> <p>Most garages use fluorescent tubes but don't go through enough to have a separate storage box for them. Keep any used ones in a safe place and when you have a few ask your hazardous waste contractor about disposal or check with your local Civic Amenity Site to see if they are willing to accept them.</p> <p>If you have a large site then it may be worth getting the appropriate storage coffin bins for storing the tubes.</p>
<p>Aerosols</p> 	<p>Used aerosols often contain highly flammable or toxic materials. They should be handled separately. As they are pressurised they pose an explosive risk.</p> <p>Should be stored in a UN approved container.</p>
<p>MACs</p> 	<p>Mobile Air Conditioning (MACs) systems often run on fluorinated greenhouse gases, which are major contributors to climate change. Therefore garages must take steps to avoid emissions by checking for leaks before and after servicing.</p> <p>If you service MACs, first you must ensure that there are no leaks or an abnormal amount of refrigerant missing before servicing. Most MAC servicing machines do a pressure test first and won't allow the next step unless the pressure test has been done successfully.</p>

WASTE - HAZARDOUS MATERIAL

Waste Checklist. The checklists below will help ensure you are complying with all the relevant waste laws. The first one sets out what you **must do** and the second what you should **consider doing**.

AREA	HAZARDOUS WASTE - MUST DO!	ARE YOU DOING THIS?
Waste Contractors	All people that remove waste (hazardous and non-hazardous) from your garage must have the correct waste licence and/or waste permit.	
Waste oil	<p>Keep records of the volumes of waste oils removed from your garage for at least 2 years.</p> <p>You must never burn waste oil - either in an oil burner (often called waste oil burners) or in an open fire.</p>	
All other hazardous wastes	Keep records of all hazardous wastes removed from your garage for at least 3 years. This includes a C1 Form which should be correctly filled in by the contractor	
Hazardous waste storage	Make sure that no hazardous wastes are put into the municipal waste stream.	
	<p>Make sure that all hazardous waste containers, including waste oil drums, are labelled.</p> <p>Make sure that hazardous wastes are not poured down the sink or into drains.</p>	
Batteries	<p>If you are a supplier of batteries you must fulfil your obligations as set out in the table on page 20.</p> <p>Keep all waste batteries intact and do not drain or dismantle.</p>	
Tyres	<p>If you supply tyres you must fulfil your obligations as set out in the table on page 20.</p> <p>Make sure that your collector of waste tyres is correctly permitted with your local authority. This collector must also either be a member of a tyre compliance scheme (e.g. TRACS or TWM) or registered with the local authority where they are based under the tyre regulations.</p>	
Packaging	Segregate and recycle your packaging wastes.	
	Keep records from your waste contractor for recyclables.	
End of Life Vehicles (ELVs)	If you generate ELVs you must forward them to an Authorised Treatment Facility (ATF).	
Mobile Air Conditioners (MAC)	If you repair MACs check for leaks before servicing. MAC Servicing should only be carried out by personnel with the appropriate qualifications. More information is available on www.fgases.ie	

WASTE - HAZARDOUS MATERIAL



AREA	HAZARDOUS WASTE - TRY TO DO!	ARE YOU DOING THIS?
Waste Contractors	Keep a written record of all your waste contractors details. A sample table is shown at the back of this booklet.	
Waste oil & hazardous waste storage	Store all waste oil and hazardous wastes in contained (bunded) areas and away from any drains.	
Hazardous waste storage	<p>Store these in the appropriate containers. These are shown in the Section that deals with Hazardous Wastes.</p> <p>Have spill containment and clean-up kits in place.</p> <p>Use different materials for cleaning up water and hazardous liquids e.g. never use a cloth that has been used for cleaning an oil spill to clean a water spill.</p>	





Water...

Up until recently most garages were not charged for the water they used. This is changing and with the switch to metered water charges, many garages are realising that water can be a significant cost. Water use in garages is limited to a small number of areas: taps, toilets, sinks, kitchen, and car washing, and if not managed carefully can be expensive.

A tap left on can use as much as 1000 litres an hour. This will cost you about €2 an hour or nearly €50 a day!

CASE STUDY

One Kerry garage, after changing to metered water, was charged over €200 for their first months bill. It was found that the cistern in the toilet was leaking and this was the reason for the high bill. After fixing the leak the bills dropped to €50 that's a saving of €150 per month.



-  **If you have a car wash this will be the obvious source of most water use on site but undetected leaks can also be a problem.**
-  **And even if you have your own well you can still save money by cutting down your water use - pumping water from your own well uses electricity and this is often a forgotten cost.**

SO, WHEN IT COMES TO WATER USE IN IRISH GARAGES THERE ARE 3 MAIN AREAS OF INTEREST:

WATER SUPPLY



WATER CONTAMINATION



CAR WASHING



WATER - SUPPLY**WATER SUPPLY**

Garages don't use a lot of water (except in car washes) so water costs should be quite low. If you have a few leaks or leave a tap running overnight, these costs won't be long in increasing. So by keeping an eye on the common problems you can keep your water costs down.

