THE PEARL, DOHA QATAR

One of Envac's largest systems provides vehicle free collection from residential towers, villas and retail.

The Pearl is Qatar first free hold real estate development built on reclaimed land. The mixed use development is designed to accommodate approximately 42,000 residents and up to 300,000 annual visitors.

Envac's four systems collect waste from residential apartments, hotels, villas & theme based residential zones, retail shops, restaurants, and public areas.

Envac's scope also covers operation and maintenance covering all day to day operations, waste haulage, spares and consumables.

Project start date:	2007
Project completion date:	Ongoing
Years in operation:	9
Systems in operation & type:	4 x Stationary Systems – SVS 500
Number of inlets:	400
Number of fractions:	1
Length of pipe:	65,000 meters
Capacity of systems:	135 tons/day
Operation & Maintenance:	Envac led and ongoing

HAMAD INTERNATIONAL AIRPORT, DOHA, QATAR

Envac's Kitchen Waste Collection System operates at over 99% availability in an environment where efficiency is crucial to the success of the operation.

Doha's state of the art Hamad International Airport opened in April 2014 and has a design capacity of 50million passenger per year

Envac designed, built and now operates and maintains three systems at the airport. One system manages all the catering waste from the Qatar Airlines Flight Catering Company while the other two systems collect mixed waste generated within the terminal building. Envac has also provided four bailing machines to manage cardboard waste.

Project start date:	2009
Project completion date:	2014
Systems in operation & type:	1 x kitchen waste systems & 2 x stationary system
Number of inlets:	14
Number of fractions:	1
Length of pipe:	1,200 meters
Capacity of systems:	1 x kitchen waste system - 40 tons/day 2 x stationary systems – 125tons/day
Operation & Maintenance:	Envac led and ongoing

MSHEIREB PROPERTIES – HEART OF DOHA, DOHA, QATAR

Envac's system not only collects 3 fractions of waste from this state of the art downtown development but it also tracks the amount of waste generated by each tenant thus allowing for a weight based charging system to be implemented.

The Msheireb - Heart of Doha project is designed to accommodate an estimated population mix comprising 2,226 residents, 2,930 retail employees and 12,286 offices employees within an area of 303,243 m^2 of residential floor space, 253,906 m^2 of commercial area and 151,611 m^2 of hotel and amenities areas.

Envac's system has been designed to collect three fractions of waste:

1. Organic
2. Residual, and
3. Recyclable.

Envac's system will handle about 180m^3 or 27 tons per day of waste.

Envac's system at the Msheireb - Heart of Doha project is unique as it will be the first installation in the Middle East with access card readers and a weighing mechanism incorporated into the inlet doors. This will enable the system to track who deposits waste and how much.

"The Gulf's remarkable growth story has also affected the environment to a degree, which is why offsetting the impact of any development is at the heart of Msheireb Properties' vision. With this

system from ENVAC, combined with an education campaign for all residents, we can ensure Msheireb Downtown is at the forefront of the world's 'Green cities' movement."

"That aspect of education is critical to getting the most out of this system. Recycling, however, still isn't necessarily upper-most in people's minds, which is why we in partnership with ENVAC are also putting together a program which will put in place workshops on how to use ENVAC, as well as organizing visits to the collection center to see how the waste is collected and segregated.

"We are confident that through education programs such as these, future residents of Msheireb Downtown will make the neighborhood's green credentials a real point of pride."

Mohammed Al-Marri, Projects Director of Msheireb Properties

Project start date:	2011
Project completion date:	2017
Systems in operation & type:	Stationary waste system – SVS 500
Number of inlets:	263
Number of fractions:	3
Length of pipe:	6,000 meters
Capacity of systems:	30 tons/day
Operation & Maintenance:	Envac led

BAY SQUARE, DUBAI

The Envac system contributes to the car free/pedestrian friendly environment at Bay Square by removing the need for waste collection trucks to enter the development.

The Bay Square development is comprised of 13 medium-rise buildings that are connected through an underground basement carpark.

The client's vision was to keep the development vehicle free and pedestrian friendly. As a result conventional waste collection trucks are not able to gain access to the heart of the development.

