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Recycle, Reuse

New trends for reducing waste in food-service areas

By G. Stephen O'Connor

Leftover food and food prep waste are increasingly a burden on healthcare facilities and municipal resources. This is evident while locating adequate space at the loading dock for waste handling, finding a space within the dietary department for a trash-hold room or reducing the amount of grease and food waste exiting the kitchen. The good news is this burden can be reduced through several means.

Pulpers coupled with hydro extractors are being increasingly used because of an ability to reduce the volume of waste by as much as 70 percent and what remains is a dry pulp. The pulpers can reduce many types of waste including soft and fibrous foods, bone, paper and cardboard. Reducing the volume means fewer waste pickups and reduced hauling fees as well as less waste in landfills. These systems use a loop of graywater generated from the plate/tray scraping area for grinding food. The resulting slurry is then pumped to the hydra extractor. This device separates the pulp from the water and the graywater is returned to the scraping area mixed with a small amount of freshwater and the cycle starts again.

Additional reduction of volume can be attained in several different ways. One system type, known as digesters, uses microorganisms to break down food waste into liquid. This liquid is discharged into the wastewater system. An ecological use of waste is to turn it into a compostable material using a



Close coupled pulper/extractor with feed chute into dehydrator.



Dual Extractors with fine particulate removal screens at LeBonheur Children's Hospital.

system that dehydrates the waste with heat and reduces the waste by up to 93 percent. The heat kills any bacteria and ensures the end product is odor free. As long as only compostable materials are introduced into this cycle, the byproduct is suitable as a soil amendment for composting.

Additional opportunities for reducing energy consumption and cost can be found in other aspects of the dishroom as well. Some manufacturers of dish machines can provide a heat reclaim unit with the machine. The heat and condensate at the unload end of the dish machine is pulled through heating coils. Incoming cold

water enters the coil and picks up this heat. It is fed to the booster heater at 110 degrees Fahrenheit, reducing the amount of energy needed.

Dish machines are also becoming more sophisticated and energy efficient in power usage and in the use of fresh incoming water. The need to reduce cost and energy use can also be achieved with other changes in equipment specification.

Grease exhaust hoods are being redesigned to reduce exhaust required through passive means as well as mechanical. The passive means include new designs of the capture tank, spacing of the inlet slot of the filter bank and a rear wall design that takes advantage of the naturally occurring thermal plume and directs the grease-laden vapor and smoke to the filter bank. These designs provide the needed removal of grease, smoke

and condensate to provide a safe exhaust system while reducing energy cost. Mechanical means include a series of small fans directing air from the ceiling space above the hood into a perforated plenum. The plenum is built into the perimeter of the hood to contain the effluent within the capture tank requiring less exhaust air to remove the vapors.

Exhaust hoods can also include on-demand controls that will signal a variable speed fan to increase or decrease speed based upon the cooking load. These systems use infrared and heat detectors to monitor the effluent and temperature and send a signal to the fan. Not only does this reduce the amount of exhaust air, but it also reduces the amount of tempered makeup air as well as conditioned air needed for air balance and staff and customer comfort.



The close coupled pulper and extractor at LeBonheur Germantown Hospital are connected to a soiled tray breakdown station.

Along the lines of energy saving using on-demand ventilation is on-demand cooking equipment. Induction cooking has been in use in display cooking environments for some time, but now is finding its way into the production line of the kitchens. These induction cookers are 90-percent efficient in energy used to cook as

compared to gas ranges that are 30-percent efficient. In addition to the reduced energy needed for cooking, there is less heat being ejected into the kitchen and the air intake needed for combustion in gas ranges is eliminated. This also will reduce exhaust air and the need for tempered and conditioned air.

All of these directly affect the design of dietary departments in healthcare facilities. With the design focus being driven by green initiatives and LEED, these components, even down to the selection of equipment, need to be considered when creating spaces.

L2M Foodservice Design Group Principal G. Stephen O'Connor has more than 20 years of hands-on experience with project budgets ranging from \$100,000 to well over \$4 million. His areas of expertise include acute healthcare, travel and leisure, higher education and branded retail concepts.

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