A History of Bruce L. Davis

Life Member - Mississippi Valley Chapter 123

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First of all…Bruce is doing fine…I just spoke with him last week. Although he is retired, he is still active in our chapter activities. I recently caught up with him following the annual MVC Chapter spring Education Seminar in Davenport, Iowa. Now, for the rest of the story…

Bruce L. Davis was born in Montour Falls, New York in 1938, the son of Daniel and Miriam Davis, descendants of Welsh coal miners. Montour Falls is located in the Finger Lakes region, just a mile from Watkins Glen on the south end of Seneca Lake. He lived in nearby Odessa until age nine. He was a youngster during WWII and recalls that his family moved out of town to live with his grandparents on a farm. His dad had volunteered for service in WWII but was not drafted because he had deafness in one ear. Therefore he farmed also worked in a factory in town making war goods in support of the troops.

After the war, with an improving economy, Daniel Davis moved his family to Union Springs where he was able to pursue a longtime passion—raising honeybees. Mr. Davis had worked for a beekeeper in Odessa earlier, and always wanted his own hives. The Davis family lived in Union Springs until retirement. Bruce worked in his parents' honey shop as a youth. He recalls extracting honey by cutting open the wax cells with a hot knife and then spinning the combs in a separator. They would sell the honey and also the recovered bee's wax.

Bruce recalls that like farming, there were good years and lean years in the beekeeping industry. The family also raised rabbits and planted a large garden to supplement the dinner table. Some years they would pack up the beehive 'supers' and travel to Florida for the winter, where the bees could hunt on their own while avoiding the cold winters in New York. Eventually they opened another honey shop in Florida to supplement their income.

The family bee business actually led to Bruce's ticket to college. One year a "perfect storm" of events occurred where they were able to double their production to nearly 600 pounds of honey per hive and increasing their capacity to 600 barrels of honey. On top of that, the price of honey also doubled so that they had an incredible year. His dad was able to buy a house from a brother in Florida, a cabin on the lake, a new truck, fund his retirement plan, and send all four kids to **Cornell University.** Bruce and his sister still have the cabin today.

With a history in farming and agriculture Bruce enrolled in **Cornell College of Agricultural Engineering** after graduating from **Union Springs Central High School** in 1956. His dad knew a Professor Roger Morris that had a special interest in apiculture (beekeeping). This was a lead-in to engineering for Bruce. He liked math and science, and was good at construction. Ever since he was a child he had always been fascinated with airflow, an "invisible power" as he described it. He remembers sticking his hand out of the car window to feel the wind, like we have all done. In engineering he was able to learn about both aerodynamics and hydrodynamics, probably harking back to his early life in Montour Falls and the beautiful She-Qua-Ga Falls located there.

During the summers Bruce worked on various dairy farms, other cash-crop farms, even a maple syrup farm. He recalls working on a large dairy farm in western New York where he had to unload 10,000 pounds of fertilizer in bags. Later they put him on a tractor to bale hay and straw, a John Deere 2-cylinder 'B' pulling an International baler. His crew became quite accomplished at baling, and one summer made more than 25,000 bales. He remembers one occasion when he ran over a bale with a rear tractor wheel, and almost tipped over before he was able to right it.

The hard physical farm work provided a good work ethic, but also gave him motivation to do well at his studies. He considered himself a B/C student until his final (5^{th}) year. After managing only a 45 on the first Differential Equations exam, he buckled-down and was rewarded with a perfect 100 on the final exam, finishing the course with a 90 average. With the required courses and electives he had completed 180 credit-hours after five years. Cornell offered him a "special degree" due to his extra coursework that he considered equal to a Master's degree. He later earned a formal Master's degree from **Augustana College** in Rock Island, IL.

After college the military draft was still in effect between the Korean Conflict and the Viet Nam War, and rather than get drafted Bruce enlisted in the Air Force. In his four-year enlistment he attained the rank of 1st Lieutenant. The Air Force is where Bruce had his first experience with HVAC design. He had taken an elective course in HVAC while at Cornell, but his first actual HVAC design was for the **Sewart Air Force Base** veterinary clinic for the Air Force Materiel Command in Smyrna, Tennessee. Using design guides from the Carrier Corporation, Bruce designed and selected the air conditioning equipment for the clinic. Like all young engineers, he would have liked a "do-over" on that first design, as he felt the air handling equipment was a little too noisy.

Following his service in the Air Force (he somehow managed an honorable discharge despite the noisy air handler) he asked his college placement office to assist with a career search. With their help he sent out 52 job applications and heard back from 35 companies, resulting in about 14 interviews. He recalls one interview with IBM in West Chester, NY that would have resulted in a Plant Engineer position, not really to his liking. The farm implement manufacturing giant **Deere & Company** in Moline, IL also showed an interest in Bruce primarily for his HVAC experience in the Air Force, but also probably due to his agricultural background growing up in rural New York, and his summer driving the John Deere 'B' while baling hay. His wife, whom he met in college and later married, had grown up in Barrington, IL so a move to Moline in western Illinois on the banks of the Mississippi River was not that far of a stretch for a native New Yorker.

