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Optimize workflows, use materials, energy and water efficiently and monitor and control processes to reduce costs and improve productivity and quality

Potential areas you can review improve operations within your business. Additional information can also be found under **additional resources**.

Steps to Implement 5S in Your Workspace	
Make a Plan	Work through each step of the 5S principles and make a habit of doing the following during planning: ✓ Visualize the work area ✓ Look for waste ✓ Look for the root cause of every problem ✓ Develop standards ✓ Repeat the process
Bring Action	**Implement 5S in your organization by assigning a trained employee or a team of workers to do the following on a weekly basis:** ✓ Take a photo of your workplace's current status ✓ Sort items needed and to be disposed of. Determine the item's frequency of use (daily, monthly, or never) and if it's still essential or defective and outdated. ✓ Organize and group items according to use and function. You may also add labels and apply a colour coding scheme for easy sorting. ✓ Clean the workspace. Remove items that cause dirt, contamination, and filth. ✓ Conduct an audit to review items you weren't able to deal with that day, including items you found difficult to classify or tag for disposal. Establish an action plan (e.g., selling, donating, recycling or throwing away items) for items that need to be disposed of. ✓ For review purposes, take a photo of the workspace after implementing changes.

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Monitor	As one of the core principles of lean management, area supervisors or plant managers perform monthly and quarterly audits to ensure that 5S standards are being met. Regular audits also help keep track of items and equipment so you can determine whether they are in need of repairs or if something is missing.
Operational aspects of manpower management	
5S Auditing Tool	**Consider use of an 5S app to support 5S implementation and promote productivity best practices.** ✓ Write up additional notes, in standard format ✓ Take or attach photos and add annotations ✓ Save and share reports immediately ✓ Sign off with digital signatures for accountability ✓ Some apps have in built specific checklists for offices, warehouses, workshops etc.
Checklist for Energy Opportunities	
Facility Heating and Cooling	✓ Can you control the level of heating, cooling and ventilation in you building? ✓ Can you set thermostat temperatures so that work areas are not heated or cooled more than necessary? ✓ Can you keep windows or doors open or closed to prevent the use of unnecessary space heating and cooling? ✓ Can you improve maintenance on HVAC systems (e.g., changing or cleaning air filters to make them run more efficiently? ✓ Can the fuel source for on-site boilers be changed to a cleaner burning fuel? ✓ Can the waste heat from HVAC-system be used for heating purposes? ✓ Can pipes and the building shell, windows, doors etc. better be insulated?
Lighting	✓ Can lighting be better focused where workers need it to match the requirements of their tasks? ✓ Can daylight be used for lighting? ✓ Can you replace incandescent lighting with more efficient fluorescent, LED, or other lighting? ✓ Can you install motion sensors or take other steps to

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	turn off light in warehouses, storage areas, and other areas that are intermittently used? Can you work with your electric utility to assess your lighting systems to determine if efficiency upgrades are useful?
Process Equipment Operation (Motors and Machines)	Can machines be turned off when not in operation? Must the circulation pumps run all the time? Can more energy efficient motors, pumps, and equipment be used? Can you switch to more efficient motor systems that use variable speed drive controls? Can motors, pumps, and equipment be better sized according to their loads? Can the production planning be optimized to reduce non-productive operation time of production equipment?
Process Equipment Operation (Compressed Air)	If compressed air is used, do you routinely check and repair leaks in the compressed air system? Can you reduce the pressure in the compressed air system and still operate equipment effectively? Can the waste heat from the compressor be used for heating purposes?
Process Heating and Cooling	Can process heating temperatures (e.g., used in ovens) be effectively maintained at lower levels? Can other steps be taken to avoid the unnecessary loss of heat or coolness in the process (e.g. waste gas heat recovery)? Can you improve maintenance on boilers and refrigeration systems?
Transportation	Can you switch to more fuel-efficient vehicles for business transportation needs? Can you run forklifts in the facility on electricity/batteries or compressed natural gas/propane instead of other dirtier fuels? Can you improve maintenance of vehicles so they run at optimal fuel efficiency (e.g., maintaining tire pressure, replacing air and fuel filters)? Can you provide incentives for employees to walk or bike to work (e.g., providing places to lock and store bikes, providing showers and lockers, rewards)? Can you provide incentives for employees to take public transport to work (e.g., providing subsidized transport

