Appliance Replacement Policy

As a mean to reduce Avanath's carbon footprint and to conserve water across Avanath's entire portfolio, best efforts are to be made to install water saving devices, LED lighting and to procure energy efficient appliances that have ENERGY STAR certification. The sections below provide guidance for installing water saving devices and ENERGY STAR appliances. The decision to acquire and install these energy saving devices will be made in consortium by the Asset Management, Property Management and Construction Management Teams. In all instances, decisions are to be supported by financial metrics that include Return on Investment and Payback Period. These sections are intended to streamline the procurement process and provide guidance for incorporating energy and water efficiency into the projects.

INSTALL ENERGY STAR® CERTIFIED EQUIPMENT

Whenever possible, properties should install ENERGY STAR certified equipment when replacing existing equipment. The following sections provide equipment options which may be used to replace existing equipment upon end of life. Ask your supplier or contractor to provide ENERGY STAR certified equipment options which meet your needs. If needed, ENERGY STAR certification can also be verified on the manufacturer's website, and through the ENERGY STAR website's Product Finder. The Product Finder also includes a rebate finder to help offset costs.

The links below provide detailed information from ENERGY STAR, which provide Buying Guidance for each type of equipment. The equipment will also have additional Specifications, that define Key Product Criteria required to earn a label.

APPLIANCES

- Clothes Washers
- Clothes Dryers
- Refrigerators/Freezers
- Dishwashers

POOL EQUIPMENT

- Pool Pumps
- Heat Pump Water Heaters
- Gas Storage Water Heaters
- Solar Water Heaters

HVAC EQUIPMENT

- Commercial Boilers
- Room Air Conditioner
- Central Air Conditioners/Air-Source Heat Pumps
- Bathroom Fans
- Smart Thermostats
- Commercial Water Heaters
- Ductless Heating and Cooling
- Furnaces
- Light Commercial Heating & Cooling

LIGHTING

- Light Fixtures
- Light Bulbs
- Ceiling Fans

Guidelines for HVAC Equipment

If ENERGY STAR certified HVAC equipment is not available or is cost-prohibitive, compare base efficiency models with slightly higher efficiency models that are available. Examples include:

+ Selecting condensing units equipment with a SEER Rating of 14 instead of 13.
+ Selecting PTACs with an EER rating of 12 instead of 10.
+ Selecting high efficiency condensing gas boilers, furnaces and water heaters, instead of non-condensing.
+ When replacing existing electric resistance heating systems (e.g., PTACs, VTACs, split systems), work with the contractor to investigate installing a model that includes a heat pump with back-up electric resistance heat.
+ When selecting HVAC units, evaluate the equipment from a preventive maintenance perspective as well (e.g., units designed with easy filter access).
+ Install thermostatic radiator valves (TRVs) instead of manual valves for buildings with radiators.
+ Install thermostatic expansions valves (TXVs) when replacing the air-conditioning systems, instead of fixed orifice or bleed expansion valves.
+ Install programmable thermostats in resident units, and educate residents about programming temperature setbacks overnight, and during periods when they are away from their residence.

Install LED Lighting

When considering a LED lighting upgrade project, work with your contractor to verify that the ensure the following requirements are met.

+ Lighting levels meet the illumination range (footcandles) recommended by IESNA for the space type.
+ Color temperatures are selected based on space function, and to match adjacent light fixtures.
+ Selected lighting products have a Color Rendering Index (CRI) of at least 80, or as high as possible.
+ The efficacy (lumens per watt) of selected light bulbs is at least 80, or as high as possible.

+ Install occupancy sensors as a part of the lighting upgrade in applicable spaces.
+ Consider incorporating daylighting controls as part of lighting upgrades, which use ambient light sensors to automatically dim and brighten lighting based on available natural daylight.
+ Buy LEDs from reputable manufacturers. Consider selecting lighting products that have earned ENERGY STAR or Design Lights Consortium certification.
+ Exterior lighting should be controlled via photocell or timeclock.
+ For exterior LED lighting upgrade projects, consider lighting that is approved by the International Dark-sky Association (IDA), which can be found through their Product Finder. In addition, the IDA provides guidelines which define key lighting characteristics that reduce light pollution.