Envac's 13 inlets connect the buildings gravity chutes to the onsite collection station via an 815m network of pipes. The pipes are suspended from the carpark ceiling throughout the majority of the site.

The use of Envac's system means that waste is efficiently and hygienically transported to one location onsite where it is compacted and stored. The compacted waste is collected once per week resulting is a large reduction in the number of truck trips to landfill compared to conventional waste collection.

Project start date:	2008
Project completion date:	2013
Years in operation:	3
Systems in operation & type:	1 x Stationary Waste System – SWS 500
Number of inlets:	13
Number of fractions:	1
Length of pipe:	815 meters
Capacity of systems:	20 tons/day

EMIRATES FLIGHT CATERING CO. LLC, DUBAI, UAE

Envac's Kitchen Waste Collection System operates at over 99% availability in an environment where efficiency is crucial to the success of the operation.

Emirates Flight Catering (EKFC) is the largest flight catering kitchen the world. Envac's first system at EKFC started operation in 2003 and handles waste from 50,000 trays a day. Envac's second system at EKFC started operation in 2007 and handles waste from 110,000 trays a day.

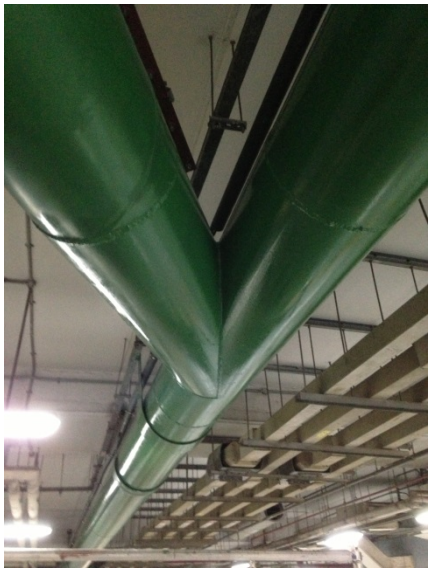
Envac's 3rd and 4th systems are currently under construction. Upon completion Envac will handle waste from close to 500,000 trays per day.

Envac's systems provide a fast and hygienic method of waste collection from an operation that is crucial to the on time performance of Emirates. Envac's system operates at more than 99% availability in an environment where efficiency is crucial to the success of the operation.

Envac's system consists of both 323mm and 219mm diameter pipes and special dewatering systems at specific inlets to ensure that waste is collected and disposed of effectively.

Project start date:	2005
Project completion date:	2007
Years in operation:	9
Systems in operation & type:	3 x Kitchen Waste System – Maxi Vac
Systems under construction & type:	2 x Kitchen Waste System – Maxi Vac
Number of inlets:	11
Number of fractions:	1
Length of pipe:	1,100 meters
Capacity of systems:	100 tons/day

JUMERIAH BEACH RESIDENCE, DUBAI, UAE



Envac proved its flexibility by adding capacity after three years so as to accommodate waste generated from additional retail added to the Jumeriah Beach Residence development. To handle the extra waste Envac installed four screw tank feeders that allowed extra waste to be fed into the systems without needing to expand the collection stations.

Jumeirah Beach Residence (JBR) is one of the largest residential developments in the world. It comprises 40 towers (36 residential and 4 five star hotels contained within a 1.8million m^2 site. The towers range from 28 to 55 floors and contain close to 7,000 apartments. The development also houses 70,000 m^2 of retail and leisure and 5 parking levels.

Envac designed, built and now operates and maintains two systems at JBR. The systems were designed into the development after construction had commenced. The client saw the benefit of consolidating waste collection into two collection stations compared to the alternative of having waste collected manually from the 83 waste rooms distributed around the development.

These 83 waste rooms have 83 Envac inlet points where residential (40 inlets) and retail (17 inlets) are connected to the two collection stations by 6km of pipe.

Project start date:	2005
Project completion date:	2007
Years in operation:	9
Systems in operation & type:	2 x Stationary Systems – SVS 500
Number of inlets:	83
Number of fractions:	1
Length of pipe:	5,690 meters
Capacity of systems:	33 tons/day
Operation & Maintenance	Envac led and ongoing

OCEANA MOVENPICK HOTEL & RESIDENCES, DUBAI, UAE

The additional storage capacity of Envac's system means collection frequency is reduced saving the client money and minimizing the disturbance to residents from waste collection.

