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SUSTAINABLE ENERGY
AND ENVIRONMENTAL
ENGINEERING

Details for Follow-up Activities: Ice Maker Recommendation

Installation & Labour

The installation of an ice maker can consist of plumbing and electrical work. Therefore, it is recommended 2 plumbers and 2 electricians be hired for the job. The cost per hour to hire a plumber is approximately \$45-\$65, while an electrician is approximately \$40-\$60 per hour. The plumber and electrician must work collaboratively to complete the installation since it requires both areas of expertise. It may take up to 8 hours to complete the installation of the ice maker. In totality, it will cost approximately \$700-\$900 to complete installation.

Implementation Schedule

There are 4 major considerations to be addressed during installation:

1. Power source
2. Water inlet/ outlet
3. Space
4. Drainage

Installation may take up to 8 hours and, depending on location, could disrupt the normal workflow of the company. To mitigate this, proper planning and collaborative work between the plumber and electrician is recommended. Space constraints must be considered before installing as the new ice maker will replace the old. An additional day may be necessary to test the machine and check for leaks, voltage drops, and working efficiency.

Maintenance cost

The ice maker manufacturer will typically have a one-year warranty on maintenance and operates by a subscription basis.

Energy Saving Cost

The current ice machines use about 280 kWh of electricity per day to make about 5,000 lbs. of ice. A new ice machine would use about 161.5 kWh of energy a day. With the new ice machine, the kWh usage is reduced by about 120 kWh a day. The annual savings is about \$3,214.

Department of Energy Recommends [1]

Water-cooled ice machines should only be used when they can be connected to a cooling tower that operates year-round.

Federal Energy Management Program (FEMP) has calculated that the required water-cooled ice machine model saves money if priced no more than \$129 (in 2018 dollars) above the less efficient model; the best available model saves \$272.

Due to their high electricity demand, ice machines should be operated during off-peak hours if possible. This operating method requires purchasing larger storage bins and installing a clock or timer to prevent the machine from making ice during peak hours (usually between 12:00 p.m. and 6:00 p.m.). This operating strategy reduces the demand charges, resulting in additional cost savings.

More Recommendations can be found [here](#).

Success Stories [2]

ENERGY STAR certified batch-type ice makers are about 10 percent more energy efficient and 20 percent more water efficient when compared with standard models.

ENERGY STAR certified batch-type ice makers save businesses 700 kWh and \$70 annually and \$630 over the product's lifetime on utility bills

ENERGY STAR certified continuous-type ice makers are about 16 percent more energy efficient.

ENERGY STAR certified continuous-type ice makers save businesses 1,350 kWh and \$140 annually and \$1,220 over the product's lifetime on utility bills.

Suppliers

The Centre of Sustainable Energy and Environmental Engineering has no affiliation with the following vendors. The following suggestions are simply a recommendation

BERG Chilling Systems design, manufacture, install and service industrial thermal process control and refrigeration systems for clients in a broad range of industries. They have a great reputation for their industrial sized ice makers. The shell ice maker is one of the products manufactured by Berg which finds extensive application in the commercial fishing, food processing, produce, meat and poultry industries. These industrial ice machines are available in modules from 5 to 15 tons of cracked ice per day. Based on an old and proven principal of making ice on a tubular evaporator surface and harvesting it by gravity, the Berg Shell Ice Maker has become the industrial ice maker of choice in many areas and ice making plants. More information can be found [here](#).

Technicians

Technician	Location	Phone	Website
Elite Mechanical	Ayden, NC	252-746-6200	Here
Keen Plumbing	Goldsboro, NC	919-429-7280	Here
Onslow Electric Company	Jacksonville, NC	910-430-9933	Here
R Brown Electric	New Bern, NC	252-637-9210	Here

References

- [1] “Purchasing Energy-Efficient Water-Cooled Ice Machines,” *Office of Energy Efficiency and Renewable Energy*. [Online]. Available: <https://www.energy.gov/eere/femp/purchasing-energy-efficient-water-cooled-ice-machines>.
- [2] E. Star, “Commerical Ice Makers.” [Online]. Available: https://www.energystar.gov/products/commercial_food_service_equipment/commercial_ice_makers.