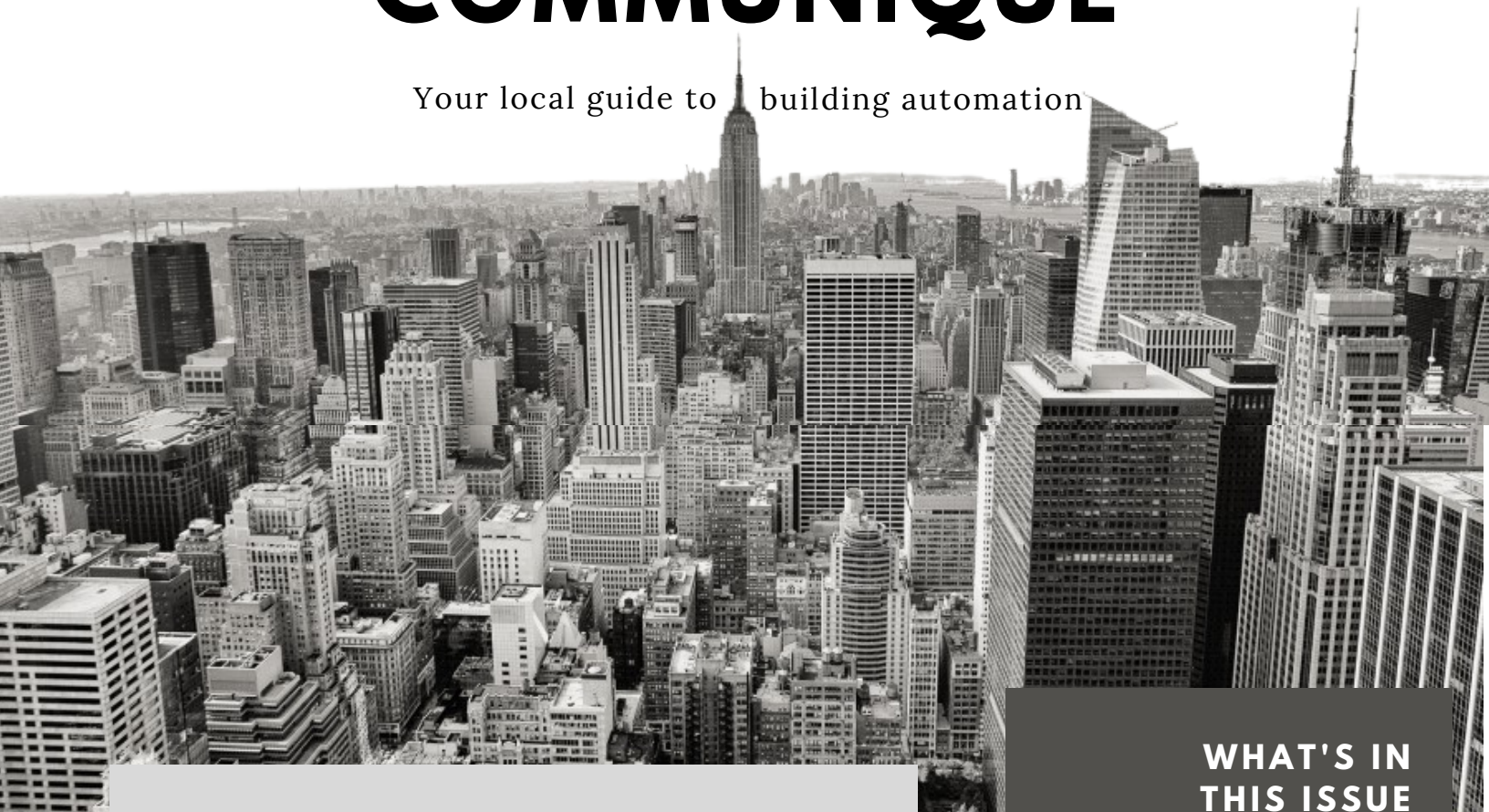


COMPLETE CONTROL COMMUNiqué

Your local guide to building automation



WHERE IT ALL STARTED

Though building automation technology is considered to be a more recent discovery, the ideas introducing automation have been around for a number of years.

