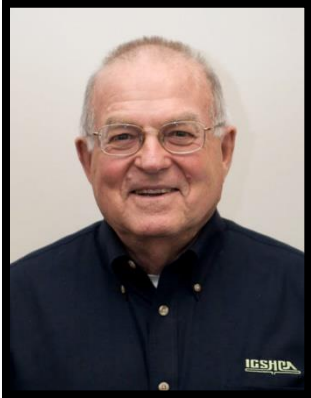


James Edwin Bose



James Edwin Bose was born August 17, 1937, near Bessie, Oklahoma on a farm with 5 boys and 5 girls in family. Jim died December 10, 2021, at the age of 84. Jim graduated from Oklahoma State University with a B.S., M.S. and Ph.D. in Mechanical Engineering. Jim became Director of the Division of Engineering Technology in 1970, started research on ground source heat pump systems, started IGSHPA and served OSU until his retirement.

In Jim Bose's own words, he will describe starting IGSHPA: "Tom and Phil Ashmore from Tulsa come to OSU's Construction Management Technology (CMT) department to encourage the start-up of a program of energy efficient housing. Jim Bose is invited by Dean Imel CMT department head to join the group for lunch. During lunch, Tom Ashmore asked if Jim Bose would go to Oklahoma City (OKC) and look at a new heating and cooling system that was being marketed to them.

Bose goes to OKC and learns about water source heat pumps, Vaughn Corporation, Solargy heat pumps and Carl Orio. Business owner in OKC is using a Solargy heat pump in his home with a swimming pool as a water supply and the swimming pool has become too hot for his family to use. Bose promises to help the businessman and returns to OSU. An old textbook from a HVAC course taught in 1958 talked about heat pumps and water sources. Textbooks from the OSU library (Kemler and Oglesby, Heat Pump Applications, Heat Conduction by Ingersoll) supplied the fundamental knowledge to investigate and initiate a program.

Bose talks to Jim Partin (fellow OSU Mechanical Engineering Professor) and they meet with Carl Ledbetter (Stillwater OK Carrier Dealer). Howard Newton and Lynn Vick service technicians were also in attendance. Carl Ledbetter asked them to come to his office after 5:00 pm at which time he proceeded to cut apart a brand new Carrier (Triple Function air source unit) and build the first skid mounted unit that they took around to county fairs and to any group that would listen to them.

Note: Bose, Partin and Ledbetter would later form GeoSystems and begin installing ground source heat pumps in the Stillwater, Oklahoma area. GeoSystems would later employ Phil Rawlings and Alan Skouby (GeoPro) who had worked previously with Jim Partin.

There were no research facilities available for the project, so Bose went back to the Ashmore brothers and proposed a joint project. The project would run in parallel that is research, design, application, and outreach would all start at the same time. Tom Ashmore gave \$20,000 to OSU (Dr. Jay Boggs accepted) for building materials, OSU gave a building site on McElroy Street on the university campus, Students in Construction Management built a research facility designed by CMT faculty member

Dean Irby. Ledbetter had donated the heat pump and Bose and Partin would be involved in research, design, application, and outreach.

The first ground heat exchangers at the research facility were horizontal and constructed from PVC pipe since Ray Neathery (Mechanical Design Technology faculty member) talked his brother into giving OSU some 4-inch pipe. The first vertical ground heat exchanger at the McElroy research facility was a 5-inch 250 foot PVC vertical pipe. Funds for the vertical installation were from Monroe Kriegel, Director of the Engineering Extension department at OSU.

The first OSU outreach programs were little more than a small three-ring binder with a few drawings and even less text materials. But they were fulfilling their obligations. One participant at one of the earlier workshops on energy efficient buildings was Bob Weaver who later joined the OSU College of Engineering extension department and later transferred to Engineering Technology and subsequently was named the first Executive Director of IGSHPA in 1987.

During the time period 1974 through 1978, the research, installation, and outreach programs were developing with little external funding. Outreach programs were carrying the OSU project and the local contractors kept the program alive and in the public's eye. The election of Jimmy Carter provided the opportunity and Ray Chapel (OSU Engineering Research Director) suggested that Bose write a proposal with the guidance of Al Martin, OSU Federal Relations consultant. In 1978, DOE granted a contract to OSU in the amount of \$159,510 for a project named "DOE Solar Assist" since Al Martin was convinced that unless it has "Solar" in the title it would fall to the bottom of the proposal pile. From a zero dollar research budget to 159k was a start that OSU needed.

Meanwhile Dan Ellis was digging and stirring things up in Indiana. In 1978 he co-owned Environmental Systems, Inc which focused on building the whole building including energy efficient technologies. In 1980, Dan founded Genesis Energy Systems and was initially the sole owner. At Genesis he began as a contractor marketing GHPs and solar systems in a pioneering mode. During his early stages of this business, he was concentrating on colder climates and worked with Bose (OSU), Partin (GeoSystems) and others exchanging ideas and extending the knowledge base. In mid 1981 market growth was much bigger than is small company could handle, Genesis merged with A. Hattersley & Sons becoming the Genesis Energy Systems division and transformed Genesis into a wholesale distributor of GHPS and solar systems. In this new role, markets in Indiana, Ohio Southern Michigan were developing rapidly. In 1983, Ellis met Dave Hatherton and founded WaterFurnace International (April 1983). That left no one to run Genesis and Van Bourn who was one of his dealers in Indianapolis added Central and Southern Indiana from Genesis and became a distributor. WaterFurnace of Indiana was formed as one of WaterFurnace International's first distributors. The other two then were Heatherton's company Earth Systems, Ltd. In Ontario, and Genesis which kept the rest of its territory and was managed by Reva Brown...now of pond loop fame.

The Start of IGSHPA: The GHP activities in Indiana and surrounding states were developing rapidly and Public Service Indiana needed a technology that would compete effectively with electric air conditioning and forced air natural gas heating which was dominating the market. Public Service of Indiana (PSI) hired a Vice-President of Marketing and Business Development named Dale Osborn. Dale was a student in one of Bose's classes while working on his BS and MS Industrial Engineering degrees at OSU. Osborn called for a gathering in Plainfield Indiana to talk about developing a marketing program using GSHPs for members of PSI. The Chairman of the Board at PSI had one in his home, and he loved it. This meeting included Phil Albertson Sr., Tom Oday (who had ties with Bill Fleming, Pat Hughes, etc.) and it was suggested that an association be formed. Osborn carried the big "wallet" so he suggested that OSU (his Alma Mater) be the home of the association and assigned Tom Oday and Jim Bose to write the Constitution and Bylaws of what would later be called the International Ground Source Heat Pump Association (IGSHPA.) At this meeting, Bose and Oday suggested that Charter Members of the association should put up \$10,000 each to show their commitment. Commitments were obtained from Ditch Witch (Phil Albertson), McElroy Manufacturing (Art McElroy), Mississippi Power, NRECA, Public Service Indiana (Dale Osborn), Trane and WaterFurnace (Dan Ellis). We had over 30 IGSHPA Annual Conferences all over the USA telling the world about ground source heat pump systems."

Jim Bose also belonged to the Sons of the American Legion which is part of the Hanner-Sharp American Legion Post 129 in Stillwater, Oklahoma.