The common problems...

Like with lights, people are usually good at turning on taps but not so good at turning them off. So if you have hoses and taps at the back and side of garages, beware, these are often left running. Fit on/off nozzles or triggers to all hoses. This stops the hoses running when not used and can also provide different spray options for different needs.

After people, the most common problems in garages are damaged fittings. Replacing these is often a cheap and quick job.

- ❗ A faulty toilet can cost as much as **€1000** a year from leaking water if not fixed while a new ball cock will cost you no more than €15.
- ❗ A leaking tap, especially a hot water tap, can be very expensive. Hot water can cost as much as **10 times the cost** of cold water.

But how do I know if I have a leak?

If you are now metered it will be straight forward to check if you have leaks. When closing up for the evening or the weekend make sure that all water is turned off (don't forget to turn off urinals). Then read your water meter. Read it again first thing the next morning. If there is a difference in the numbers it means there is a leak in your system.



WATER - SUPPLY EFFICIENT FITTINGS & OTHER IDEAS

Replace old or faulty fittings

Replacing old or faulty fittings with high efficiency ones is an easy way to save money.

Taps

- Self closing taps (the ones with push tops) will always shut off... even when people forget about them!
- Aerators on your taps can reduce the amount of water you use by up to 70%. They restrict water flow from your tap without reducing the water pressure. They cost €5 to fit can save you as much as € 30 per tap each year.

Toilets

- Most old cisterns use about 15 litres per flush whereas new ones use 7 litres. By putting a brick, a filled plastic bottle or any other displacement device (e.g. hippo bag) into the cistern (for urinals or toilets) you can reduce your water use.
- Dual flush toilets are now common in modern buildings but not so much in older buildings. A retro fit kit can be bought for about €25 and this can save you as much as 6 % on your annual water bill - the costs of course depend on how often you use the toilet!
- Urinals are notorious for wasting water – they are often set up to flush much too regularly, regardless of use. There are a range of devices that can significantly reduce this.



Harvesting rainwater

Rainwater is something we have lots of. Harvesting barrels are an easy way of gathering free water for use around the garage. Barrels can be fitted under down pipes or other areas to maximise water collection. They are an ideal way to save some money on your water charges - about the only good thing about all the rain!"



If you need more information about any of these talk to your plumber or visit www.taptips.ie

WATER USE BEST PRACTICES What you should do around the site	 TRY TO DO!	ARE YOU DOING IT?
If you are fixing or replacing taps, toilets or any other water using equipment try and get efficient equipment. This is especially important for large users like car washing equipment.		
Try gathering rainwater in barrels around your site – it's free and there is plenty of it.		
If you have old or leaking fixtures fix them straight away – this is money down the drain.		
If you have a water meter then use it to check that you don't have leaks in your system. This is easy, turn off all water using equipment, read the meter before you go home and check it again the next morning. If there is a change – you have a leak!		

WATER - CONTAMINATION



WATER CONTAMINATION

One of the main issues with garages is that they are potential sources of potentially dangerous liquid wastes. **Causing water pollution, or allowing it to happen is illegal.** If it happens it can be hugely damaging - both to the environment and your pocket!

Water pollution is a serious issue for your locality. If ground - water is polluted then it is effectively ruined, and if pollution like antifreeze gets into rivers **it can kill all aquatic life.** By proper handling, storage and disposal of liquids you can ensure no pollution of your local water supply occurs.



In the previous section, options to reduce water use were outlined. Here the proper handling for various potential water pollutants are outlined:

- ① If you store waste liquids on site, make sure that the **containers are stored in a suitably sealed and contained area.** Such areas are referred to as **bunded** and should hold any liquids that spill or leak from holding containers. This picture shows a wheelie bin where used oil filters are stored. The bin is leaking and it is on open ground. This is dangerous and illegal. For information on best practice refer to the EPA's "Guidance note on Storage and Transfer of Materials" available at www.epa.ie
- ① If you are close to **rivers, streams, ponds, lakes, estuaries, or the sea** you must be very careful of polluted run off as this could be a cause for prosecution.
- ① Try to **keep storage areas covered.** Rainwater will carry spills and leaks into local waterways and sewers. For example, batteries left out in the open can fill with water and the acid can then run into the local waterways.
- ① **Clean up spills immediately.** If you have a spill, always try to sweep it up first. Then, use sawdust or spill kit materials to absorb the spilt liquids. Make sure that these wastes are then disposed of as non liquid oily wastes. They should not go in with the mixed rubbish.