This high end hotel and residential development comprises over 700 residential apartments and over 180 five star hotel rooms.

Envac designed, built and now operates and maintains one system at Oceana.

Envac's system collects 4 tons of waste per day and removes it to the collection station located under the hotel. The system has been designed to store up to 3 days of waste thus reducing the frequency of bulk truck collections and reducing the disturbance to residents that all too often accompanies conventional waste collection.

Project start date:	2008
Project completion date:	2010
Years in operation:	6
Systems in operation & type:	1 x Stationary Systems – SVS 400
Number of inlets:	10
Number of fractions:	1
Length of pipe:	900 meters
Capacity of systems:	45 tons/day
Operation & Maintenance	Envac led and ongoing

PALM MARINA APARTMENTS, DUBAI UAE

Envac's design was coordinated with the main contractor via the use of clash detection software to ensure that any clashes were highlighted and rectified well before construction started.

Envac has installed two independent automated waste collection systems that each connect 480 apartments across three towers. Envac designed, built and now operates and maintains two systems at the Palm Marina Apartments, each located on either side of the iconic Palm Jumeirah.

The residential towers are connected at basement level through which Envac's system conveys the waste to the centralized waste collection station located at ground floor level, enabling easy access for trucks to collect the compacted waste. Collection occurs weekly compared to daily collection if the Envac system were not used.

Project start date:	2007
Project completion date:	2010
Years in operation:	6
Systems in operation & type:	2 x Stationary Systems – SVS 400
Number of inlets/fractions:	12/1
Length of pipe:	880 meters
Capacity of systems:	8 tons/day
Operation & Maintenance:	Envac led and ongoing

MÖVENPICK IBN BATTUTA GATE HOTEL, DUBAI UAE

Envac's system consolidates waste into one container which is removed and replaced once per week. When compared to conventional waste collection practices, which require daily collection, the use of Envac's system results in an 80% reduction in waste collection vehicle trips.

The Ibn Battuta Gate complex is a mixed use development whose iconic arch entrance greets visitors as they approach. Envac designed, built and now operates and maintains one system that collects mixed waste from the 396 room Mövenpick Hotel.

Over the last 6 years solid waste has been collected via two inlets and 250 meters of pipeline strategically located within the hotel building. The Envac system efficiently and hygienically removes solid waste and consolidates it at the onsite collection station. The collection container is collected once a week, an 80% reduction when compared to conventional waste collection practices.

Project start date:	2009
Project completion date:	2010 (6 years of operation)
Systems in operation & type:	1 x Stationary Systems – SVS 400
Number of inlets/fractions:	2/1
Length of pipe:	250 meters
Capacity of systems:	20 tons/day
Operation & Maintenance:	Envac led and ongoing

LE MEREDIAN REDEVELOPMENT, DUBAI

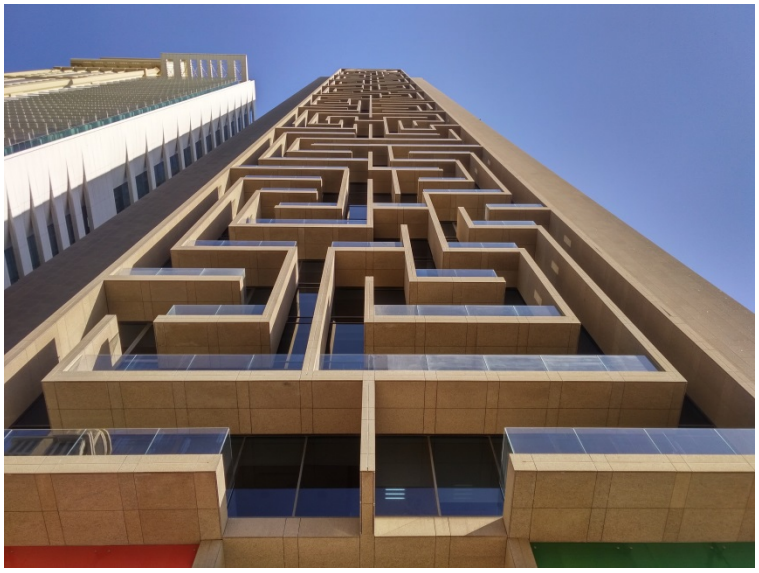
Envac's system is HACCP certified and all kitchen waste from this redeveloped hotel property.

