

## Worksheet 3.6B

# Water saving checklist

This is an example only – adapt this worksheet to suit your organisation’s requirements.

**Note:** references to Chapters throughout this checklist refer to *Best practice guidelines for water conservation in commercial office buildings and shopping centres*, Sydney Water 2007.

	Yes/No	Recommended action
<b>Managing your water</b>		
Do you monitor and record your water use?		If no, read your meter at least daily or weekly, or install a continuous monitoring system. Record meter reading information so you can identify changes in water use.
Do you benchmark your water consumption?		If no, calculate a L/m <sup>2</sup> /year figure and compare it against other buildings in your portfolio and the benchmarks in Chapters 3 and 4 of Sydney Water’s <i>Best practice water conservation guidelines</i> , and use the free self-assessment tool available from the NABERS website ( <a href="http://www.nabers.com.au">www.nabers.com.au</a> ). It may be preferable to get an accredited rating as part of your management and monitoring program.
Do you know where water is used in your office building or shopping centre?		If no, look at the average water balance graphs in Chapters 3 and 4 in Sydney Water’s <i>Best practice water conservation guidelines</i> for guidance. Install submeters according to the priorities in Chapter 9 to develop your own water balance.
Do you know where the best opportunities to save water are?		If no: <ul style="list-style-type: none"> <li>• check for leaks</li> <li>• check cooling tower operations</li> <li>• install flow restrictors on taps</li> <li>• remove all cyclical flush urinals</li> <li>• develop a water balance for your building and see where you are using most water.</li> </ul>
Do you regularly review your organisation’s water management?		If no, establish a management plan that incorporates water monitoring and conservation. There are tools available from water suppliers such as Sydney Water EDC Business Program or third party providers. Or use the template provided in the NSW Water Saving Action Plan guidelines and Worksheet 3.6A.  Concentrate on achieving identified critical actions.  Compare your results to previous reviews and rate your achievement of critical actions.
Do you review your submeters, or information from your continuous monitoring system regularly?		If no, establish work procedures so that a member of staff is responsible for water use information and knows what they need to do to if water use changes.

	Yes/No	Recommended action
Do you know how much water, and all associated charges (energy, pumping, chemical, sewer discharge) are costing your business?		If no, refer to information about the true cost of water in Chapter 6. Calculate your own water costs and associated charges. Knowing how much your water costs will establish a business case for water conservation.
Have you developed a water savings plan?		If no, look at the findings of this checklist then develop a water balance and a basic savings plan.
Do you have signs, posters and stickers in your building to encourage water conservation and remind people to report leaks?		If no, business partners in the EDC Business Program can co-brand stickers, posters and shower hangers.
<b>Amenities</b>		
Have you installed submeters on supply lines to amenities and hot water supply?		If no, install meters on supply lines to amenities, as described in Chapter 9. Conduct routine inspections and program maintenance to detect problems before they become large leaks.
Does your building have any cyclic flushing urinals?		If yes, replace urinals immediately with manually flushing urinals, automatic sensor units or ultra low flow or waterless urinals. Refer to Chapter 13.
Does your building have automatic on-demand urinal sensor flushing systems?		If yes, regularly check that sensors are working properly and not detecting unrelated movement. Check that solenoids are operating correctly and replace them if they are faulty or worn.
Does your building have single flush toilets?		If yes, replace single flush toilets in high use areas with 6/3 litre or 4.5/3 litre dual flush models. If toilets are in low use areas, restrict cistern volume and bring forward programmed replacement.
Does your building have dual flush toilets?		If yes, check the flush capacity. Older 11/5.5 litre and 9/4.5 litre dual flush toilets can be replaced with new 6/3 litre or 4.5/3 litre flush models.
Are cistern rubber seals on toilets replaced regularly?		If no, cistern rubber seals should be replaced every two years to prevent leaks.
Do you have a flusherette system?		If yes, check the flow rate and flush timing. Over time, wear will cause excessive flush volumes. Insert flow control regulators into valve bodies to reduce flow.
Do you have flow regulators in all hand basins?		If no, install flow regulators so that flow is reduced to at least 6 litres per minute.
Do you have water efficient showers?		If no, install flow regulators so that flow is reduced to at least 9 litres per minute or install WELS 4-star rated showerheads.
<b>Cooling tower operations</b>		
Does your building have cooling towers?		If yes, continue with this section. If no, go to the next section.

