

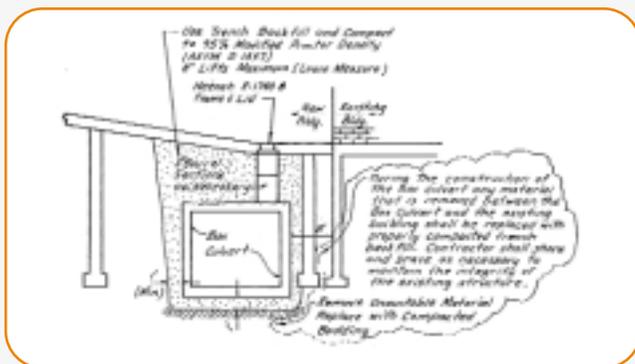
Food and Beverage Facilities

Food processing facilities must meet stringent requirements to ensure the safety of food products and processing personnel, prevent spoilage or to maintain or extend product life. Provision of proper sanitary services, water supplies and wash facilities, disposal of waste materials, heating, ventilating, cooling and temperature controls, electric power, natural gas, air and vacuum utilities is essential. The Sievert Group has many years of experience in the design, engineering, construction and maintenance of various kinds of food processing and storage facilities. The company also has significant expertise in cost estimating, scheduling and value engineering analysis to optimize the return from food processing facility assets.

GROCERY WAREHOUSE AND DISTRIBUTION FACILITY

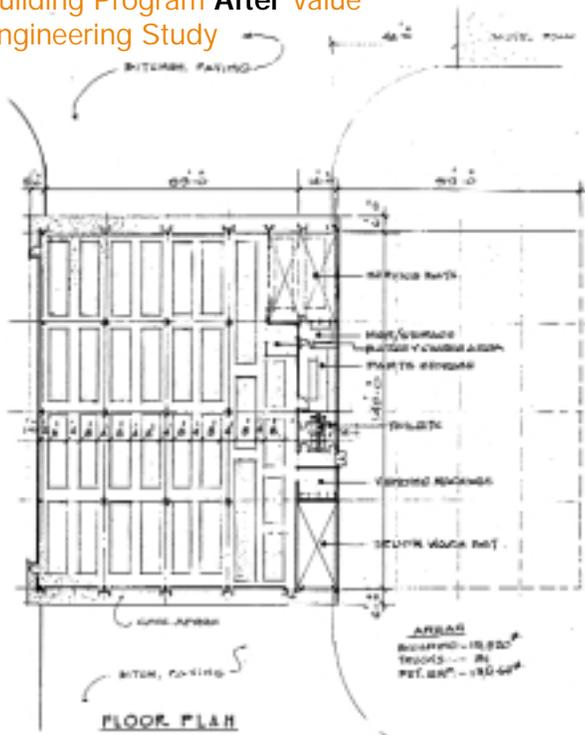
Sievert was retained by a large grocers cooperative to provide architecture, engineering and construction management consulting services for a 95,000 square foot warehouse addition. The purpose of the project was two-fold: 1) add capacity for the storage and distribution of grocery products. 2) Improve work flow by connecting two existing free-standing buildings owned by the grocer to the building addition.

An open water retention channel that retains storm water separated the existing buildings. In order to physically connect the existing buildings to the new facility it was necessary to construct a floor slab over the open water retention channel. However, the flow and capacity of the water retention channel could not be altered. The solution was to construct a load bearing, highway style box culvert under the building addition interior floor slab where it connects the existing buildings (see sketch). The box culvert maintains the same water retention properties as the open water retention channel. The culvert was designed to facilitate planned routine inspection and maintenance procedures. Moreover, the floor slab over the box culvert functioned as a sloped ramp to facilitate traffic flow between the existing buildings because they had different finish floor elevations. The building addition provided twenty-two new loading docks, staging and high bay racking areas.



BOTTLED WATER COMPANY SAVES MONEY BY EMPLOYING VALUE ENGINEERING TO PROGRAM REQUIREMENTS FOR NEW FACILITY

Building Program After Value Engineering Study



Too often owners commit substantial funds and resources to major building projects and process equipment installations prior to analyzing the specific need for the project, thoroughly defining the program requirements and cost control procedures. With minimal data they make big decisions that are risky and have a relatively fixed and long-lasting impact on their company's balance sheets.