The event most commonly considered to be the very beginning of what would turn into an "automation system", was in the year 1883 with the creation of the thermostat by Warren Johnson—the original founder of Johnson Controls. After this invention was revealed to the public, the automation industry quickly began to grow and evolve. In the 1800's before the invention of the thermostat, however, the heating systems used in buildings were just furnaces themselves. Though furnaces were respectable heating systems, they were often inconvenient and unreliable if not thoroughly tended to. If coals were not fueled through the night, rooms would become cold in the morning and get increasingly hotter through the day.

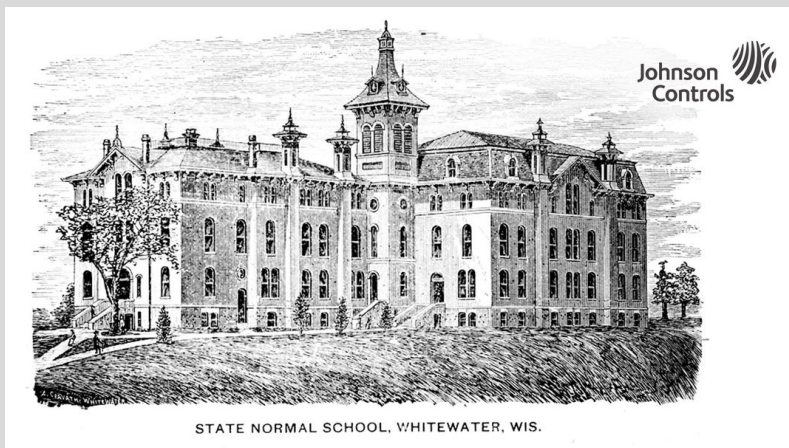
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Another person also credited for the start of the automation industry is Cornelius Drebbel. Drebbel was a Dutch inventor from the 1600's who utilized an incubator thermostat as a way to help eggs hatch into chicks by keeping them warm. Both of these inventors have been referred to as the founders regarding the start of building automation.

In the following two decades, the non-residential control industry soon created an automatic control system that could operate steam and hot water. Ventilation and air conditioning were added on shortly thereafter.

PNEUMATICS

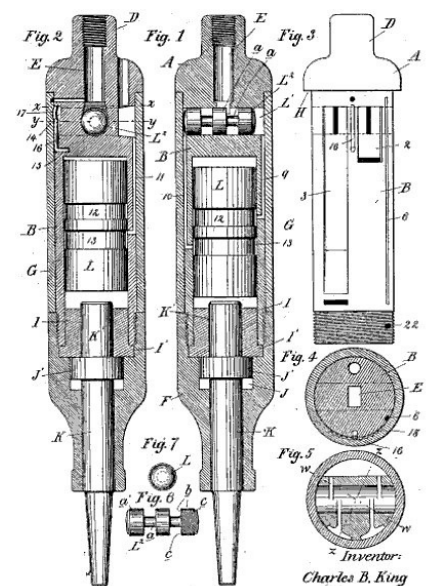
Pneumatics is defined as the science of using compressed air as a way to send energy and force. Surprisingly, pneumatics has been used for thousands of years, beginning with primitive hunters. However, it was not until the 1800's where it began to prosper and expand into its own industry.

During this era of pneumatics, people began to create tools and systems with pneumatics for practical use. It first started with the creation of pneumatic tubes, which allowed for the passage of telegrams to different stations using pipelines. This usage of pipelines was soon able to transport different items, such as money and mail.

The person most known for the accelerated usage and the popularization of pneumatics is Charles Brady King. He invented the pneumatic hammer, used for fastening steel structures in railway sleepers and shipyards.

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5. The Past, Present, and Future of Building Automation Systems



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Up until the 1970s, pneumatics was a staple in building automation systems. Nearly all controls and central control stations used in large commercial buildings during this time were pneumatic. This, however, began to change with the introduction of digital computers. Though most equipment remained pneumatic, building automation systems started to shift from pneumatic to electric in the 1980s.