Bruce's formal work career began at Deere & Company in Moline in 1966. What is amazing is that his formal work career also *ended* at Deere & Company in Moline in 2011 after more than 45 years of service. That is quite rare in today's work environment. The time in-between is where his career developed and culminated in a very rewarding final energy conservation project for Deere & Company. Deere had just completed construction of its world headquarters in Moline in 1964. President William Hewitt, the last Deere family member to lead the company, oversaw the work of Finnish architect **Eero Saarinen** that resulted in arguably one of the world's finest architectural designs. The building, affectionately called "the rusty palace" by local Quad City residents for its unique U. S. Steel Corporation COR-TEN weathering

steel and glass exterior, was so new that it might not have been rusty when Bruce first visited the site. Bruce reported to **John K. Freund** [ASHRAE Fellow] in the Facilities Department on the fifth floor. John later served as manager of the Deere Energy Management Program, where Bruce would eventually make his mark. Other contemporaries in the Deere Utilities Group at the time were mechanical engineers **Walter G. Kimmel** and **George E. Randolph, Jr**. as well as electrical engineers **Ward J. Jensen** and **Vernon M. Wegerer** who later would form Kimmel-Randolph-Jensen and then Kimmel-Jensen-Wegerer-Wray Engineering Consultants in Rock Island, IL.

During his career at Deere & Company Bruce eventually became affiliated with the local ASHRAE group. The **Mississippi Valley Chapter** was formally chartered in 1974 and would draw three Chapter Presidents from the ranks of Deere & Company: **Gary Freeman** in 1982-83, **Douglas Darby** [Region VI DRC] in 1984-85, and **Carl Loweth** in 1986-87, before Bruce served as President in 1989-90. As with many small chapters, members frequently worked their way "up the ropes" through various committees prior to committing to the four to five years required to progress through the Chapter Officer ranks. Bruce was introduced to the Mississippi Valley Chapter in 1980 when Carl was serving as MVC Energy Awards chair. Like many of us, his early duties included folding flyers, attaching address labels, and licking stamps for the annual Chapter Education Seminar mailings. For those of you under 30, this was the dreaded and laborious process prior to e-mail and the internet. From 1980 until 2010 Bruce had an instrumental role in the planning and presentation of every chapter seminar, whether it focused on Education, Energy, Technology Transfer, or whatever name Society wanted to call it at the time. After his year as Chapter President, Bruce stayed active on the Board of Governors, and took over the responsibility of Chapter Programs Chair in 1990-91 due to a resignation. He was also an important part of CRC 1994 and 2005 planning of Technical Programs. He was never one to shy away from hard work and organization.

Towards the end of his career at Deere & Company, Bruce became heavily involved in a major Architectural and HVAC renovation at the John Deere World Headquarters in Moline. Although the building was modernistic in its exterior appearance in 1964, Architects tended to overlook energy use. After the Energy Crisis and oil embargo of the 70's, management began to take a serious look at

energy use at the 534,000 SF facility. Spending the money to upgrade might have been another story. Studies were performed and energy simulations were run, with Bruce performing an integral role. Management finally agreed to fund the project, but they were not satisfied with just an HVAC approach. A complete lighting system upgrade began in 2004. In a phased remodel beginning in 2008, Deere embarked on a plan to attain LEED EB Gold certification. This included: original window glazing upgrade from single-pane to insulated thermal glazing; complete pneumatic to DDC controls upgrade with web access; VAV box retrofit from Constant Volume-Dual Duct mechanical volume regulators to Variable Volume Dual Duct with flow rings; and the heart of the system—upgrading the Single-Fan Dual-Duct air handling systems to Dual-Fan Dual-Duct systems. For their efforts, Deere has seen about a 40% reduction in their headquarters Energy Utilization Index starting in 2008 to 2011, and more than doubling of their Energy Star rating. They are well on their way to achieving **LEED EB Certification**, with LEED Commissioning completed in March 2011. In addition to the continuous energy savings and cost avoidance, Deere qualified for a utility company energy rebate/incentive of $1.112 Million for the project. (As Bruce points out, that "2" is $20,000!)

The comprehensive project is nothing short of what one would expect from one of the world's premiere manufacturing companies. Armed with the energy simulations and actual energy data, Bruce submitted the project for **ASHRAE 2012 Society Technology Awards**, and received **Honorable Mention: Commercial Buildings, Existing**. The project was also featured in the **April 2012 ASHRAE Journal**. For all of his hard work and dedication, it was nice to see Bruce Davis get some deserved recognition at the twilight of his career, even going a few extra innings to bring his life full-circle. It was a "honey" of a project, and real sweet! Congratulations, Bruce on a job well done.

Bruce at Retirement

Bruce at Deere 40th