

The Refrigerator

From The Icebox To The Fridge

A refrigerator, (often called a “fridge”), is a mechanical appliance for the storage and the preservation of perishable food. One compartment, referred to as the freezer, shares space in the unit with another compartment for cold temperatures maintained above freezing. This modern invention replaced the common icebox, which had been a household item for almost a century and a half. Today’s refrigerators not only can preserve food, but also entertains with many advanced, technological features.

The first historical, known artificial refrigeration was demonstrated by William Cullen at the University of Glasgow in the mid 1700s. It relied upon the process of vapor-compression refrigeration process (as explained by Michael Faraday). In 1850, Dr. John Gorrie had demonstrated an ice maker. In 1856, James Harrison introduced vapor-compression refrigeration to the brewing and meat packing industries, which soon launched the revolutionary birth of the icebox, and today’s refrigerator.

At the start of the 20th Century, about half of households in the United States relied on melting ice and an icebox to keep food cold. However, this was all the while the remaining half of America had no cooled storage at all. The ice used for household storage was expensive because ice had to be cut from winter ponds (or mechanically produced), stored centrally until needed, and delivered regularly.

General Electric sought to develop refrigerators of its own. In 1915, the first Guardian unit was assembled in a back yard wash house as a predecessor to the widely known Frigidaire Refrigerators. In the year 1916, two companies, Kelvinator and Servel, came out with two units among a field of competing models. Numbers increased to 200 by 1920. By 1918 Kelvinator had a model with automatic controls.



Mike Manning, Wikipedia

1915

Left: Iceboxes were introduced in the 20th century.



Daily Olive, Kitchen Design

1956

Left: 1950s retro refrigerator. Models designed at this time were thought to be futuristic.



2000

Right: Modern refrigerator with technologically-advanced features.

Impact On Homes

The introduction of the refrigerator expanded the market of refrigerators during the 1930s. Freezer units became a little more common and were higher in demand during the 1940s. But home units didn't go into mass production until after WWII. The 1950s and 60s saw newer technical advances such as automatic defrosting, as well as automatic icemaking.

Virtually all homes in the developed world have a refrigerator of one kind or another. The invention of the refrigerator allowed the modern family to purchase, store, freeze, prepare, and preserve food products in a fresh state for much longer periods of time than was previously possible. For the majority of families without a sizeable garden in which to grow many vegetables and raise livestock, the advent of the refrigerator along with the modern supermarket soon led to a vastly more varied diet and improved health resulting from much improved nutrition.

Many food products including: dairy products, meats, fish, poultry and vegetables can all be kept refrigerated in the same space within the kitchen. However, raw meat should be kept separate from other food products for hygiene reasons. The luxury of refrigerating and freezing allows households to purchase foods in bulk, that can be eaten at leisure while the bulk purchase provides plentiful cost efficient savings.

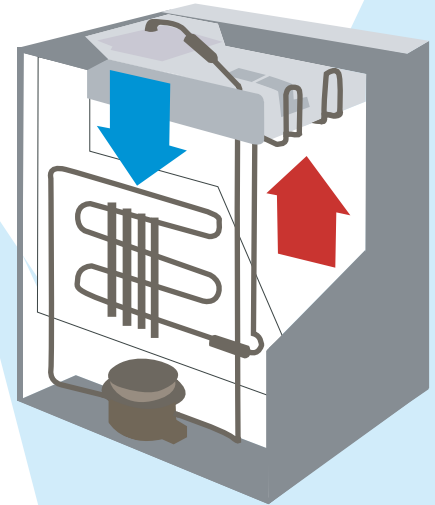
Sources

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How It Works

Refrigerators work by the use of heat pumps operating in a refrigeration cycle. An industrial refrigerator is simply a refrigerator used in an industrial setting, and usually in a restaurant or supermarket. They may consist of either a cooling compartment only (a larger refrigerator), a freezing compartment only (a freezer), or may contain both.

The vapor compression cycle is used in most household refrigerators. In this cycle, a circulating refrigerant such as freon enters the compressor as a vapor at its boiling point. The vapor is then compressed and exits the compressor as a superheated vapor. Vapor travels through part of the condenser which removes the superheat by cooling the vapor. This process is thermodynamics.



Above: The refrigerant vapour returns to the compressor inlet to complete the thermodynamic cycle.

Modern Day Features

Automatic Defrosting



A power failure warning



An in-door ice caddy



A cooling zone in the refrigerator door shelves.



An indicator of what types of food should be stored at what temperatures, and the expiration date of the food stored.



A television set built into a door.



Sign House T

Above: Ice cubes stored in ice cube trays.



LG Electronics World Wide

Above: The modern-day refrigerator features a digital LCD screen.

Digital-Analog Design Punch Cards is a set of research cards designed and produced by the students of DSGD 186, Digital Applications Methodology, a third-year graphic design course at San Jose State University, Fall 2006. The set, composed of 1+26 cards, is by no means complete. Each topic was chosen and researched by the students, based on a theme presented by the instructor Pino Trogu, with help from Mauro Panzeri. This is card number 10 and it was designed by Amy Yip.



DSGD 186
 Digital Applications
 Methodology
 School of Art and Design
 San Jose State University
 California, USA – October 2006
 Digital-Analog Card No. 10
 Printed by psPrint.com