WATER-CONTAMINATION

Proper handling for various potential water pollutants continued:

- ① If you have a trade effluent licence or sell petrol/diesel you should have **interceptors on your drainage systems**. An interceptor removes grease and oil, as well as solid material such as dirt, hair, glass, sand or silt from wastewater before it enters the sewer system. To work properly they should be cleaned regularly and the waste removed appropriately. In a garage, this waste is likely to be hazardous.
- ① **Don't throw hazardous materials down the sink or toilet** - this is illegal and very polluting. In areas where there is no wastewater treatment this is particularly dangerous to the local supply of drinking water.
- ① Larger generators of wastewater (usually those that wash cars regularly or have a carwash) should have a **trade effluent licence**. These are issued by your local authority and will have specific requirements for your particular site.
- ① Make sure everyone in your garage is **aware of the potential problems water pollution** can cause, in both legal and local terms.

WATER - WHAT YOU MUST DO!



ARE YOU DOING IT?

If you have a large car wash you probably need a trade discharge licence. Contact your local authority about this.

WATER-CARWASH



The use of power or high-pressure washers is common in Irish garages with the water usually draining to storm water sewers or in many rural sites, directly to surface or ground water. The detergents used and the dirt from washing can pollute receiving waters. If you are using these you may need a Trade Effluent License so contact your local authority for more information.

For power washers and self-service car washes the following should be considered:

- ① Choose hand-held spray wands and foamy brushes that use no more than 13 litres per minute. (Water Savings: 50% - 80%)
- ① Make sure each spray wand, foamy brush, or similar system has a shutoff trigger valve so that the water will not run while the system is not being used.
- ① Replace spray nozzles regularly and check for leaks. Repair the leaks as soon as they occur.
- ① Replace brass or plastic nozzles (which tend to erode more quickly) with stainless steel nozzles.
- ① Beware of compressed air leaks - car washes are often away from the main operation of a garage and air leaks can be overlooked.

WATER - CARWASH

Operating large car washers can be expensive, even after the initial start-up price has been taken care of. By using efficient water-reducing practices and technologies these costs can be reduced.

- ① A good way to cut down on water bills in large car washes is to install a **water reuse system**. Potential water savings of between 50% - 80% can be realised. An extra water saving option when using a water reuse system is to increase the wait time for the car after the final rinse – this provides a longer period in which to collect rinse water (and also reduces drying time if a blow drying system is used).
- ① If your car wash uses hot water, it may be an option to use solar panels to heat the water. Traditional water heating solar panels require a pitched roof facing in a southerly direction and a hot water storage tank. However stand alone solar panels, which are common in parts of the world where flat roofs are the norm (e.g. Greece, Spain, China), are now in use in Irish farms and other industrial locations. These units require a cold water feed and because the tank is inbuilt can be put anywhere.



TRY TO DO!

WATER USE BEST PRACTICES!

What you should do if you have a car wash

ARE YOU DOING IT?

If you have a car wash does it reuse water? Modern car washes use the last rinse water from one wash as the first cleaning water in the next wash – this can save you a lot of money.

If your car wash uses hot water can you use solar water collectors to heat the water – once these are installed you get free hot water.

If you have a do it yourself car washer make sure that all the hoses and washers have on/off triggers – customers will often forget about turning off taps and equipment.





Documentation..



Regardless of whether you are having large volumes of waste taken off site or just a small amount, each person that takes away your waste should be able to give you a copy of an up to date waste collection permit. This protects you from any legal issues that may arise if it is found that some of your wastes are managed inappropriately.

All wastes that are removed from your garage by a third party, including general rubbish must have an accompanying written record. **Remember, for hazardous waste you should get a Waste Consignment Note (C1).**

An inspector from your local authority can call at your garage and ask to see your records for the past three years!

Your local authority can call at your garage and ask to see your records for the past three years. Having all of these records on hand is a tricky thing in most garages - book keeping not being the strength of most!

It is much easier to keep a summary of the relevant information. Across is an example of summary sheets for all your waste records. The first table records all the relevant information that you must have for your waste contractors and the second will summarise all the information you should have for the wastes taken from your garage. Remember, you must still keep the original records for at least 3 years.

