



# Industrial Deconstruction Case Study

## General Motors Automotive Plant Pontiac, Michigan

---

Project Managers: Bob McNulty MCM Mgt. Corp.  
Allan Johnson – General Motors  
Cori Piatek – Arcadis BBL

### **Introduction:**

Deconstruction is the process of selectively and systematically disassembling buildings that would otherwise be demolished and landfilled. It generates a supply of materials suitable for reuse to construct or rehabilitate other structures. Deconstruction can take place prior to standard demolition, be an integral part of demolition, or largely replace traditional structural removal. The benefits of deconstruction include: reducing landfill space used; creating jobs and job skills; reducing noise and dust on site; and salvaging materials that can be distributed for reuse and may save a piece of architectural history.

Deconstruction is good for the environment, the community, and the local economy.

### **General Motors:**

Environmental remediation and plant decommissioning is conducted for the timely deconstruction of unused General Motors (GM) facilities. With the planned right-sizing of the Corporation's manufacturing capacities and support activities the key focus is on suitable re-use and/or redevelopment. GM participates in restoration of former industrial or waste sites in conjunction with other parties such as local governments, developers, and communities.

### **The Structure:**

**Large Automotive Plant: General Motors - Pontiac Validation Center, Pontiac, Michigan.**

#### Historical notes of interest:

The majority of the General Motors (GM) Pontiac Validation Center (PVC) buildings, formerly known as Pontiac West Assembly, were acquired from the Wilson Foundry Company in 1937. According to historical documentation, the Site was used by Wilson to manufacture motors and castings. After purchase of the Site, initial automotive assembly operations included paint mixing, color painting, paint booths/ovens, phosphate line, the manufacture of motors and castings, and machining operations.

Major automotive production operations at the Site included assembly of small and mid-sized trucks, welding, phosphating, dip prime (ELPO), painting, and final vehicle assembly of approximately 1000 units per day. Support operations included warehousing, development and testing laboratories, a powerhouse, and a railroad shipping facility. Production activities at the Site ceased in 2005.

Size, Foundation, Interesting features:

The Site consists of approximately 133 acres of land and is surrounded by industrial, commercial, and residential development. The facility is composed of several buildings mainly comprised of steel and concrete. The total area under roof is approximately 1.68 million square feet. Concrete flooring is present throughout a majority of the Site, with the exception of approximately 10,000 square feet of wood plank flooring. No wood block flooring was present on Site. The Site also contained an Industrial Waste Water Pump Station and 13 aboveground storage tanks. Tank construction included internal and external steel walls, with lightweight concrete filling the 6-inch space between the walls at the top, bottom, and sides.

**The plant site in early stages of deconstruction:**



**Deconstruction Process:**

*Dates:* November 22, 2006 – Mid February 2008

**Barriers:**

Barriers that made this project difficult to compete within the demolition timeline included: the weather (rain, snow), the fluctuation in the scrap market, and time. The deconstruction process attempts to be fast to market.

**The plant site near the end of deconstruction efforts, fall 2007.**



**Site Future:**

The property will be returned to the GM Real Estate Group for sale and/or redevelopment.

**Savings:**

To date, GM and MCM Management Corp. has recycled between 92 and 97 percent of plant deconstruction materials.

Recycling and reuse creates both significant cost saving and income for the site owner and deconstruction experts. When profit is added to the deconstruction material recycle/reuse variable, significant incentive for resource reallocation is created. In the past a majority of the deconstruction materials would be landfilled, now creative reuse markets make what used to be demolition debris now deconstruction assets and a profit source.

**Tips:**

Keep a current inventory of on site materials. Organization of manifests and spreadsheets will allow for successful tracking of materials at all times.

**Recycled/Reclaimed/Reused Materials:**

Office desks, chairs, file cabinets, etc. that were acceptable for reuse were donated to non-profit organizations.

Concrete: Reused as fill on site = 180,000 cubic yards

Oil: 14,365 gallons

Glycol/Water Mix: 116,306 gallons

Light Bulbs (Fluorescent, HID, Incandescent, Flood, Etc.): 8,983 bulbs

PCB Ballasts: 3,055 pounds

Non PCB Ballasts: 18,889 pounds

Capacitors: 1,609 pounds

Batteries: 398 pounds

Mercury Devices: 66 pounds

Electronic Equipment: Computers (5), Monitors/Terminals (28), Misc. Electronics (3,149 pounds)

Ferrous Metals: 21,655 Gross Tons (as of December 7, 2007)

Non Ferrous Metals: 310,280 pounds

**Benefits of Deconstruction:**

Deconstruction is very labor intensive. The goal is to preserve the materials for reuse. The factors that made this deconstruction project difficult to compete with demolition were: the weather (heat and rain), the cost of labor, time. Typical project completion time is 18 months which provides a fast to market benefit of the valuable property.

The factors that made this deconstruction project productive were reduced disposal costs, funds from the resale of reclaimed items.

**Partners involved:**

**General Motors Corporation** - Ken Gembel (project contact)

MCM Management Corp. – Deconstruction, Recycling, & Material Management Experts

BBL Arcadis – Environmental Assessment and Oversight Deconstruction Experts

**Deconstruction resources:**

[www.epa.gov/epaoswer/non-hw/debris-new/index.htm](http://www.epa.gov/epaoswer/non-hw/debris-new/index.htm)

[www.deq.state.mi.us/documents/deq-ess-caap-BuilderBurning.pdf](http://www.deq.state.mi.us/documents/deq-ess-caap-BuilderBurning.pdf)

[www.michigan.gov/deq/0,1607,7-135-3585\\_4130---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3585_4130---,00.html)

For more information on deconstruction, visit the Department of Natural Resources & Environment Web site at: [www.michigan.gov/greenconstruction](http://www.michigan.gov/greenconstruction).