

# Body Repair

## Automotive Industry Energy Efficiency

Body repair workshops are one of the bigger energy users amongst the automotive industry with lighting, spray booths, air compressors and heating ventilation and air conditioning (HVAC) being the major energy contributors. An audit of body repair workshops in metropolitan and regional areas of Victoria and Tasmania identified that an average body repair workshop uses 136,729kWh of electricity per year. That is an average cost of \$22,987.

There are many energy saving opportunities that can be made, which could potentially help body repair businesses make significant financial savings.

Major energy users identified

### Spray booths / baking ovens

#### Quick and affordable tips to save you energy:

**Maintain insulation** – Insulation can affect the temperature and curing time. Generally temperatures set between 60°C and 65°C have a curing time of 40 to 45 minutes. If it is taking longer than 45 minutes during curing time, consider improving the insulation level of the booth. Reducing the temperature setting will always provide savings.

**Consider retrofitting variable speed drives (VSD)** – A VSD can manage the pressure balance and keep it as low as possible by varying the speed of the fan motors. It is important to note that when matching a VSD with an existing motor, that it is not overloaded or oversized.

**Tune burners** – Tuning burners regularly ensures that they are running efficiently and not consuming more gas or electricity than required.

**Convert to direct gas fired heating system** - Installing a direct gas fired heating system for curing paint can save up to 30% in electricity costs.

**Install air recirculation system** – An air recirculation system can reduce your energy consumption by recirculating some air before it is extracted. This reduces the amount of fresh air needing to be heated.

## Lighting

Every business could reduce the amount of electricity being used by making smarter choices on lighting.

There are many improving lighting technologies such as fluorescents and LED lighting that could improve your business' efficiency. Lighting used for security and marketing purposes are often left on throughout the day unnecessarily, wasting both energy and money.

### Quick and affordable tips to save you energy:

**Install sensors** – One of the easiest and smartest ways to reduce your energy consumption is to install timers or sensors on your lighting. This will curb the businesses use of artificial lighting and also reduce your electricity bills. For example an area with ten twin fitting 36W T8 fluorescents controlled with motion sensors can save you up to 1200kWh per year. At the end of the day, low cost timers and sensors is just smart business.

**Regularly clean skylights** – Having skylights in workshops, showrooms and offices are a bonus many dealerships don't utilise or notice, especially when they are dirty. Clean skylights can provide plenty of natural light throughout the day, particularly during summer, minimising the need for artificial light.

**Display signs to remind staff to switch off lights** – This is an easy and cheap way to reduce energy consumed by lighting. Displaying signs next to switches will remind everyone to turn off the lights when leaving an area or room. Don't underestimate the simplest of initiatives; as little reminders help people, when trying to change inefficient habits.

**Replace inefficient lighting**—assess the current lighting and replace with more efficient choices that are suitable to your business. The below table outlines the energy savings a body repair workshop achieved in metropolitan Victoria, when a few lighting changes were made.

Existing lighting	Energy saving opportunity	Savings (kWh) / (\$) per year	Payback period
50W halogen lights	LED lights	400kWh / \$99*	3.4 years
36W T8 fluorescents	LED, T5 or induction high bay	7540kWh / \$1050*	7.5 years
	Daylight harvesting system	3470kWh / \$480*	2.6 years

\*Calculated savings (\$) may vary depending on the business' electricity rates

## Heating ventilation and air conditioning (HVAC)

Heating and cooling is another big energy user that many businesses use without thinking about the consequences.

### Quick and affordable steps to save you energy:

**Reset your thermostats** – Setting your thermostat to 23°C in summer and between 18°C to 20°C in winter will still give you a comfortable environment to work in and make your business much more energy efficient. Each one degree increase in temperature can increase your HVAC energy consumption by 10%.

**Program HVAC controllers to match operating hours** – This will prevent heat pumps operating outside of normal hours, and avoid wastage. If there are several controllers controlling a large area, make sure they are all set with the same temperature to avoid HVAC units competing.

**Draught proof doors and windows** – Draughts can increase your heating and cooling costs by up to 25% by allowing cold air into an area during winter and hot air during summer. Identify your draughts by listening for whistling and rattles; then try to seal the gaps and cracks by blocking or filling them.

### Air compressors

Air compressors are one of the most inefficient pieces of equipment in the workshop; with approximately 90% of the energy input becoming waste heat.

### **Quick and affordable steps to save you energy:**

**Check for leaks** – It is important to perform routine maintenance, to detect for any leaks in hoses and coupling, pipes and pipe joints, pressure regulators and threaded fittings. A hole as small as 0.8mm can cost your business over \$100 per year if left unrepaired.

**Purchase an air compressor that is the right size for your business** – When it comes to replacing your air compressor, it is important to consider what you are using it for. Air compressors should run as closely to a full load as possible. In some instances having several smaller sized compressors may be more beneficial than having one large compressor. Purchasing a compressor that is bigger than required will cost you more money to run.

**Turn off the air compressor when not required** – As basic as that sounds, air compressors are often left on after hours cycling on and off. To avoid having the air compressor running at night or on the weekend, install a 365 day time clock to control the running of the air compressor.

### **Kitchen appliances**

There are many quick and affordable ways to reduce the energy consumed by kitchen appliances used by staff in the business.

#### **Quick and affordable steps to save you energy:**

**Check temperature settings on fridges and freezers** – Freezers should be set between minus 18°C and minus 20°C; and fridges should be set between 2°C and 4°C. It is also a good idea to keep fridges in a well ventilated area and away from heat sources, such as a heater. This is so that the fridge doesn't work harder than it should to maintain its temperature.

**Install a time clock on kitchen appliances** – Installing a time clock to switch off kitchen appliances, such as boiling water dispenser or water cooler, at night can save you approximately 150kWh of electricity per year.

**Look for the energy star rating when purchasing new kitchen appliances** – Appliances such as a fridge generally have a lifespan of 15 years. By taking into consideration the energy star rating, you could save money in the long run by reducing the operating costs.

Energy efficiency saving opportunity	Savings (kWh) / (\$) per year	Payback period
Install a time clock on hot and cold water dispensers	1410kWh / \$320*	0.1 years

\*Calculated savings (\$) may vary depending on the business' electricity rates