The Le Meridian is the flagship hotel of the Starwood Group Chain in Dubai. For extension of this site the Project Developers – Dubai Real Estate Corporation chose Envac's system to collect kitchen waste.

The Le Meridian is the first 5 star hotel development in the Middle East to install and Envac system. The system is HACCP certified and hence enables the hotel to achieve a high hygiene standard. Space constraints within the operational area of the hotel meant that refuse collection trucks could not access this area, resulting in the Envac system being the optimal solution.

Project start date:	2012
Project completion date:	2013
Systems in operation & type:	1 x Kitchen waste system – KWS 400
Number of inlets:	5
Number of fractions:	1
Length of pipe:	200 meters
Capacity of systems:	2 tons/day

MAZE TOWER, DUBAI UAE



The installation of Envac's system enabled the client's architectural vision for a triple story open lobby to be realized. Due to the additional real estate value created by using the Envac system the payback period was calculated to be 3yrs.

Maze Tower is a 55 storey mixed use tower developed by the premier group. The client's architectural vision for a triple story lobby with glass walls on all sides was proving difficult to achieve as the conventional waste collection room needed to be at ground level.

By using Envac's automated waste collection system the waste collection room was moved to the ground floor of the adjacent multi-story car park and connected to the main tower by 100m of pipe.

A gravity chute connects each floor of the building to the Envac discharge value located on level 3. From the discharge valve the main pipe runs along the topside of the pedestrian bridge that connects the main tower to the carpark and then down into the ground floor waste room where the storage container is housed.

Project start date:	2008
Project completion date:	2011
Years in operation:	6
Systems in operation & type:	1 x Stationary Systems – SVS 400
Number of inlets:	1
Number of fractions:	1
Length of pipe:	100 meters
Capacity of systems:	3 tons/day
Operation & Maintenance:	Envac led maintenance only

LATIFA TOWER, DUBAI, UAE

Envac collects waste from all tenants in both towers as well as all the food and beverage outlets spread throughout the development.

This landmark twin tower on Sheikh Zayed Road opposite Emirates Towers contains residential apartments in one tower and commercial offices in the other. The ground floor houses retail and the building owner's offices. The value of Envac was quickly understood by the Architect and Owner as waste could be moved automatically away from the ground floor of the main building to the rear car park building releasing valuable real estate for revenue generating uses.

Project start date:	2009
Project completion date:	2011
Years in operation:	6
Systems in operation & type:	1 x Stationary Systems – SVS 500
Number of inlets:	5
Number of fractions:	1
Length of pipe:	500 meters
Capacity of systems:	4 tons/day
Operation & Maintenance:	Envac led maintenance only

JUBAIL MARKET, SHARJAH, UAE

Envac's sealed system hygienically collects waste fish, meat, fruit and vegetable from Sharjah's main market.

This new market in Sharjah consists of 403 stalls for fish, meat, fruit and vegetables under one roof. The fish and meat market is the primary one serving the Emirate of Sharjah. The market generates approximately 30-40 tons of waste per day from general market activities.

There are two systems, one catering to the fruit and vegetable market and one to the fish and meat market. The fish and meat market have specialized baggage carousel inlets which can accommodate large volumes of waste during peak loads. The fish cleaning areas have screw feeders into which the waste is disposed. The waste rooms in the fruit and vegetable areas are equipped with baggage carousels.

The project will handle between 30-40 tons of waste per day.

Project start date:	2010
Project completion date:	ongoing
Systems in operation & type:	2 x Kitchen Waste Systems – 200 & 300
Number of inlets:	14
Number of fractions:	2
Length of pipe:	1,200 meters
Capacity of systems:	40 tons/day
Operation & Maintenance:	Envac led and ongoing

KING ABDULLAH FINANCIAL DISTRICT, RIYADH, SAUDI ARABIA

Envac's collection station is located outside of the King Abdullah Financial District (KAFD) site which means that no waste collection vehicles are required to enter the development eliminating disruption and disturbance from them.

