



Quality Maintenance of Commercial Refrigeration Systems

Required inspection and maintenance for equipment found in supermarkets, convenience stores, food service, and warehouses

The refrigeration system(s) is one of the largest users of energy in your building. If not maintained in proper working order, you will be sacrificing facility operations and product quality/safety while seeing increased power usage, and will likely incur higher repair costs and premature equipment replacement costs. That is why it is so important for you to utilize a quality contractor to regularly inspect and service all of your commercial refrigeration systems. But how can you tell which contractor will do the best job? The maintenance plans that contractors offer vary in scope and pricing from all-inclusive to minimal inspection. The first step in choosing a contractor is to know what basic items are included in competing contractors' maintenance plans in order to effectively compare relative plan values.

USING THE COMMERCIAL REFRIGERATION QUALITY MAINTENANCE CHECKLIST

The checklist below will help you evaluate maintenance proposals. The questions found in the 'What to Ask the Contractor' column are designed to help you determine whether or not the contractor is complying with the industry-developed, ANSI-recognized standard maintenance practices. When filling out the checklist, simply write a 'yes' or 'no' reflecting the contractors' response to each question in the box provided. After the interview, you will have an indication as to whether the contractors' proposed services meet the requirements in the *Quality Maintenance of Commercial Refrigeration Systems* Standard (ANSI/ACCA 14 QMref Standard – 2015). Always remember that before signing any agreement, you should compare the contractor's written maintenance agreement plan with the interview responses to make sure that they are the same. The time to clarify questions is before the contract is signed.

What to Ask the Contractor	Why the Question is Important	Contractor 1	Contractor 2	Contractor 3
If so required under your jurisdiction, is your contractor licensed to do the work?	You should only hire contractors that are compliant with your local licensing requirements.			
How long will the maintenance inspection take?	A complete system inspection will depend on the type of system and total pieces of equipment. (generally, less time = less inspected)			
Did the contractor inquire how the system has been operating and whether you have any concerns or issues?	This understanding provides a better basis for assessing equipment operation and will better enable the contractor to meet your expectations.			
Does the maintenance agreement include a safety inspection to make sure the system is installed according to code?	Safety hazards that are not obvious to you will be immediately recognized by a trained technician and reported to you.			
Will the contractor review the QMref Standard based maintenance requirements for your commercial refrigeration system(s) with you? (See component list on next page.)	Maintenance plans are based on the type of equipment you have and the level of service you have contracted for. Additionally, some maintenance tasks need to be performed between contractor visits.			
Does the contractor's maintenance plan include evaluating the equipment's performance?	Refrigeration equipment performance must be checked for your system to operate efficiently.			
Will the contractor review the maintenance issues with you?	It is important for you to understand what was found during the scheduled maintenance visit especially if corrective action is needed.			

OTHER CONSIDERATIONS

A partial/low bid maintenance plan may seem appealing from an immediate economic point of view, but you should consider the hidden costs that come with one. Hidden costs can include higher operating expenses and an increased likelihood of early equipment failure and replacement. You will also want to make sure that you consider the unique characteristics and environmental concerns for your region of the country, as they will also influence your inspection task list. The original equipment manufacturer's instructions, municipal ordinances, applicable codes, and other industry standards provide further guidance on these possible regional considerations. The contractor you choose should take the time to tailor your inspection task list and maintenance plan to your particular situation.

A quality contractor will conduct an inspection of your systems and suggest corrective actions that are based the industry-recognized ANSI/ACCA 14 QMref Standard – 2015 (*Quality Maintenance of Commercial Refrigeration Systems*); available as a free PDF from www.acca.org/quality. Maintenance information on varied commercial refrigeration equipment is contained in that standard (see table below for examples):

Component / Equipment (Equipment Survey)	Component / Equipment Description	QMref Sect.
Beverage Dispensers	A refrigeration system designed to mix and chill beverages to the serving temperature.	5.1
Cascade	A system containing two or more refrigeration cycles, which may use different refrigerants, and linked through a heat exchanger. Often used to provide lower temperatures more economically.	5.2
Service Case	A refrigerated unit designed without customer access, having reach-in access from the service side only.	5.3
Food Prep Tables	Food working and service refrigeration units that come in many styles and configurations often designed to hold products in reach-in doors or drawers. Two main types are available: (1) food prep tables have food containers that are accessed from the top at the specified temperature, and (2) cold-top tables generally have a marble top and are designed for working on cold service food prep.	5.4
Frozen Carbonated Beverage Machine	A refrigerated dispenser designed to stir and chill carbonated beverages and provide a frozen product in the form of a semi-frozen slush.	5.5
Heat Recovery	A method of utilizing refrigeration system waste heat to increase energy efficiency elsewhere.	5.6
Ice Makers / Ice Machines	A refrigerated unit that freezes water to make ice in many configurations, e.g., flakes, cubes, chips.	5.7
Industrial (Built-Up Systems)	A system engineered for an industrial setting where variable loads are taken into consideration.	5.8
Parallel Rack	A configuration for compressors, piped in parallel, and a condenser or condensers located remotely, away from the refrigeration evaporators and cooling units.	5.9
Reach-In	A commercial refrigeration unit, horizontal or vertical, generally designed to operate between -40°F and +40°F, where the consumer has access by opening a door. These units are either remote or self-contained.	5.10
Service-Over-Counter	Refrigerated units designed to display products below a solid countertop. These units may or may not have an accessible reach-in refrigerated or non-refrigerated storage built-in below.	5.11
Single Condensing Unit	A package unit designed for use with one or more evaporators.	5.12
Soft Serve Machine	A refrigerated dispenser designed to stir and chill liquid mixes and provide frozen custard, ice cream, and yogurt.	5.13
Walk-In	Refrigerated cooling or freezing units with walk-in access. Often a walk-in freezer is located within a walk-in cooler.	5.14

IN CONCLUSION

Up-front interaction between the facility owner/operator and the professional contractor is required by *QMref Standard* protocols. Thus, your contractor should welcome your questions and integrate your operational needs to develop a maintenance plan specifically designed for your location, building schedules, equipment types, product types, and budgetary needs.