Engineering sector walk around checklist

Use this walk around checklist to help identify key low or no cost energy saving opportunities within your organisation. Conducting regular housekeeping walk arounds will help form the basis of an action plan to reduce your energy use and carbon footprint.

This checklist should be read in conjunction with the Manufacturing sector overview (CTV015), downloadable from the website, which provides further detail on most of the topics outlined below.

Heating, ventilation and air conditioning (HVAC)	Complete	Actions/comments
Check thermostat settings. The recommended internal temperatures are: • offices 19-21°C • workshops 16-19°C • heavy work 11-14°C • stores 10-12°C A 1°C drop in average space temperature can cut fuel consumption by about 8%.		
Check whether time settings for the heating and boilers are set to match occupancy levels. Make sure the heating is off when the building is unoccupied.		
Check that air ducts, heaters and radiators are not obstructed.		
Look out for unauthorised supplementary electric heaters.		
Check for dirty or faulty fans, blocked filters, air ducts and components. These directly affect system efficiency and will increase running costs and risk of breakdown.		
Check that local extraction fans are not left running unnecessarily. When fans cannot be seen or heard, detect air movement by holding thin strips of tissue paper in airflows. Ask staff to turn off unnecessary ventilation.		
Are windows and doors closed where possible when air conditioning is operating?		
Check relative humidity controls. If relative humidity control is needed, keep the minimum and maximum acceptable humidity controls as far apart as possible.		
Have boilers been checked in the last 12 months? A regularly serviced boiler can save up to 10% on heating costs.		
Check for damage or insufficient insulation on pipework, boilers and hot water storage tanks.		

Steam boilers and systems	Complete	Actions/comments
Check for steam leaks. Look for wisps of steam leaking from faulty steam traps, pipework flanges and joints. Mark on a site plan.		
Check the steam distribution network is fully insulated and that the insulation is in good condition.		
Lighting	**Complete**	**Actions/comments**
Check that lighting in unoccupied areas is switched off and all non-essential lighting is switched off outside of operating hours. • Are light switches clearly labelled? • Ensure external lighting is switched off during the day. • Ask cleaning and security staff to turn off lights in unoccupied areas.		
Make better use of natural light. • Are windows and skylights being kept clean? • Are there any objects obstructing windows? • Could people be moved closer to a natural light source?		
Are bulbs, fittings and sensors being kept clean? Establish a basic lighting maintenance and cleaning schedule.		
Replace inefficient lamps. • Check for any old, large diameter fluorescent tube lights still in use and consider replacing with slimmer tubes. • Check for traditional tungsten light bulbs still in use and consider replacing with compact fluorescent lamps (CFLs). • Where appropriate, remove one fluorescent tube from multiple tube fittings in corridors and non-critical areas.		
Building fabric	**Complete**	**Actions/comments**
Check for holes in the building, for example under the eves, through which warm air can escape.		
Check for draughts and damage to windows, window frames and doors. Repair any damage and install or maintain draught seals.		
Have any doors or windows been propped open and are automatic door closers working properly?		

Compressed air	Complete	Actions/comments
Check for compressed air leaks, particularly on connectors, flanges and flexible hoses. Mark on a site plan.		
Check that compressors are turned off when not in use. Check at the end of shift or over weekends.		
Make sure that compressed air is required for the task and that it is not being mis-used (e.g. cleaning machinery or agitating liquids in tanks).		
Look out for manual drains left cracked open.		
Motors and drives	**Complete**	**Actions/comments**
Ensure motors are switched off when not required. Check that information is displayed about when it is appropriate to turn off a motor, pump or fan.		
Processes requiring heat	**Complete**	**Actions/comments**
Burners • Look out for poor burner tuning by checking for yellow flames or soot in flue-way. Poor tuning results in flue losses through excess air or unburned fuel.		
Ovens • Watch out for part-loaded ovens. Can the equipment be operated for shorter periods at higher capacity? • Find out the oven pre-heat times. Have these been minimised? • Check that batch oven doors are not left open any longer than necessary. • Check for air ingress at worn seals, sight-holes or access panels. • Check for damaged insulation. • Make sure the damper settings are correct.		
Tanks • Are there lids fitted to tanks containing hot liquids? • Ensure the solution agitation and level of extraction are carefully controlled. The above pair of measures can reduce heat losses by over 50%. • Check for tanks being preheated for excessive periods or when not in use. • Check that the tank is insulated and covered with a lid at night. 50mm of insulation fitted to the tank sides and lid, will result in savings of up to 90% of the heat energy.		

Treatment booths and cabinets	Complete	Actions/comments
Check for lighting or air extract running when not needed. Often, fan operation is linked with light operation and will continue to operate if lights are left switched on. Fans are expensive to run, and if fans continue to remove heat from the building overnight, this will also increase the amount of heat required to bring the building up to a comfortable temperature the next morning.		
Make sure the air extract rates are not too high and that if air tightness is needed that seals are intact.		
Processes	**Complete**	**Actions/comments**
Check the setting of controls against the actual operation of equipment, as controls may be poor, or poorly calibrated.		
Assess equipment and plant. If motors are noisy, rough sounding or uncomfortably hot, they may require maintenance or replacement.		
Ensure that equipment does not operate without production or staff present, where possible.		
Look out for auxiliaries running on idle machines e.g. hydraulics, compressors, and chillers.		
Forklifts	**Complete**	**Actions/comments**
Check hours of operation of all forklift charging equipment and enable micro processor controllers where available to avoid over-charging.		
Office equipment	**Complete**	**Actions/comments**
Check whether computers and other electrical equipment have built in energy saving features and enable them.		
Check hours of operation of all equipment (such as photocopiers and vending machines) and ensure all unnecessary equipment is switched off overnight and at weekends.		

For further advice on how to improve existing systems across the above areas, please visit www.carbontrust.co.uk/energy/startsaving/technology.htm

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ACT ON CO_2 is the Government's initiative to help individuals understand and reduce their carbon footprint. Visit http://actonco2.direct.gov.uk for more information.

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