

Case Study

LaFontaine Auto Campus

Highland, Michigan



Office of Pollution Prevention
and
Compliance Assistance



SETTING THE GOLD STANDARD FOR GM DEALERSHIPS

LaFontaine Automotive Group developed a plan to become the first traditional automotive dealership in Michigan to obtain LEED certification for new construction and the first Gold LEED certified GM dealership nationwide- they succeeded on February 18, 2009. Leadership in Energy and Environmental Design, or LEED, is a voluntary, third party certification program developed by the United States Green Building Council. This program promotes environmental stewardship through green design and construction standards.

The new dealership site consists of a 63,000 square foot building on 34 acres of former agricultural land, and features showrooms for various brands, a large service area, as well as a café and boutique featuring specialty items. Green features were built in to save money and resources.

Site Management

During development, the project was sensitive to encroaching on agricultural lands, compromising existing wildlife habitat, and contributing to local and regional erosion. Establishing sustainable design objectives and integrating building location and sustainable features limit the environmental impact of buildings on local ecosystems. LaFontaine put this philosophy into practice. Of the 34 acres of property approximately 10 acres, of which 3.9 acres are wetlands, remain undeveloped. The site was designed to avoid any encroachment into the two regulated wetlands on

the parcel. The site utilizes green belts in the lot and asphalt was colored to minimize heat island effects. Drought tolerant plants and stone mulch were used to minimize the turf areas that would require additional irrigation. Grass plantings were reduced and recycled rock mulch was used where appropriate. Disturbed areas were immediately planted with a native seed mix to establish soil stabilization and maintain the integrity of the natural landscape.



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Materials and Resources

In the design and construction of the facility, materials were used and re-used. During construction, materials were recycled and diverted from landfill waste. This consisted of 328.04 tons of construction waste including wood, metal, concrete, cardboard, bagged paper, brick and block. Alternative pavement base materials were used and include building aggregate for pavement which was recycled from crushed concrete. The construction phase included the systematic storage and collection of recyclables, 46% of the total materials consisted of the use of recycled content supplied by firms within a 500 mile radius, use of recycled aluminum for the building exterior, 58% of the wood used in the building was Forest Stewardship Council (FSC) certified wood, metal decking included a minimum of 60% recycled content and metal framing had 20% recycled content. The exterior masonry is composed of 40 percent recycled content. Limestone was obtained from a regional source. Seventy-five percent of the steel is post-consumer material. Numerous low-emitting adhesives, sealants, paints, and carpet systems were used to reduce VOCs.

LaFontaine also incorporated sustainable features in the daily operation of the dealership. 3M composite materials are used for weights for wheel balancing instead of the traditionally used lead weights. Vegetable oil rather than caustic fluid is used in the service department's thirty three in ground hydraulic lifts.

The LaFontaine Automotive Group converted from using a solvent-based system to using Envirobase, a high performance waterborne basecoat distributed by PPG Industries, for vehicle paint repairs. The transition is part of an overall initiative to sell, service and repair vehicles in an environmentally-responsible way. The company is one of the first in Michigan to move to a waterborne system.

Cardboard, paper, plastic, glass and metal are all recycled as part of LaFontaines daily activities. Recycling bins are located at every customer

contact point; chemicals used to clean the facility are eco-friendly, as well as the chemicals used to detail vehicles. The furniture is LEED certified and doors are made from corn stock.

Water Management

A retention system of three basins collects runoff thereby maintaining the pre-construction condition of the property. Each basin is designed to treat and store a 100 year storm event for its drainage system from the north, southeast, and southwest portions of the site. All flat roof area rainwater is collected for reuse in non-potable applications. The north basin is an irrigation basin designed to irrigate the landscape. The irrigation system is a high efficiency system using a central shut off valve, sub-meter for the irrigation system, separate zones for turf plants, rain sensor controller with automatic evapotranspiration (ET) scheduling and a controller which can shut off mainline and zones when leaks or breaks are detected. The last structure upstream of each basin is equipped with a Baysaver mechanical grit separation chamber to remove pollutants and sediment prior to discharge to the basins.

The facility uses low volume plumbing fixtures including low flow toilets which use 1.2 gallons of water per flush as apposed to traditional toilets which use 2.5 gallons of water per flush; they also use waterless urinals. Additionally, the facility is equipped with automatic flush and flow plumbing fixtures throughout.

Approximately 90% of the water used in the car wash is filtered and recycled. With the recycle system, the fresh water per wash is reduced from the typical 60 gallons to 6 gallons per vehicle per wash.

