

SUSTAINABILITY RESUME - DETAILED
of
PROFESSOR WILLIAM RICHARD GRIFFIN, JR.; JD, MSTM, MS, BS

Cell: 912-667-1970

Office: 912-349-7989

billgriffin@theleadershipcenter.com

Office address: Leadership Center 33 Cotton Crossing Savannah, GA 31411	Mailing address: 1 Diamond Causeway Suite 21-335 Savannah, GA 31406
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EDUCATION

Juris Doctor, Suffolk University Law School, 1978. Phi Delta Phi legal honor society. Dean's List. Cum Laude. Wrote the paper, *Environmental Regulation, an International Perspective*.

MS Environmental Engineering, Northeastern University, 1974. Focused on environmental protection and public health courses. Finished in the top one percent of the class.

BS Civil Engineering, Georgia Tech, 1970. Dean's List. He worked on a student project that used recycled and surplus materials to build an urban playground.

MS in Technology Management, Pepperdine University, 1998. Delta Mu Delta business administration honor society. Finished in the top one percent of the class.

SUMMARY

Bill Griffin has worked in the arena of sustainability since 1970, with special interest in the areas of environment and energy.

He began his career as a scientist in a government environmental laboratory. He then worked as an environmental engineer in an engineering services company that served the energy industry. He moved into management as an environmental services department manager, project manager and sales manager. For a major utility company, he was a spokesperson on energy and environment issues. He became an environmental lawyer. He worked as a legislative advocate at the federal, state and local levels. In the capacity of a regulatory lawyer and environmental engineer, he developed hundreds of documents that were submitted to regulatory agencies or used by clients to plan compliance with environmental and energy goals. In the capacity of a college professor, he has taught three courses that covered sustainability and corporate social responsibility topics, and he has taught one course that emphasizes lean manufacturing methods.

He provided sustainability services for government agencies and many industries, including: Department of Energy, Department of Defense, Federal Emergency Management Agency,

utilities, forest products, mining and metals, chemical processing, materials handling, manufacturing, real estate developers, commercial property owners, financial services companies, and others.

He worked in a number of technical specialties related to environmental protection and sustainability, including pollution detection, pollution control, pollution prevention, energy conservation, energy facility site selection and development, water conservation, commercial fisheries, wildlife management, land use management, flood plain management, occupational safety and health, industrial safety, socioeconomics, emergency preparedness, and public health.

He has done public service work in the environmental and energy arena. He was Chairman of the Environment Committee of the Federal Energy Bar Association. He was a member of the Energy Committee of the American Paper Institute. He helped establish a 17,000-acre wildlife preserve in Southern California. He has been a pro bono consultant to small businesses that were involved in sustainability efforts.

His commitment to sustainability concepts is evident in his roles as a real estate owner and investor. Each of his rehabilitation projects has included tactics to save energy and water, but his projects further embrace sustainability by optimizing use of existing space so that there is no pressure to expand the dwellings and thereby use more resources.

BIOGRAPHICAL BACKGROUND

Bill completed his BS in Civil Engineering in 1970, a time of widespread interest in environmental issues -- the first Earth Day was held in 1970. In the federal government, there was strong interest in environmental issues from the executive branch and both political parties, which led to the passage of the National Environmental Policy Act, Clean Air Act and Clean Water Act. On his first day of work after college, as a Commissioned Officer in the US Public Health Service, he was an environmental scientist at a US government laboratory, where he developed methods and devices for detection of radioactive pollutants. In December 1970, the federal Environmental Protection Agency was created, and Bill was re-organized into that agency, moving him into a regulatory agency and making him one of EPA's initial 2,000 employees on Day 1. He began writing, editing and managing technical documents, a skill that was to become a strong suit for him. In 1971, Bill started night school, and in 1974 he earned his MS degree in Environmental Engineering.

In the early 1970s, the US and many countries were hit with the "energy crisis." As had happened earlier with environmental issues, the US government stepped forward and adopted many new regulatory requirements in the area of energy.