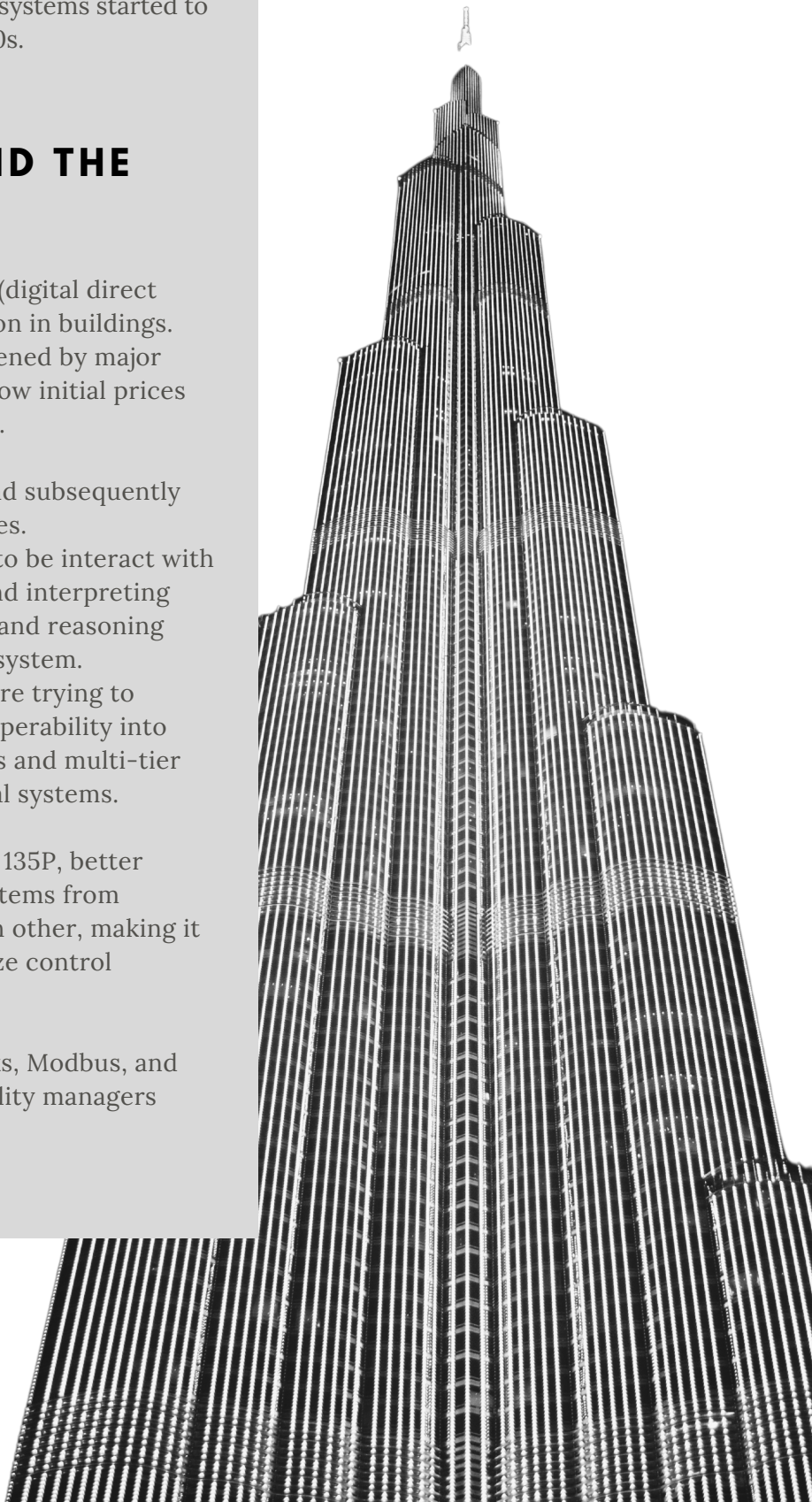
INTEROPERABILITY AND THE CREATION OF BACNET

The shift to electronic systems had DDC (digital direct control) became very popular and common in buildings. Yet, some facility professional felt threatened by major companies fishing for more money with low initial prices and high maintenance and addition costs.