They are making a premature leap of faith by directing a design professional to complete detailed plans for a project that may not result in the best use of their financial resources. Time and money is spent unnecessarily because alternative design and project delivery strategies are not explored carefully during the feasibility and early design phase. Moreover, the designer may end up preparing actual construction plans and specifications for a project that cannot be built within the owner's budget. Owners need to know the cost implications of a design before substantial funds are spent. Following is a case in point:

When the demand for bottled drinking water products was rapidly escalating in the United States the owner of a bottled water company seized the opportunity to grow his business. Within a few years he had hundreds of trucks on the road that delivered bottled water to various locations throughout the Midwest. The company became a household name

and captured a significant share of the market for drinking water.

To support expansion objectives the company purchased a tract of land where a source of special artesian water was available. The Sievert Group was commissioned to perform project feasibility studies and develop a master plan for constructing a bottled water processing plant and truck garage on the site (see original development program). As part of the feasibility studies, Sievert prepared a conceptual estimate of the probable cost to develop the site and construct the facilities. Based on the conceptual cost estimate, the owner decided not to spend the capital funds needed to build another bottling operation. He determined that the most critical need was to provide a central location for parking the company's expanding fleet of delivery trucks and to prevent water stored on the trucks from freezing during cold winter nights. The most economical solution to the problem was simply to erect a "pole-style" building to provide shelter for the trucks and install infrared heaters to prevent the water from freezing.

By using a value engineering approach to program facility requirements, The Sievert Group helped the company avoid substantial capital outlay.

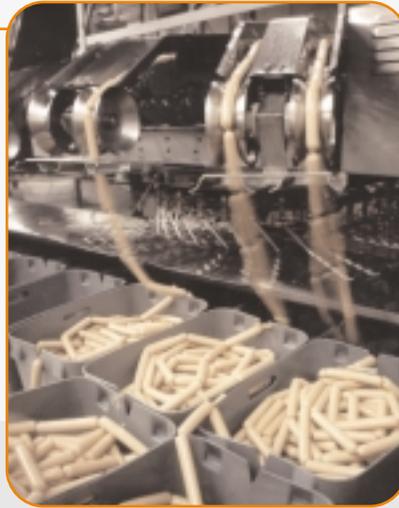
Original Development Program Before Value Engineering Study:

50 Delivery Trucks
Garage Storage for 50 Delivery Trucks
 4 bay maintenance area
 36,900 square feet
Loading/Staging Area
 4 bay loading area
 9,300 square feet
Warehouse/Storage Area
 3,900 square feet
Cooler Storage/Maintenance Area
 2,400 square feet
 Dock loading for 2 cooler trucks
Distilling/Water Tank Storage Area
 3,000 square feet
 Shipping/delivery dock for 1 50' semi
Bottle/Washing Area
 2,400 square feet
Administration Area
 5,500 square feet
 Number of employees: 109-134
 Number of parking spaces: 142
 Expansion: 2 loading bays - 50% of admin., bottling, distilling, cooler and warehouse areas.

MEAT AND POULTRY PROCESSING FACILITIES

FOOD PREPARATION FACILITIES

Sievert designs, constructs and maintains support systems for a variety of food processing facilities. Special construction materials, plumbing and sewer, heating, cooling and ventilating systems are required for proper handling and storage. This includes design and operation of low temperature freezers, coolers and refrigerated work spaces.



ENERGY EFFICIENCY STUDIES OF FOOD PROCESSING FACILITIES

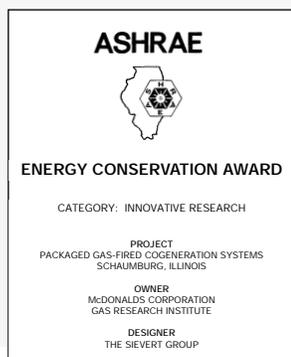
Our engineers surveyed numerous food processing plants to identify energy-savings opportunities. Typically these plants are very large operations, processing foods such as cheese, fruits, vegetables, meat and preparation of baby food. They generally have knowledgeable staff facility engineers who have been quite active in managing energy utilization in their facilities. This has presented an unusual challenge to our engineers in that during the course of a two day survey, we were faced with uncovering significant energy related retrofits that have not been discovered by knowledgeable facility engineers, who have been intimately familiar with the plant operations on a day to day basis. Nevertheless, we managed to uncover many potential energy conservation opportunities for these plants. Typical items have included the following:

