Zap Goes the Garbage Man

Ever since Sweden became a full-fledged buy, use and throw away society more than a decade ago, the amount of refuse per family has been mounting at a steady four per cent a year. At the same time the number of native workers willing to take jobs as garbage collectors has in labor-short Sweden been rapidly dwindling. Indeed, if it weren’t for imported labor, which also supplies the bulk of the nation’s short-order cooks and dish-washers, many communities might well be drowning in their own refuse.

The burgeoning volume of affluence-generated waste materials, moreover, results in soaring economic and environmental problems, particularly in urban areas with high-rise apartment complexes. For one thing, due to continually rising wages, the cost of handling solid waste is increasing even faster than the volume of refuse. And it is becoming increasingly necessary to build bigger storage areas in apartment houses located in districts where the labor shortage or other complications limit refuse pick-up to once a week.

A number of new Swedish housing developments, however, are happily free of such problems. They have been equipped with a refuse collection system which zaps the problem of the garbage man simply by eliminating him. It is, in fact, the first real innovation in waste collection since the 18th century, when manpower replaced pigs who used to eat the garbage thrown into the streets.

Developed by AB Centralsug, a subsidiary of Sweden’s largest pipe company, Calor-Celsius, the system consists of fully automatic vacuum tubes connected to ordinary garbage chutes.

NO HANDS

The refuse is sucked through sealed underground tubes straight from the disposal chutes equipped with discharge valves to a central incinerator which is linked to all the apartment houses and shops in a planned residential area.

If incineration is not included in the refuse disposal plan, the garbage can be conveyed via the suction tubes to a depot where it is compressed into bales and trucked away. Either way, the garbage is not touched by human hands after it is dropped into the chute.

Oddly enough, Centralsug picked up the “garbage collection” business quite by accident. The company had been a supplier of centralized vacuum cleaning systems—an old American invention, incidentally—which have long been the accepted method of removing dust in hospitals. One of its customers was a hospital in Sollefteå, a sizeable community in northern Sweden.

If dust could be removed by the vacuum method, why not the whole mess? So reasoned the administrators of the Sollefteå hospital. They passed on the idea to Olof Hallström, a civil engineer and then head of Centralsug, who promptly rolled up his sleeves and set to work at the drawing board.

In 1961 Sollefteå hospital was duly equipped with the world’s first vacuum system for refuse collection, a small installation of only three chutes and 300 meters of tubing. But in terms of hygiene it was a giant step forward. The garbage man was no longer required to call at the hospital—unless he was ill.

Among the many visitors who flew to Sollefteå to have a look at this new installation was Åke Eriksson, the mayor of Sundbyberg, an expanding suburb just north of Stockholm. He also came up with an idea. If the system could work in a hospital, why couldn’t it be adapted for use in a housing development? Why not? Hallström agreed.

In September, 1966, the first unit for a residential area was an accomplished fact. Some 1,100 apartments in Sundbyberg’s Or housing development were linked, via 36 disposal chutes and 2,400 meters of tubing, to a central incinerator. The installation was later expanded to handle the refuse from an additional 2,000 apartments.

At present there is no legislation in Sweden demanding that this new system be adopted as an anti-pollution measure, but many public health officials appear convinced that it could help substantially in raising the standards of residential hygiene in future high-density housing projects. Up to now the Centralsug system is in operation or in the process of being installed in seven hospitals and 10 residential areas in Sweden, the largest of which will serve 4,000 apartments.

HORSE AND BUGGY

Centralsug’s present managing director, Per Hallström (no relation to Olof Hallström), says the company hasn’t been very active in sales so far but has worked to improve the system technically. A big sales drive is now being launched, however, and he believes he has a number of excellent arguments for convincing potential customers to opt for what he calls the “first garbage disposal system with new thinking since the horse and buggy days.”