	Yes/No	Recommended action
Is there a water meter on the make-up water pipe?		If no, install a submeter and monitor the water consumption regularly.
When the pump is stopped, is there water flowing from the overflow drain pipe?		If yes, check that the drain valve is correctly set and if there are any leaks. Check if the valve is closed and adequately sealed.
When the pump is stopped, does the water flow out of the overflow drain pipe whilst the water is coming in through the make up water line?		If yes, this indicates that the ball float valve is incorrectly set. The ball float valve needs to be reset.
If you have a V shaped basin, when the pump stops does the cooling tower overflow?		If yes, consider installing a break tank, or a more precise make-up control.
Is there is a significant length of condenser water pipework running at high level, causing the tower overflow when the pump stops?		If yes, consider reconfiguring the pipework.
If you have two or more cooling towers interconnected, when the pump stops does water flow from the drain pipe?		If yes, check the ball float valve settings and the height of the tower basin. If one basin is higher than the other some modifications may be required.
Is the water overflowing the edge of the tower basin?		If yes, check that the overflow pipe is set correctly or not blocked.
Is the area around the tower regularly or constantly wet?		If yes, water is splashing out of the tower. Install or replace anti-splash louvres.
Is any leakage present in the tower, casing, basin, or any intake or exhaust ducts or flexible connectors?		If yes, joints need to be adjusted and sealed.
Does the cooling tower have drift eliminators, or old or ineffective eliminators?		If no, install a drift eliminator that limits drift loss to no more than 0.002%.
Do any pumps have packed gland pump seals?		If yes, ensure pumps are inspected monthly and seals tightened as needed. Also consider replacing the seals with mechanical seals.
Does your water treatment contractor clean the conductivity sensor every month?		If no, make this part of their ongoing duties. Ensure it is recalibrated every month.
Is the water treatment system installed with a bleed blockout?		If no, install a bleed blockout to ensure that unnecessary bleed does not occur during chemical dosing.
Does the cooling water system have a side stream filter that uses water for back flushing purposes?		If yes, consider capturing the bleed off in a backwash holding tank and then using it to backwash the side stream filter.

	Yes/No	Recommended action
Have you contacted your water treatment contractor to discuss increasing the cycles of concentration in your cooling tower to reduce the bleed rate?		If no, ask your contractor to do so. Water supply in Sydney should be able to be cycled to about 9. If your contractor is unable to do this, discuss opportunities of changing to a treatment system that can function effectively at high cycles of concentrations.
Does your cooling tower water treatment contract require the contractor to report back on all water leaks after each service?		If no, amend contract to ensure this occurs.
Do you have a certificate stating that an effective process of disinfection is installed and operating?		If no, make sure your contractor can supply one. These certificates are mandatory in NSW.
<b>Cooling systems and building design</b>		
Have you integrated economy cycle or fresh air venting into your air conditioning system?		If no, investigate if this can be done with your current HVAC equipment.
Have you reduced the heat load in your building as far as possible?		If no, install energy efficient lighting, building insulation, external shading, high performance insulation, sympathetic landscaping, and heat efficient natural lighting.
Is your cooling load under 500 kWR?		If yes, you should investigate the possibility of air cooled systems. In smaller systems, air cooled systems can be appropriate because they do not consume water and have lower maintenance costs.
Have you looked at alternative water sources for your cooling system?		Lake water, groundwater, sea water, reclaimed water, recycled water, rainwater and condensate may all be used in cooling systems.
Have you considered other cooling systems?		If no, investigate options including evaporative pre-cooled air cooled condensers with pad or spray cooling, variable refrigerant volume systems, hybrid coolers or condensers, phase change materials or chilled beam technology. These are viable alternatives to traditional cooling towers and should be investigated when building or renovating.
<b>Kitchens and food courts</b>		
Are the water supply lines to kitchens submetered?		If no, install sub meters on the supply lines to food businesses, especially high volume, water intensive kitchens.
Do you benchmark water use in each of the kitchens or your food court?		If no, use submetering information to establish benchmarks so you can track kitchen water use over time. Common benchmarks are litres per cover, litres per meal served, or litres per patron.
Do you have flow regulators on kitchen sinks and basins?		If no, install 9 or 12 litres per minute flow restrictors on kitchen sinks and 6 litres per minute restrictors on hand basins.