Ultimately, this led to interoperability, and subsequently BACnet, to become attractive commodities. Interoperability allows multiple systems to be interact with one another in the form of exchanging and interpreting information. This is the the main benefit and reasoning behind installing BACnet for a building's system. In the late 1980's, many manufactures were trying to create a standard of implementing interoperability into systems. This includes creating languages and multi-tier protocols levels for proprietary hierarchal systems.

Finally, in 1987, we get the ASHRAE's SPC 135P, better known today as BACnet. This allowed systems from different companies to interact with each other, making it harder for major companies to monopolize control protocols and systems.

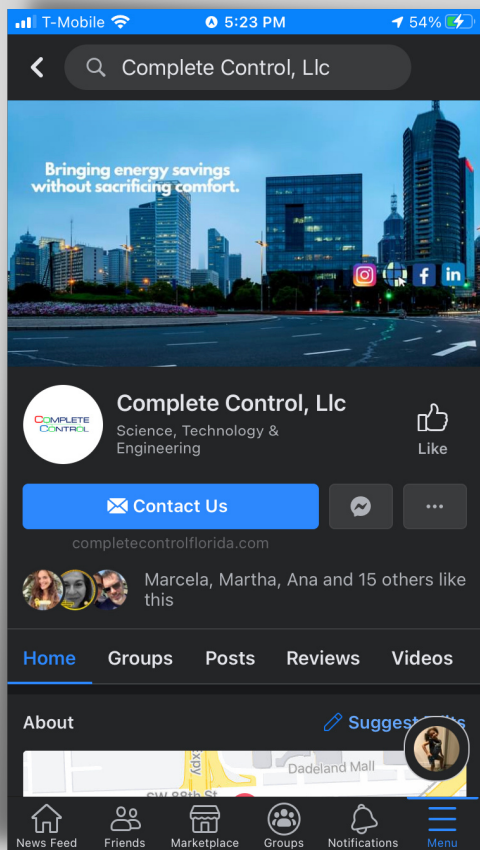
Since then, other protocols like LonWorks, Modbus, and KNX have entered the market, giving facility managers more options to better suit their needs.



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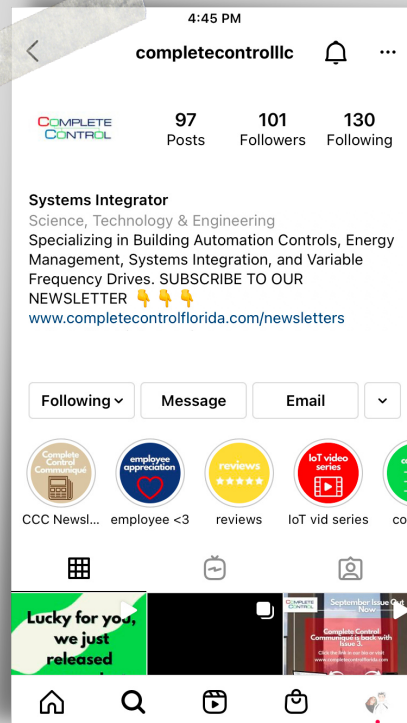
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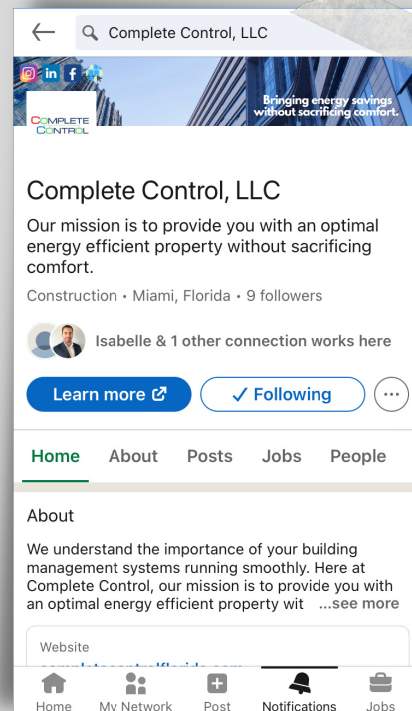
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LINKEDIN:



305 317 5570



completecontrolflorida.com



Complete Control, LLC



admin@completecontrolflorida.com