

# Sustainable Industry: Ford Dearborn Truck Plant



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# Unique Challenge

- Industrial sites seem to oppose sustainability values
- Aim to rethink the ecological footprint of a large manufacturing facility
- Offers model for future sustainable industrial projects

# Basics

- Location: Dearborn, Michigan
- Client: Ford Motor Company
- Program: Car Manufacturing, administration, and employee amenities
- Area: 1,600,000 square feet
- Architect: ARCADIS Giffels
- Sustainability Consultant: William McDonough and Partners
- Status: Open summer 2004

# History

- Originally developed 1917 to 1926
  - 1.5 miles by 1 mile, with 93 buildings
  - Ford's aims for entirely self-sustaining complex
- By 1930 the Rouge represented the ideal for successful industry
- 1960 progressive managers rethink future of the rouge
  - Concern for environmental impacts
  - More stringent control over water and air quality standards

# 1920s View



# 1950s View



# Original Buildings

- Architect Albert Kahn designed buildings for first Ford empire
- Design were practical to serve a manufacturing function
- Unique sense of light and air unlike other contemporary buildings

# The Vision

- Ultimate goal was total self-sufficiency
- Unprecedented vision for mass production
- Aimed to avoid dependence on outside resources
- Excellent candidate for sustainable design

# Recent History

- 1990s Rouge loses momentum
- 1997 began major revitalization efforts
- 2000 \$2 billion Rouge Heritage Project
- Rouge Area Environmental Coalition essential to convincing Ford of smart steps towards sustainability

# Today

- Sustainable renovations to the Rouge
- Brownfield rather than cradle-to-grave
- Restores role of Rouge as leader
- Again, Ford's largest single industrial complex with 6,000 employees and five manufacturing plants

# Master Plan



# Dearborn Truck Plant

- Center of new Ford Rouge complex
- Represents Ford's new vision of sustainable manufacturing for the future
- New generation of lean and efficient factories
- Aims to set standards for efficient and environmentally friendly manufacturing

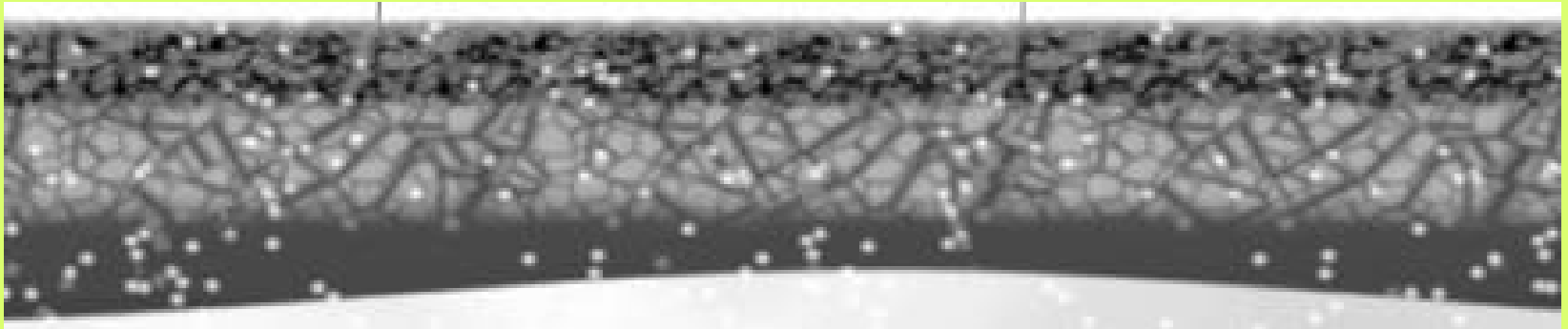
# Sustainability Achievements

- Integrated storm water management
  - Living roof
  - Porous pavement
  - Underground storage basins
  - Natural treatment wetlands
  - Vegetative swales
- Land Restoration
- Solar Power

# Storm Water Management

- Rainwater and snowmelt carry pollutants from roofs and pavements to local water supplies
- Rouge system captures, stores, and cleans runoff before releasing it into watershed
- Mimics nature's processes

# Porous Pavement



# Swale and Treatment Wetlands



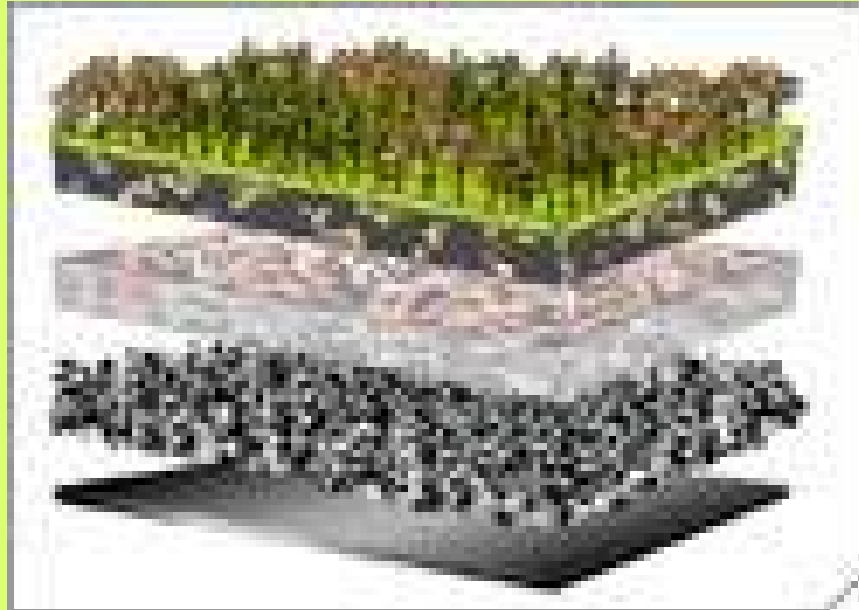
# Living Roof

- 454,000 square feet
- Collects and filters rainfall
- Four layer vegetative mat reduces storm water runoff
- Twice the life span of conventional roofs
- Excess water from roof channeled into nearby natural treatment wetlands

# Sedum

- Drought resistant perennial groundcover
- Reduces urban heat effect
- Insulates building
- Virtually maintenance free
- Plants remain low and spread horizontally to crowd out weeds
- Improves air quality by trapping dust and consuming carbon dioxide

# Green Roof



# Land Restoration

- Steel manufacturing left soil contaminated
  - Phytoremediation uses native plants and other perennials to clean the soil
- Planting thousands of trees
- Trellises with flowering vines on walls of truck plant
- Other plants to shade new assembly plant

# The Site



[www.ford.com](http://www.ford.com)

# Solar Power

- 10 rooftop monitors
- 26 smaller skylights to allow natural light
- Thermal solar panels provide hot water for bathrooms

# Solar Roof Parts



# The Bigger Picture

- SUVs and oversized vehicles have most significant environmental impact
  - Environmental efforts must take shape in more ways than development projects
- Greening efforts limited to grounds and facilities
  - Manufacturing process still very harmful

# Sources

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