	Yes/No	Recommended action
Do you have waterless woks in your kitchen?		If no, consider installing a waterless wok. You may be able to get information and financial assistance from the Ethnic Communities Council of NSW. If you are accepting new tenancies into your food court, make the installation of waterless woks a lease condition.
Do you have a water efficient dishwasher?		If no, replace your existing model with a water efficient model. You will save money through water and energy savings.
Do staff in food courts and kitchens operate dishwashers and glass washers efficiently?		If no, ensure all staff receive information about water efficient dishwasher operation. If you are accepting new tenancies, make installation of water efficient dishwashers and glass washers a lease condition.
Do staff in food courts and kitchens rinse plates before washing?		If yes, install water efficient 6 litres per minute WELS rated pre-rinse spray valves. Sydney Water is offering a rebate system for their installation.
Do you check the condition of pre-rinse spray valves?		If no, inspect pre-rinse spray valves every 2 weeks to check for leaks and worn valves. Worn valves waste water and reduce cleaning efficiency.
Do staff in food courts and kitchens leave taps running while they are cooking and cleaning?		If yes, install signs to remind staff to turn taps off. Consider installing sensor taps or foot-operated taps. Waterless woks have hip controls and automatic turn off swivel taps.
Are kitchen floors and food court areas hosed down?		If yes, consider using mops or squeegees instead of hoses. Microfibre mops are highly water efficient. If hoses must be used, ensure they are fitted with trigger nozzles.
Is food ever defrosted under running water?		If yes, ensure all food is defrosted in a refrigerator, or in a microwave if it is to be cooked immediately.
Are water cooled steamers used?		If yes, install more efficient steamer equipment. Efficient steamers can use up to 90% less water and up to 60% less energy than older models and have shorter cook times, higher production rates and reduced heat losses.
Do tenants pay for their own water consumption?		If no, you may be able to establish leases so that submetering information can be used to charge tenants for their water consumption. This gives each tenant a financial incentive for water conservation.
<b>Fitness centres</b>		
Does your building contain a fitness centre?		If yes, continue with this section. If no, go to the next section of this checklist.
Are the showers water efficient?		If no, install 9 litres per minute flow restrictors or WELS 3-star rated showerheads on showers.
Do you have flow regulators in all hand basins?		If no, install flow regulators so that flow is reduced to 6 litres per minute or less.

	Yes/No	Recommended action
Does the fitness centre contain a swimming pool?		Ensure you submeter supply and refer to the Sydney Water fact sheet <i>Swimming pools</i> for benchmarking and water conservation information.
<b>Outdoor areas and water features</b>		
Do you have a landscaped area or water features?		If yes, continue with this section.
Do you submeter your irrigation supply and water features?		If no, consider installing submeters to determine your water use and identify leaks. This is especially important if you have large areas of irrigated areas or large water features.
Do you improve your soils?		Improving soil quality can improve plant growth and water retention. Add organic matter such as compost or composted animal manure.
Do you use an alternative water source to irrigate your garden?		If no, consider using rainwater, stormwater or treated wastewater for irrigation.
<b>Cleaning</b>		
Do you communicate with cleaning staff regularly?		If no, cleaning staff will need information about water wise cleaning techniques and the correct way to clean specialised equipment such as waterless urinals. You could use Sydney Water EDC Business Program stickers, posters and fact sheets to communicate with staff.
Do cleaners hose down floors or carparks?		If yes, remember that water restrictions prohibit the hosing of hard surfaces. Use brooms or mops to clean floors, or use rainwater or other water sources if you must use the hose. In most large carparks, commercial street or footpath cleaning equipment can be used.

Source: *Best practice guidelines for water conservation in commercial office buildings and shopping centres*, Sydney Water 2007, [www.sydneywater.com.au/SavingWater/InYourBusiness/](http://www.sydneywater.com.au/SavingWater/InYourBusiness/)