In 1972, Bill moved to private industry. Energy was an important national issue, so he went to work for an engineering company that served energy utilities, especially electric power companies. Up to that point, most engineering managers were focused on three topics: technical adequacy, budget and schedule. With the passage of the new federal laws, the suite of concerns expanded to include three additional topics: environmental protection, public health and occupational safety and health, and quality assurance. Bill found that he had a talent for interpreting and applying the new regulatory requirements, so he became a regulatory specialist. He helped his firm survive and thrive in this new environment, and his Environmental Department expanded by 1000 percent in two years. At first, he worked as an environmental engineer; then he was promoted to technical manager roles. He oversaw different kinds of professionals (e.g., mechanical engineers, electrical engineers, scientists, lawyers) who were working on regulatory compliance efforts in the environmental and energy arenas. Working as a regulatory specialist, he realized that it would be helpful if he earned a law degree. Thus, as soon as he completed his MS in Environmental Engineering in 1974, he started work on a law degree at night school. He finished his law degree in 1978, and by 1980 he had passed two bar exams, the Massachusetts Bar and the Federal Patent Bar. [MLW1]

Now trained as both an environmental engineer and an environmental lawyer, Bill remained in the engineering services industry, because it offered opportunities to work on large-scale, complex environmental and energy problems. Some of his clients were industrial companies, who needed help interpreting regulatory requirements and developing compliance programs. Other clients were government agencies who needed help implementing the wide array of new laws, regulations and programs. Here are a few examples of the kinds of projects that he worked on during two dozen years in the engineering business.

- For a large electric company client, Bill participated in the nation's largest environmental siting study. Bill's team analyzed and made recommendations on technologies for energy conservation and alternative power generation, and they recommended sites that would minimize environmental impact. He was the lead expert witness when these studies were reviewed in federal hearings.
- For a large Florida electric utility, he participated in a long term planning study. His team concluded that the utility did not need to build more power plants to satisfy daytime peak demand. Instead, they needed better management of their load. For example, by using time-of-day metering for domestic hot water heaters (i.e., heating water at night), the daytime peak load would be considerably reduced, and the utility would not need to build new power plants for ten years.
- For a forest products company, he developed a plan to put it into compliance with the Public Utilities Regulatory Policies Act. The company used cogeneration methods to generate power and industrial process heat. It burned waste fuels (mostly bark and sawdust) and used other strategies to save energy. As part of a major plant expansion, the

company teamed with a local municipality to build a new water pipeline. This eliminated the need for the town to build its own expensive system. For the same client, after a catastrophic failure in a pressure vessel released hazardous chemicals to the environment, Bill helped develop an emergency response.

- For a large ship builder, he worked on an environmental analysis of a proposed plant expansion.
- When Congress directed the US Department of Energy (DOE) to develop a deep underground repository for disposal of nuclear waste, Bill led the design team for the facility, and later he led the regulatory compliance effort for DOE's system manager.
- For the National Commission on Air Quality, he worked on a survey that assessed the effectiveness of the Clean Air Act.

For a year, he worked full time as an electric company's spokesperson on energy and environmental issues.

In 1996, wanting to continue improving his skills in management, he began a graduate program on weekends. He earned his MS in Technology Management from Pepperdine University in 1998.

In the 1990s, a new industry arose that utilized new customer billing software and new metering technologies to conserve water and energy. In 1998, Bill joined one of the founding firms of this fledgling industry. His firm helped clients save millions of gallons of water.

In 2003, Bill transitioned to a full time role in higher education. He began teaching business, management, math, science, and law courses. Several times he has taught the course in Environmental Science, which uses an energy paradigm to present the material. Recognizing the need for the university to address environmental-related curricula, he created and delivered a course on Occupational Safety and Health Law. Corporate social responsibility (CSR) has also become an important theme in modern business education, and most experts consider sustainability to be an important part of CSR. In turn, Bill has taught courses in which CSR is an important part (e.g., Business Ethics, International Business, Environmental Science).

Bill teaches Operations Management, a course that includes concepts of *lean manufacturing*. Lean methods have tremendous implications for sustainability efforts, because lean manufacturing plants use fewer resources to make product. Lean methods save many types of resources, including energy, materials, space, time and money. Using just-in-time inventory management systems, companies can reduce or eliminate the need to build warehouses. In turn, manufacturing plants can be built smaller, requiring fewer resources to build and operate. The next logical step (now being implemented by Subaru) is "zero landfill" manufacturing methods, whereby the company's products and processes are designed to send no waste to landfills. Lean

methods are now being applied successfully to activities outside manufacturing, allowing resources to be saved in those environments. In a lean system, every employee has a responsibility to identify opportunities to eliminate waste of resources.

During four decades in industry, government and academia, Bill published and/or presented over four dozen technical papers. He has managed technical document packages as large as 3,000 pages and led author teams as large as 70 people.