Hallström points out that due to the increasing volume of waste materials, storage rooms underneath the chutes must be at least 20 square meters, or the
size of an average apartment, to hold one week’s refuse for a six-floor building of 30 families. But the vacuum system requires only four square meters.

“New apartment buildings are planned almost with the refuse problem in mind,” Hallström contends. “The sanitation department, for instance, demands that garbage men should not have to climb stairs. Also, the garbage trucks must be able to come close to the building so one can’t have traffic-free areas. And, of course, everyone knows how much noise garbage trucks make very early in the morning.”

GIANT VACUUM

In addition to eliminating these problems the Centralsug system, which Hallström compares to a giant vacuum cleaner, can be programmed, via a central control panel, to remove the refuse automatically up to three or four times a day. It takes less than half an hour to discharge the refuse output of a medium-size residential area with shops and offices.

“It’s a big hygienic gain to be able to carry away refuse three times a day, as it’s done in the Sundbyberg project,” Hallström says. “You don’t have old garbage lying around to harbor bacteria and attract flies, rats and so forth.”

While the initial cost of installing the system is very high, Hallström estimates that the break-even point is reached in six to eight years. After that there would be tremendous savings, he maintains, because the cost per volume unit falls with a rising load, whereas with manual collection the cost rises in proportion to the volume of refuse. Emptyings of two or three times a day can actually work out cheaper than manual collection once a week.

“Our system is not economical, however, for one-family houses or areas where the buildings are widely scattered,” he adds.

On the hospital front, Centralsug has devised a vacuum-sealed suction conveyor system with three separate sets of tubing to handle dust, garbage and soiled linen. All are served by a single set of turbines which provide the air currents that suck the dust, garbage and linen to their respective collection hoppers. In 1967 Löwenströmska Hospital outside Stockholm became the first institution to install all three systems.

Although a small company staffed mostly by young engineers (of the 30 employees, aside from the office help, only Hallström—a business school graduate—and his purchasing agent are not technical men), Centralsug is attracting the attention of urban planners around the world. Hallström’s principal pitch for his product is that today’s methods of refuse handling are no longer adequate to cope with the demands of tomorrow. He also stresses the cost factor.

Addressing a Paris meeting of the Organization for Economic Co-operation and Development (OECD) last April, he said: “Today it costs some $850 million to handle Europe’s 70 million tons of solid waste. In 1980 the volume of waste will be approximately 100 million tons and the cost of handling it will be $1.5 billion. These figures in themselves define the solid waste problem.”

Through subsidiary operations in the United States, France and England, Centralsug is now marketing its system internationally. The 1972 Olympic Games Village in Munich, later to be transformed into an exclusive residential area of 6,000 flats, will adopt the system, as will hospitals in Hamburg and Cologne. A housing development in London’s Westminster section will be the first in England to install it, and in France the city of Grenoble will be the first to apply the Swedish method.

Centralsug’s American licensee is Aerojet-General, a giant manufacturer of rockets and other space equipment. They had begun a division for environmental problems, Hallström says, and “we suited them perfectly.”

STATESIDE SALES

The first application of the system in the United States was at the new Martin Luther King Hospital in the Watts ghetto of Los Angeles; other hospitals in Los Angeles, Burbank and Pittsburgh are on the schedule, together with a housing project in New York, a city beleaguered by a kingsize problem.

Aerojet-General will also install the Centralsug system in the new Disneyland East in Florida, a super vacation complex covering more than 27,000 acres. Its two miles of underground vacuum tubes for refuse handling and disposal will be one of many technological innovations incorporated.

In all cases, Hallström points out, the system will be manufactured locally. “We are selling an idea and technology,” he declares.

While most Americans who have studied the Centralsug system are impressed with its environmental features, they view with alarm its crime potentialities. Perfect for murder, Hallström has been told on many an occasion; a foolproof way of getting rid of the body. He agrees.

“If you could get the body through the 30 centimeter chute opening,” he says with a wry smile. “You’d have to chop it up, I guess.”