

"Maintain to Sustain"



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Better Than Yesterday?

In rummaging through my history files, I came across this article, it did not have the source but I think it was authored by Bernard Nagengast special consultant to ASHRAE. I thought you would be interested in reading this.

Air Conditioning: Improving the Way We Live

The first air conditioning probably started with early man when he moved inside a cool, dark cave to escape the summer heat and to protect himself from the winter cold.

Humans have continually searched for ways to keep cool in the summer, from indulging in Roman baths to siting castles for cross-ventilation to using cardboard hand fans during many summer church services.

It has only been in the 20th century - less than 100 years - that air conditioning as we know it now has been in use. Today, we find the benefits of air conditioning to be much more than personal comfort - it is necessary for improving productivity in the workplace, making possible good medical/health service and preserving fresh and frozen foods. In less than 100 years, air conditioning has become a necessity in our lives.

Air conditioning - or manufactured air, as it was first called - was originally considered to be simply controlling humidity. Textile mills had a higher production rate if the inside humidity could be managed. Then temperature control was added and - presto - circulated air with controlled humidity and a constant temperature.

In the late 1800s, mechanical refrigeration was used to preserve meat and perishable foods. In some large cities, cold air was piped from a central station to surrounding buildings for cold storage to preserve food, chill beer and protect special documents.

One of the first uses of air conditioning for personal comfort was in 1902 when the New York Stock Exchange's new building was equipped with a central cooling as well as heating system. Alfred Wolff, an engineer from Hoboken, New Jersey who is considered the forerunner in the quest to cool a working environment, helped design the new system, transferring this budding technology from textile mills to commercial buildings.

In 1906, Stuart Cramer first used the term "air conditioning" as he explored ways to add moisture to the air in his southern textile mill. He combined moisture with ventilation to actually "condition" and change the air in the factories, controlling the humidity so necessary in textile plants.

An early pioneer who did much to promote "controlled air" was Willis Carrier, a mechanical engineer who worked at the Buffalo Forge Company in Buffalo, New York. Subsequent subsidiary companies carrying his name helped conquer the temperature-humidity relationship, marrying theory with practicality. Starting in 1902, he designed a spray-type temperature and humidity controlled system. His induction system for multi-room office buildings, hotels, apartments and hospitals was just another of his air-related inventions. Many industry professionals and historians consider him the "father of air conditioning."

While factories were the first focus of "controlled air," followed by office buildings and schools, the impetus to shift air conditioning from industrial to commercial use was the movie theater. Between 1911 and 1930, more movie theaters were air conditioned, providing movie goers with a pleasant indoor

environment - and an escape from their hot, humid neighborhoods. The Central Park Theater in Chicago opened in October 1917, this time using special refrigerants to help cool the movie house air. Technology was providing the means to control humidity and temperature that improved personal comfort.

Air conditioning as we now know it took off following World War II when scarce resources were no longer required for the wartime effort. Manufacturers found that the market for personal comfort was growing and the demand for air conditioners began to outstrip supply. Mass produced machines were marketed as improving personal health, helping get a better night's sleep and keeping the insides of houses clean.

Architects used the possibilities afforded by air conditioning to venture into new commercial and residential building concepts, designing with more glass and closed spaces without the need of shaded areas and cross ventilation. Post-war homes could take on a whole new style, becoming low, rectangular structures with picture windows and sliding glass doors. Mechanical cooling in commercial buildings permitted the glass-walled sky scrapers to be built, freeing architects to plan efficient structures that could be sited and built just about anywhere.

Today, new high-efficient air conditioning systems in both residential and commercial buildings, using less environmentally-damaging refrigerants, will save billions of kilowatt hours of electricity in the United States alone.

Air conditioning has had an incredible impact on the way we live, giving us the option to work, play and relax in controlled environments. We live in air conditioned homes, travel to our air conditioned workplaces in air conditioned cars, shop in air conditioned stores and malls and enjoy sports in air conditioned arenas. We have year-round choices of fresh or preserved foods kept cool or frozen and benefit from advances in medical services that are made possible through air conditioning. We see new frontiers open up in space exploration because controlled environments are possible.

Air conditioning has changed the way we live.

Books that provide more information on the development of this industry include:

- **Air-Conditioning America: Engineers and the Controlled Environment, 1900-1960**, Gail Cooper, Johns-Hopkins University Press, published 1998.
- **Heating and Cold: Mastering the Great Indoors**, Barry Donaldson and Bernard Nagengast, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., published 1994.
- **Proclaiming The Truth: An Illustrated History of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.**, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., published 1995.

The Rest is History