PROFESSIONAL EXPERIENCE

2003-2012. Professor at National American University in Rapid City, SD. This is a career-oriented college that emphasizes majors like business, management, accounting, and legal studies. There are 30 campuses in 10 states. Bill taught two dozen courses in business, management, math, law and environmental science. He worked as a manager in two capacities in the graduate and undergraduate divisions. When the university proposed to build a new campus, he advocated that they use a LEED design strategy (Leadership in Energy and Environmental Design). From 2000 to 2012, he was an adjunct professor at three other colleges.

1998-2003. Vice President, Secretary and General Counsel for NWP Services Corporation. He led the legal function for a firm that used new metering and billing technologies to create conservation programs in rental properties. He conducted surveys and analyses to determine the conservation effectiveness of the company's programs (typical water savings were in the range of 15 to 25 percent). He was an expert witness and legislative advocate in federal, state and local forums.

1982-1997. Senior Project Director for Fluor Corporation, one of the world's largest engineering and construction firms. He led the regulatory function for the design of a \$5 billion waste disposal facility, and he was promoted to Project Manager. He led the regulatory function (environmental, safety and socioeconomics) for the Nuclear Waste Management System, the country's largest infrastructure project (\$30 billion life cycle cost). He helped lead a team that developed a sales strategy focusing on environmental, safety and health projects. This led to \$500 million in new contract work for his company when decommissioning of contaminated industrial facilities became an important source of work. He was connected with the design of a rocket launch pad project at Vandenberg Air Force base that replaced pollution control methods with pollution prevention methods.

Bill worked in Fluor's Southern California facility for over a dozen years. It provided some practical experience regarding sustainability concepts. The buildings included the world headquarters and a huge engineering facility. Both buildings incorporated a number of energy conservation technologies. For example, most of the space heating was provided by waste heat

collected from light fixtures. However, the design of the two buildings differed in regard to their ability to be maintained and modified. Over the years, the engineering building proved to be easier to maintain and modify, because many concepts of flexibility had been built into the design. The design was more effective in regard to sustainability. By contrast, the headquarters building, the more expensive of the two buildings to construct, proved to be more difficult to maintain and modify. It consumed more resources when the time came to convert it to new uses. The design was less effective in regard to sustainability.

1979-1982. Project Manager and Sales Manager for HMM Associates, a small environmental and safety consulting firm. For a large urban developer, he analyzed energy conservation and environmental requirements for Park Place, a large mixed use construction project that was proposed for downtown Boston. The design incorporated a wide variety of state-of-the art energy conservation technologies. One concept that was evaluated would collect solar thermal energy from building walls during daytime, store the energy in a subterranean thermal reservoir, and use the stored energy to heat the building during nighttime.

1977-1979. Project Engineer for Boston Edison Company. Led federal environmental and safety permitting for a \$4 billion construction project. He was an expert witness in federal tribunals that reviewed “need for power” issues and compliance with the Clean Water Act and National Environmental Policy Act. As a Public Information Specialist, he represented the company in public forums and media relations regarding energy and environmental issues.

1975-1977. Project Manager for Anderson Nichols, a medium size civil and environmental engineering firm. He managed projects for FEMA’s National Flood Insurance Program. Typical projects included flood predictions, flood plain mapping, and use of flood plain zoning to prevent future damage due to flooding. He managed dozens of public hearings. An indirect impact of the new flood plain zoning rules was the creation of greenbelts along many rivers; for example Rapid City, SD, where Bill lived for nine years, created a huge greenbelt to prevent future flood damage.

1972-1975. Project Engineer and Environmental Engineer for Raytheon Engineering Company. Working primarily for the electric power industry, he helped establish regulatory compliance work as a principal source of business for the company’s Environmental Services Department. He participated in environmental siting studies in several states. He was his organization’s specialist regarding compliance with federal laws such as the Clean Water Act, Clean Air Act, and National Environmental Policy Act.

1970-1972. Environmental Scientist for the US Environmental Protection Agency. He developed methods and devices for detection of environmental pollutants. He was an employee of EPA on Day 1, the day the Agency was established.