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	passes, charging for parking and using the funds to reward use of transit or bikes to commute)?
Sanitation	Have low-flow, water-efficient toilets been installed at the enterprise? Do all faucets and showerheads have low-flow aerators installed to reduce water use in sinks?
Heating / Cooling	Has once-through cooling water used in air conditioners, air compressors, vacuum pumps, etc. been eliminated with the use of chillers, cooling towers, or air-cooled equipment? Has blowdown/bleed-off control on boilers and cooling towers been optimized? Is condensate being reused?
Process Rinsing and Cleaning	Have improved rinsing techniques been implemented, such as counter-current systems, sequential use form high quality to lower quality needs, conductivity flow controls, improved spray nozzles/pressure rinsing, fog rinsing or agitated rinsing? Is water turned off when not in use by flow timers, limit switches, or work practices? Is the life of water (aqueous) baths being maximized using filtration and maintenance controls? Are "dry clean-up" practices used instead of using houses to clean with water? If water washing is necessary, is first-pass pre-cleaning conducted with squeegees, brushes, or brooms? Can flow restrictors be used to limit water use?
Process Water and Water Systems	Is water conveyed in straight pipes (with few bends) to reduce energy demands for pump motors? Are pipes and equipment that convey or use water routinely checked for leaks?
On-Site Water Reuse	Is water quality matched with water quantity? Can rainwater, rinse water, or other non-potable sources of water be captured and reused for certain purposes? Have reuse applications been examined for process water, landscaping irrigation, ornamental ponds, flush

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	water and cooling towers?
Landscaping	✓ Can the amount of water used for landscaping be reduced? ✓ Can steps be taken to lower landscaping water use, such as using low-flow sprinklers, trickle/drip irrigation, optimized watering schedules and water placement, and preventive maintenance? ✓ Can the type of plantings or landscaping (e.g., xeriscaping techniques) be used to reduce or eliminate the need for supplemental watering?
Checklist for Environment & 5S	
Reduce Scrap	✓ Can you purchase material inputs in a size or configuration that reduces the amount of scrap created? ✓ Can you adjust process equipment or production patterns to optimize use of materials and reduce scrap? ✓ Can scrap materials be reused or recycled within the enterprise? ✓ Are there other enterprises that might be able to use the scrap as a material input?
Reduce Unused Material	✓ Can you reduce material inventories or shift toward "just-in-time" purchasing, particularly where materials often go unused? ✓ Can you purchase materials in "right-sized" containers to better ensure purchased materials are actually used? ✓ Can you "kit" (or package materials and chemicals in "right-sized" portions) so that employees take and use only what is needed? ✓ Can you improve material storage and labelling to ensure that the oldest stock is used first to minimize spoilage and expiration? ✓ Can you improve material handling practices to ensure that materials are not damaged or spilled?
Dematerialize Product Design	✓ Can you work with product designers (with the enterprise or customer) to identify opportunities to

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	reduce the materials used in a product? Can you identify opportunities to reduce the materials used in product packaging?
Substitute Materials	Can you substitute materials or chemicals with lower environmental or public health impacts? Can you increase the use of recycled materials in products or packaging?
Reduce	Are there ways to eliminate or reduce sources or wastes or pollution?
Reuse	Can waste materials or chemicals be captured and reintroduced into the process for productive use? Are there any process steps that can be designed to have "closed loop" aspects that automatically capture and reintroduce inputs using condensation or other techniques? Can defective product components be refurbished for productive use?
Recycle	Can you find opportunities to give away or sell any of your wastes? Are there steps you could take to segregate or improve the quality or purity of wastes that might make them attractive to another enterprise for productive use?
Safe and Proper Disposal	Are there steps that can be taken to better segregate wastes in order to reduce the amount of waste that has toxic or hazardous characteristics and requires special handling and disposal? Can you install pollution control or treatment systems or equipment that reduces the amount or pollution or its harmful characteristics? Are there steps you can take to ensure that wastes are properly and safely disposed, or that pollution is released in a manner that minimizes adverse human and environmental health impacts?
5S Questions for Eliminating Environmental Waste and Risk	

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Sort (Get rid of it)	✓ Are potentially risky items and environmental wastes appropriately marked? ✓ Are all marked items being disposed of properly, including those that must be managed as hazardous wastes?
Set in Order (Organize)	✓ Are material containers clean, stored off the floor, closed, properly stacked, and stored/staged in the proper areas? ✓ Are all containers with chemicals or wastes covered or sealed when not in use? ✓ Are all containers with materials, chemicals, and / or wastes properly labelled? ✓ Are initial accumulation points for hazardous waste clean and organized, and do they have effective visual controls?
Shine (Clean and Solve)	✓ Are any leaks evident from equipment, piping, tanks, exhaust lines, or other areas in the workplace? ✓ Is air quality in the work area good and free of dust, odours and fumes? Is air flow in the area sufficient to keep healthy and safe working environment? Are ventilation systems clear and unobstructed. ✓ Are all drains in good condition, free flowing and unobstructed? Are all drains properly labelled to ensure that only acceptable substances are disposed down them? ✓ Are exterior locations near storm water drains and storm water retention areas free from garbage and debris that can cause obstruction? ✓ Are garbage and recyclables collected and sorted correctly? Are recycling containers and bins free from extraneous materials?
Standardize (Get Consistent)	✓ Are SOPs documented and available within close reach for everyone? ✓ Are environment, health, and safety management activities and procedures relevant to the work area integrated into SOPs?

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Sustain (Keep it up)	✓ Are SOPs being followed? ✓ Are workers in the area aware of chemical hazards associated with SOPs?

Disclaimer: Information intended for general advice