Energy Efficiency

The LaFontaines decided to heat and cool the building with a geothermal system that takes advantage of the earth's ability to store and maintain vast amounts of heat. The centerpiece of this highly efficient building is the geothermal



heating system consisting of 64 wells on a continuous loop in 10 zones and 350 feet deep where the temperature is 50 degrees Fahrenheit. The closed loop system involves the construction of a piping loop within which a liquid solution continuously circulates. The two pipes connect an underground coil to the heat pump units within the heating/cooling building. Tubes and coils inside the wells are filled with water and other liquids and help move heat and cold back and forth between the earth and the building to achieve the right temperature. This geothermal system is used to heat the water mixture during the winter and cool the water mixture during the summer. As the solution circulates through the earth, it is cooled and re-circulates through the building providing both heating and cooling throughout the facility. The unconventional system cost about half a million dollars more than a traditional heating and cooling system. But Ryan LaFontaine, the family's youngest son and general manager of the new GM dealership, estimates that the special green features of the site will result in a 40%-50% reduction in energy costs.

There is only one rooftop air conditioner unit which is located over the paint shop to ensure proper temperatures required during the painting and drying process. All other heating and cooling needs are satisfied by the geothermal system. The base building Heating, Ventilation, Air Conditioning and Refrigeration Systems do not use CFC-based refrigerants. The enhanced refrigerant management system significantly reduces ozone depleting potential and global warming potential of the units.

The LaFontaine Automotive Campus has two primary roof materials, a white thermoplastic olefin

(TPO) membrane which was used on all flat roof applications and Galvalume steel which was installed on the barrel roof portion of the building. Both materials were selected for their high solar reflective index (SRI) and performance qualities. The white membrane roofing provides high reflectivity, reduces the building's energy cooling costs and reduces absorption of radiant heat. This white roof also helps to reduce the heat island effect, is Energy Star and Cool Roof Rating Council certified, is smoother than typical membranes reducing the amount of dirt and is 100% recyclable. The steel and aluminum coating on the Galvalume uncoated roofing are both manufactured from recycled material.

All showrooms, offices, waiting rooms, service rooms, and garage facilities have natural day lighting to reduce energy use and improve employee productivity and customer comfort. Eighty-five skylights provide natural light, reducing the need for electric lights. All offices and enclosed rooms are on motion sensors, photo cells are used to measure the ambient light to automatically turn off lights in those areas, smart energy management computer system allows individuals to dial in from off site and check efficiencies and even turn on and off lights or adjust heating or cooling up or down. Timers on all interior and exterior lights assure that lights are not left on after hours and takes into account daylight savings and holidays to assure the least amount of wasted electricity. The irrigation system is powered by a wind mill. Ninety percent of the building's full time occupants also enjoy a line of site to the outdoors.



Economics and Society

LaFontaine encourages alternate forms of transportation for their employees. They provide bicycle storage areas and changing rooms, preferred parking for carpooling, and preferred parking for those driving low-emitting and alternate fuel vehicles. Aside from educating all their employees regarding the green standards used to construct the building LaFontaine also has a LEED education area to teach the public about sustainable practices. LaFontaine uses a LEED education wall which consists of an interactive computer and ongoing education video to educate the public. During the facility's grand opening, LaFontaine bought back all the greenhouse gas emissions generated by the 1500 guests attending the event and passed out tree saplings to all guests. Through ongoing education efforts, advertising, and all sponsored events, LaFontaine distributes green education packets by employees wearing organic shirts. LaFontaine also sponsors the Huron Valley Green Day Festival and is in the process of implementing a green vehicle check on every vehicle serviced. Furthermore, LaFontaine hosts green events in the onsite store.

LaFontaine plans to market the dealership's green attributes directly to customers, who are more concerned than ever about global warming, and will adopt some of what was learned at other sites. Ultimately though, LaFontaine said one of the biggest reasons for going green is that it's the right thing to do.

Sustainability

The LaFontaine family is dedicated to providing a successful building and creating a healthy environment for people to work and shop for automobiles. Together with General Motors, Bloom General Contracting, and Young & Young Architects, the LaFontaine Automotive Group set a standard for future General Motor Dealerships.

Every item that was part of the building process and the day-to-day operations was carefully scrutinized for how it would affect the air, water, land and the people inside and outside the facility. State of the art technology, environmentally sound practices and energy-saving devices and systems are evident in every department of the 63,000 square foot facility. Brochures detailing highlights of the green aspects of the dealership are placed in specific places in the dealership to provide ready access to customers and visitors. The brochures are printed on FSC certified recycled paper using biodegradable inks. A green wall was designed and implemented to detail many of the green building techniques incorporated into the construction. This wall includes a large flat screen television with a continually scrolling presentation about the project and features.

Initially the dealership was considering a 7 year break-even point. However since the installation, they have noticed more cost savings than anticipated. The current goal is to regain the excess cost of going green within 5 years time. LaFontaine ultimately hopes to create a more pleasant experience for their customers, a more productive workplace for their employees and a healthier environment for all.

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