On average, the price premium for a basic Energy Star Rated Appliance that includes washer, dryer, refrigerator and dishwasher range from $100 to $150. According to Energy Star, the cost savings benefits include:

APPLIANCE	COST PREMIUM FOR ENERGY STAR RATED	ELECTRICITY SAVINGS	WATER SAVINGS	ANNUAL SAVINGS	LIFE TIME SAVINGS	ANNUAL ROI
Clothes Washer	$150	25.00%	33.00%	$37	$370	24.67%
Clothes Dryer	$125	20.00%	n/a	$20	$200	16.00%
Dishwasher	$150	25.00%	30.00%	$35	$350	23.33%
Refrigerator	$100	9.00%	n/a	$17	$170	16.67%

Install EPA WaterSense Fixtures

Whenever possible, properties should install water saving devices that include EPA WaterSense water fixtures and the Aqua Mizer Flush System. The associated WaterSense requirements for common fixture types have been provided in the following list. Ask your supplier or contractor to provide a list of WaterSense certified fixtures which meet your needs. If needed, WaterSense certification can also be verified on the manufacturer's website, and through the EPA WaterSense Product Search. The Rebate Finder may be used to find rebates and offset costs.

WATERSENSE STANDARDS

+ Showerheads – not less than 1.5 gallons per minute, ideally 1.75 gallons per minute
+ Bathroom Faucets – not less than .75 gallons per minute, ideally 1. gallon per minute.
+ Residential toilets – 1.28 gallons per flush (gpf), or less.
+ Commercial toilets equipped with flushometer-valves – minimum flush of 1.0 gpf to ensure plumbing systems have enough flow to function effectively, and a maximum of 1.28 gpf.
+ Urinals – 0.5 gpf or less
+ Irrigation Controllers – controllers which use either weather or soil-moisture data to control watering schedules.
+ Spray Sprinkler Bodies – requires internal pressure regulation to provide consistent flow to the sprinkler nozzle.

RFP Best Practices

For procurement projects that require an RFP, the following requirements are suggested for inclusion during the RFP process.

GENERAL REQUIREMENTS

- Send the project RFP to at least 3 vendors and bid for a competitive bid.
- While comparing bids, evaluate the bids holistically, by considering how well the proposal aligns with the project requirements, and by comparing materials and equipment costs across each vendor. It is also important to level each bid, since vendors may include or exclude certain items, which can make it difficult to compare between bids.
- Request that vendors include rebate estimates in their proposal for applicable projects, and that the vendor be responsible for submitting all applicable forms to receive the rebate.
- Request that the contractor detail warranty on parts and labor from substantial completion.
- As part of the proposal, request that contractor provide cutsheets for basis of design products and estimated quantity of products for required for the project.
- The O&M Manual should be submitted as a hard copy and a PDF file, with two hard copies provided for the site. The manual should be organized by system (not specification section).
- The PDF version of the manual should be a single file, bookmarked by system at minimum, and include any other bookmarks needed by the building maintenance team for easy access, and the PDF file should be fully searchable.
    - In the case of IOM manuals provided by a 3rd party manufacturer, the IOMs should be highlighted, or otherwise marked up to indicate which installation, operations and maintenance routines apply for the equipment installed.

REQUIREMENTS FOR MAJOR CAPITAL PROJECTS

- Require contractor walk-throughs prior to providing a proposal.
- Ask the contractor to provide resumes for the team and case studies for similar completed project. The contractor should provide references for the project examples they submit.
- Request that contractor be responsible for all permits and taxes, and that these shall be noted in the proposal.
- Contractor will revise project drawings throughout project to reflect final installed conditions and will incorporate submittal comments into final design prior to issuing final controls drawings.
- Submittal drawings should include, a table of contents and legend, any required schematics, floor plans, equipment diagrams with all parts clearly labeled, a bill of materials, equipment schedules as necessary and technical/installation product literature. Any cutsheets provided should be highlighted to indicate the specific model number installed.