DOCUMENTATION**Waste Contractor Records**

WASTE TYPE	WASTE COLLECTOR	LICENCE/PERMIT REFERENCE NUMBER	ISSUING AUTHORITY
WASTE OIL	ABC Waste	WCP/LL/004/00z	
WASTE FILTERS	ABC Waste	WCP/LL/004/00z	
CAR BATTERIES	A Batteries	WCP/LL/006/09	
TYRES	ABC Waste	WCP/LL/004/00z	
GENERAL WASTE	ABC Waste	WCP/LL/004/00z	

Waste Records

WASTE TYPE	WASTE COLLECTOR	VOLUME/AMOUNT	DATE
WASTE OIL	ABC Waste	400 Lts	16th July
WASTE FILTERS	ABC Waste	80 kgs	16th July
CAR BATTERIES	A Batteries	18 x car 2 x truck	14th June
TYRES	ABC Waste	200 Tyres	11th August
GENERAL WASTE	ABC Waste	300kg	21st August

DOCUMENTATION

The law and you...

There are many different pieces of legislation that apply to Irish garages. As a result it can be difficult to know everything that you must do in your garage. The main laws that you must comply with are set out below and mainly involve waste materials. It has been found that by complying with these laws can save money and make sure you are not liable to large fines.



WASTES	HOW IT AFFECTS YOU	THE LAW
HAZARDOUS WASTES DISPOSAL	The main hazardous wastes generated in a garage must be recovered and disposed of appropriately.	Waste Management Act 1996-2008
HAZARDOUS WASTE STORAGE	Hazardous wastes should not be mixed during storage and the appropriate containers used for their on-site storage.	
REMOVAL OF HAZARDOUS WASTES	Hazardous waste should only be taken away by a permitted waste collector. Make sure you get a copy of their permit - this is your protection in case the waste is managed or disposed of incorrectly afterwards.	Waste Management (Collection Permit) Regulations S.I. No. 820 of 2007 as amended S.I. No. 87 of 2008
BURNING OF WASTE OIL	It is illegal to burn waste oil, either in waste oil burners (often called oil burners) or in open fires. Waste oils must not be disposed of to water or drainage systems.	Waste Management Act 1996-2008 Waste Management (Licensing) Regulations 2000, S.I. No. 185 of 2000.
RECORD KEEPING FOR HAZARDOUS WASTES	All hazardous wastes removed from your garage, except for waste oils, must have an appropriate consignment note. These are called C1 forms. For waste oils removed from your garage records must be kept of volumes removed.	Waste Management (Movement of Hazardous Waste) Regulations 1998, S.I. No. 147 of 1998
RECORD STORAGE	Records for waste oils must be kept for at least 2 years. All other hazardous waste records must be kept for at least 3 years. Storage containers must be labelled and hazardous wastes should not be mixed with each other or general rubbish.	Waste Management (Hazardous Waste) Regulations 1998, S.I. No. 163 of 2008

DOCUMENTATION

WASTES	HOW IT AFFECTS YOU	THE LAW
TYRES	If you supply tyres, you must either register with TRACS, TWM or with your Local Authority, and comply with the associated requirements.	Waste Management (Tyres and Waste Tyres) Regulations 2007, S.I. No. 664 of 2007
PACKAGING MATERIALS	Packaging wastes must be segregated at source and recycled.	Waste Management (Packaging) Regulations 2007, S.I. No. 798 of 2007
ALL WASTES	The burning of waste - either indoors or outdoors is illegal. Only licensed/permitted facilities can do this.	Waste Management (Prohibition of waste disposal by burning) Regulations 2009, S.I. No. 286 of 2009
END OF LIFE VEHICLES	An End of Life Vehicle can only be transferred to an Authorised Treatment Facility (ATF). Retain a copy of their permit and/or licence.	Waste Management (End-of-Life Vehicles) Regulations 2006, S.I. No. 282 of 2006
BATTERIES	If you sell or supply batteries, you must either register with an appropriate compliance scheme (WEEE Ireland or European Recycling Platform (ERP) or with your Local Authority. You must then comply with the associated requirements for supply and management of waste batteries.	Waste Management (Batteries and Accumulators) Regulations 2008, S.I. 268 of 2008
VEHICLE REFINISHING	If you do body work repair on cars you must have the appropriate AIC compliance certification. Contact your local authority for more information on this.	The Limitation of Emissions of Volatile Organic Compounds due to the use of Organic Solvents in certain paints, varnishes and vehicle refinishing products Regulations 2007, S.I. No. 199 of 2007.
WASTE WATER	If your garage discharges waste water from washing of automobiles then you may be subject to a Trade Effluent Licence. Contact your local authority for more information.	Local Government (Water Pollution) Act, 1977-1990
MOBILE AIR CONDITIONING UNITS (MACS)	If you service or repair MAC equipment you must ensure that the system does not have leaks and has not lost an abnormal amount of refrigerant before you service it.	Emissions from Air Conditioning Systems in Motor Vehicles 70/156/EEC and amended by Directive 2006/40/EC

For more information on any aspect of this booklet please contact the environment section of your local authority.

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Disclaimer

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