KAFD is designed to become the largest financial center in the Middle East and the headquarters of the Capital Market Authority, the Stock Exchange and the Commodity Market and for Financial Institutions and related service providers.

When complete, KAFD is expected to require 44,000 new office personnel and accommodate 12,000 residents. KAFD will consist of high-rise residential and office towers, residential villas, retail areas, 6 luxury hotels, community and cultural facilities and a convention & exhibition center.

When operational Envac's systems will be capable of transporting 145 tons/day of mixed waste and in doing so will significantly reduce carbon emissions by reducing the distance that on-road waste collection trucks are required to travel. This will create a clean, safe and sustainable development. The collection station will be the first in which 4 receiving systems are co-located in a single building.

Project start date:	2011
Project completion date:	Ongoing
Systems in operation & type:	4 x Stationary waste system – SVS 500
Number of inlets:	130
Number of fractions:	1
Length of pipe:	17,000 meters
Capacity of systems:	140 tons/day

JABAL OMAR DEVELOPMENT, MECCA, SAUDI ARABIA

Envac's flexible system is designed to handle large variations in the volume of waste throughout the year, in particular during the Haj period when waste volume increase exponentially.

The Jabal Omar Development is located within the center of the City of Mecca. The site covers an area of approximately 23 hectares near the courtyard on the western side of The Grand Mosque, facing the western side of the Haram.

The development consists of the construction of 37 towers including residential towers, 40 hotels, a retail concourse, 58,000 m^2 of prayer areas, a 2,000-seat conference hall, and related facilities. The project is being implemented in three phases. Phase I will include nine towers with hotels and residential apartments, phase II includes towers, four hotels and 72 apartments while details of phase III are yet to be revealed.

Envac has designed 4 independent collection systems that each terminate within a single combined collection station. The inlets used are a combination of Envac's standard waste inlets along with screw tank to accommodate high volumes of waste.

Project start date:	2011
Project completion date:	Ongoing
Systems in operation & type:	4 x Stationary waste system – SVS 500
Number of inlets:	50 Screw Tanks – from 3m^3 to 5m^3 storage capacity
Number of fractions:	1
Length of pipe:	6,000 meters
Capacity of systems:	60 tons/day (peak loads of up to 110tons/day)

Gujarat International Finance-Technology Centre, Ahmedabad, India

Envac has installed the world's first integrated collection and segregation facility enabling the client to both collect and recycle waste onsite without the use of any vehicle based collection.

Envac winning bid for this new financial hub will be implemented over a period of 10 years. Upon completion a total of 115 towers will spread across 700 acres generating 400 tons of waste per day. This waste will be collected by Envac and routed to 7 collection stations across the site.

Envac's system has been designed to be rolled out in phases. Phase 1 is already complete and Envac recently started design work on Phase 2.

Envac's system will allow for the collection of 2 waste fractions. The WET organic waste is currently composted however; as part of Phase 2 a pilot plasma gasification plant is under construction to test the generation of energy from wet waste. If successful this will become the primary disposal method for wet waste and it will be located within the Envac collection station. DRY recyclables are stored in a bunker before entering a semi-automated segregation plant located within the collection station.

Each building /plot has two chute inlets, one for dry waste and one for wet waste, each building also has 2 litter bins located at the ground floor level. Each zone of 4–5 towers will be served by 3-4 outdoor inlet points each with the capacity to collect the wet and dry fractions.

Envac is responsible for overall solid waste management including daily litter bin collection, street side collection, bulky waste collection and handling and operating the Envac system.

Project start date:	2013
Project completion date:	2014
Systems in operation & type:	Stationary waste system – SWS 500 w/segregation plant.
Number of inlets:	4 (Phase 1 only)
Number of fractions:	2 (Wet & Dry)
Length of pipe:	1,200 meters
Capacity of systems:	50 tons/day (Phase 1 & 2)