- Application of industrial heat pumps to recover energy from low temperature process cooling water that has normally been wasted. These have included both electric and steam operated machines, depending upon the relative local electric and gas utility costs.
- Recovery of energy from refrigeration systems that typically operate year around for cold storage purposes.
- Modifications to boiler plant operations. We have found that the large high pressure boiler plant operations offer energy savings opportunities such as reducing pressure operation during off hours, the feasibility of adding a small boiler to handle the load during off or reduced peak operations, and the possibility of installing oxygen trim equipment for the combustion operation where loads change quite frequently.
- From the perspective of refrigeration and air conditioning of facilities many plants can take advantage of variable speed fans, variable speed pumps for glycol chiller systems, door infiltration protection devices, added insulation, and computer based systems for monitoring and controlling the systems.
- Numerous small items have been uncovered such as the use of high pressure steam to pull a vacuum, use of live high pressure steam to provide heating of pipe systems, and relatively inefficient lighting systems.

Generally, the facilities engineers have accepted this service, as our walk-thru type survey has not infringed on their area of expertise, and we merely pointed out additional ideas for consideration that have worked for other plants. The value of our service lies in having an experienced outside engineering team look at a plant operation, having seen numerous other plants with similar and dissimilar applications, and knowing what ideas will work and could be used in their plant.

COGENERATION PROJECT WINS ASHRAE AWARD

Sievert, throughout its history, has adapted to the changing times. The emerging cogeneration market gave us an opportunity to use our innovative abilities to develop a state-of-the-art technology. Eager to find new customers, the Gas Research Institute, Chicago, commissioned The Sievert Group to develop a packaged gas-fired cogeneration system designed for light commercial use, particularly fast-food restaurants. McDonald's Corp., Oak Brook, IL, provided a test site for the prototype unit. The under 70-kw unit was designed to supply about 60% of the electricity and most of the heating and air conditioning requirements for a typical McDonald's restaurant. The design was judged an award winner in the Innovative Research category of an American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) energy conservation awards program.



GET ACQUAINTED WITH SOME OF OUR FOOD INDUSTRY CLIENTS

Aldi Foods	Leon Sausage Company	<i>Restaurants</i>
Bacon Products	McDonald's, Inc.	Bennigan's Restaurant
Beechnut Foods	M&M Mars - Dove Foods Div.	Black Steer Restaurant
Central Soya Co. -Div. of ADM	Nation Pizza Products	Egg Harbor Cafe
Centrella Foods	Nutrasweet	Greek Islands Restaurant
Chicago 7-Up Bottling Company	Oscar Mayer Co.	Hard Rock Cafe
Curtis Candy	Quaker Oats Co.	Hillary's Restaurant
Dar Foods	Rosebud Farms	Jockey Restaurant
Durkee Foods	Schulze & Burch Biscuit Co.	Knickers Restaurant
Ferra Pan Candy Co., Inc.	Shedd's Food Products	Medieval Times
Flavor Corporation of America	Shurfine - Central Corporation	Merriweather's Restaurant
Frito Lay, Inc.	Somerset Distilling, Inc.	Portillo's Hot Dog, Inc.
General Foods	Sparkling Spring Water	Public Landing Restaurant
General Mills	Stewart Coffee Co.	Red Lobster
Gerber Foods	Stiglmeier Sausage	Scoozi
Gerber Products Company	Swift Food Service	Sharkos Restaurant
Italia Foods	The Distillers Company Ltd.	Shaw's Blue Crab
Knouse Foods	Trim Rite	Terrance Restaurant
Kraft Foods, Inc.		TGI Friday's
La Madeleine French Bakery and Cafe		The Bagel Restaurant
		The Keg Restaurant
		The Milk Pail
		Toppers Restaurant
		Village Tavern
		Watercress Banquets