TRADE ASSOCIATIONS, COMMITTEES, VOLUNTEER EFFORTS

Bill has worked on several professional society and volunteer activities related to sustainability. Here are some examples:

- Since 1970 he has been a member of American Society of Civil Engineers, a large and influential professional society. For many years, ASCE has promoted sustainability as a professional responsibility for civil engineers.
- As a leader in the environmental industry, he participated in many technical conferences (e.g., International Waste Management Forum in Tucson, International High Level Waste Conference in Las Vegas). He was a presenter, session moderator, and member of planning committees.
- As a Nature Conservancy member and volunteer, he worked on the creation of a new, 17,000-acre wildlife preserve in Orange County, CA. He was trained as a field guide docent in five preserves, and he took thousands of members of the public on hikes there. He was selected as the California Nature Conservancy's Volunteer of the Year.
- He was Chair of the Environment Committee of the Federal Energy Bar Association. He led the committee's efforts to develop an annual report that catalogued environmental law developments of importance to the energy industry.
- He was a member of the Energy Committee of the American Paper Institute, a trade association with 171 members. During a period when the federal government was implementing many new policies on energy conservation, he helped coordinate industry compliance efforts with regard to rulemakings and federal policies. For example, he worked with the US Department of Energy during its efforts to establish criteria for cogeneration power plants.
- He co-chaired the Legislative and Regulatory Committee for a conservation industry trade association with 50 members. He led regulatory compliance efforts for the industry and legislative advocacy efforts for the industry.
- He has been a member of the Audubon Society, Norbeck Society, and other environmental organizations.

PERSONAL INITIATIVES

As a home owner and real estate investor, Bill has planned and designed projects that make significant use of sustainability strategies. Evidence of his interest has been his commitment of thousands of hours of personal time and investment of well over \$100,000 of personal money in these projects.

He uses a two-pronged approach to these real estate improvement projects.

- Conserving resources related to operation. Resources can be saved if the operation of a dwelling can be made more efficient. Those savings take the form of reduced cost of electricity, water, etc. These are usually recurring costs. Strategies in this category include things like using fluorescent lighting instead of incandescent to save electricity, using water saving plumbing fixtures, and installing thermal insulation to reduce heating and air conditioning costs.
- Conserving resources related to creating the dwelling, expanding the dwelling, decommissioning it, and disposing of the waste after the structure has been retired. These costs include construction materials, fixtures and labor. These are costs that usually occur only once (non-recurring costs). Resources of this type can be saved if the size of a dwelling is minimized. When he buys an existing dwelling, Bill's typical goal is to eliminate the pressure to expand the footprint of the dwelling (e.g., provide meaningful responses to resident concerns that "We need another closet," or "We need another bedroom."). If a dwelling is expanded, it usually consumes more resources in the form capital cost (e.g., construction materials and labor), higher end-of-life demolition and disposal costs, and higher utility costs (i.e., in addition to higher capital cost, the expanded dwelling will usually have higher recurring costs). He has used several strategies. In some cases Bill has increased the outdoor living space by installing patios and gardens; by letting the residents "spread out" on the property, they feel less crowded and exert less pressure to expand the indoor space of the dwelling. Another important strategy to reduce pressure to expand a dwelling is to optimize use of space inside the existing dwelling. That can include steps like modifying floor plans, installing storage systems, and installing flexible rooms (e.g., create an office that can double as a guest bedroom). Finally, if a dwelling can simply be made more comfortable, the occupants will exert less pressure to enlarge it. For example, bigger windows make a dwelling feel more open and less claustrophobic; consequently, the residents are more comfortable in the dwelling and exert less pressure to expand it.

Here is how he has applied these philosophies to managing his real estate since 1979.

A Boston condo built in 1888 had essentially no conservation features. Bill:

- repaired the windows and insulation systems
- installed a new insulated entry door
- installed state-of-the art light fixtures
- gutted the old bathroom and installed new state-of-the-art fixtures
- gutted the old kitchen and installed new Energy Star rated appliances
- took other steps to optimize use of space and increase the functionality of the dwelling (e.g., installed a laundry room/pantry and a tool room/workshop).

A nearly new home in Irvine, California, which included many energy conservation features. However, the house was small inside, and there was pressure to expand the footprint. He:

- took steps to optimize use of space inside the dwelling
- installed a workshop and new storage areas in the garage
- installed hat racks in the hallways
- fabricated a full-wall entertainment center
- installed extensive gardens, patios and lawn furniture, thereby reducing the pressure to expand the dwelling

A Laguna Beach, California home built in 1948 had essentially no energy conservation features. He:

- replaced the old roof with an integrated system that included thermal reflective panels, Cobra roof ventilation, wind turbines and blown-in attic insulation. The new roof/attic design lowered the summer temperature in the house and eliminated the need to install and operate air conditioning. The new roof/attic system also saved energy during the heating season.
- replaced old windows with new ones equipped with film that prevented half of the sun's heat from entering the house
- installed fifty modern recessed light fixtures
- retired the old furnace and installed a new high-efficiency furnace
- installed water conserving shower heads and toilets
- used xeriscape landscaping on most of the property
- watered the small garden with a deep irrigation system that had less evaporation losses than a spray irrigation system
- space optimization reduced the need to expand the footprint of the house. A bedroom was converted to an office/guestroom. A den was converted to a library/ home theater. There were extensive additions to the storage space in the house
- installed a patio and garden to create more outdoor living space

A South Dakota home had been built from scrap and recycled materials during a period of 50 years. It included very few conservation features. He:

- took many steps to reduce energy consumption, water consumption, air pollution, and discharge of polluted water
- replaced two ancient, inefficient boilers with a new high efficiency boiler that used less energy and created less air pollution and odors
- equipped a new room with an efficient, in-floor radiant heating system
- installed a new roof with improved insulation and ventilation
- installed new insulation and paneling in several outside walls

- completely rebuilt the garage and insulated with Tyvek and heavy fiberglass insulation
- insulated water supply pipes in the crawl space
- repaired leaky sewer pipes
- removed an ancient, ineffective septic tank that was polluting a nearby creek. Installed a new, state-of-the art model.
- retired an old, contaminated, shallow well
- converted the water source to a clean deep well, and installed a new, energy efficient well pump
- retired leaky plastic water supply piping and replaced it with copper plumbing
- installed new windows and doors that included double pane glass and film that prevented half of the sun's heat from entering the dwelling. The new windows were larger to improve cross ventilation in the summer and reduce the need to use air conditioning. Larger windows also allowed in more light, thereby reducing the demand to operate electric lights.
- equipped the house to use awnings to reduce heat from sunlight
- took many steps to optimize use of space inside the house
- converted a storage room to an office/guest room
- installed a new bathroom and an artist's studio without expanding the footprint of the dwelling
- installed two decks to increase the amount of outdoor living space

A South Dakota apartment building was built in 1920 with essentially no energy conservation features. He:

- took steps to extend the working life of water heaters
- installed storm windows where none existed previously
- repaired 30 broken windows
- worked to eliminate drafts around leaky windows and doors
- repaired leaky water supply piping systems
- made improvements in the heating, ventilating and air conditioning system
- removed an old, inefficient, smelly boiler and installed a new, high-efficiency boiler that produced less odors and air pollution
- took steps to optimize use of space inside the dwelling

A South Dakota house had been built during the 1970s, so it included some energy conservation features like wall and ceiling insulation and an irrigation system equipped with electronic timers. He:

- replaced all old windows with double pane windows with a film that prevented half of the heat from sunlight from entering the house. The new windows were larger than the old ones, so they admitted more light and reduced the need for electric lighting inside.

Larger windows also allowed for more cross-ventilation, which reduced the need to use air conditioning.

- installed a five-zone heating system
- installed a state-of-the art water heater
- installed ceiling fans in most rooms.
- installed new bathrooms that utilized water conserving technologies
- replaced all kitchen fixtures with new, energy conserving technologies such as Energy Star rated appliances
- installed new, energy efficient lighting systems inside the house
- added solar powered lighting to parts of the outside
- installed automatic daylight sensors on some outside lights
- equipped the house to use awnings to reduce heat from sunlight
- took many steps to optimize use of space and reduce the need to expand the footprint of the house
- replaced a storage room with an office/guest bedroom
- converted a bedroom to a library/home theater
- added significant additional storage capability to the garage and workshop
- installed an outdoor kitchen and fireplace to increase outdoor living space
- installed three additional patios

A 27-year old home in Savannah that includes some conservation features (purchased in 2012). He:

- repaired the attic ventilation system
- repaired the under-house insulation system
- upgraded the storage capability of the garage and three closets
- installed new ventilation devices in the garage
- has begun the process of rehab to improve the sustainability aspects of the home. Some of the candidates for improvement include window repairs, better attic vents, optimization of the irrigation system, and installation of xeriscape method landscaping.

His commitment to sustainability is a consideration when he selects vehicles. Each time he buys a new vehicle, he buys something that is lighter and achieves ten percent better fuel economy. During the past three summers in Europe, he leased cars that achieved 37 to 39 miles per gallon.

He is a craft artist who uses recycled materials. He uses found objects to make furniture, useful items and decorative items.