Presentation of Real Estate Fund "Lucrezio": "Turnkey" High-tech Archives

Andrea MEVORACH, Dr.

Advisor del Fondo Lucrezio – Via delle Macchine 2, I-30175 Venezia, Italy
e-mail: info@re-evolution.it

Stefania RUFFA, Dr.
Advisor del Fondo Lucrezio – Via delle Macchine 2, I-30175 Venezia, Italy
e-mail: sruffa@re-evolution.it - info@re-evolution.it

Presentation of Real Estate Fund "Lucrezio": "Turnkey" High-tech Archives

ABSTRACT

Lucrezio is a Real Estate Fund originated by the idea of an **important Venetian business family** operating all around the world. **It is specialized in projecting and realizing "turn-key" high tech archives**, mainly of public interest, **combining design, innovation, technological efficiency and safety**. Lucrezio Fund projects and realizes **technological archives that can be expanded over time respecting budget and delivery times**. These structures are delivered with certified and authorized technological systems and with last generation mobile shelving system on rails or automated filing by **offering the final Client/User a whole support service**.

Presentazione del fondo immobiliare Lucrezio: archivi tecnologici "chiavi in mano"

SINTESI

Il **Fondo Lucrezio** è un fondo immobiliare, nato dall'iniziativa di una importante **famiglia di imprenditori veneziani**, che opera in tutto il mondo ed è **specializzato nella progettazione e nella realizzazione di immobili archivistici "chiavi in mano" ad alto contenuto tecnologico**, prevalentemente di interesse di pubblico, **che combinano *design*, innovazione, efficienza tecnologica** e **sicurezza**. Il Fondo Lucrezio progetta e realizza, nel **rispetto dei tempi di consegna e del budget, strutture archivistiche tecnologiche "scalabili",** ovvero **ampliabili nel tempo,** complete di tutti gli impianti tecnologici certificati ed autorizzati e delle scaffalature compattate di ultima generazione o dei sistemi di archiviazione automatizzata **offrendo un supporto complessivo al Cliente/Utilizzatore**.

Predstavitev Sklada Nepremičnine Lucrezio

IZVLEČEK

Lucrezio je nepremičninski sklad, ki je nastal na podlagi ideje pomembne benečanske poslovne družine, delujoče po vsem svetu. Specializiran je za snovanje in izvedbo visoko tehnološko razvitih arhivov na ključ, predvsem javnih, s kombiniranjem oblike, inovativnosti, tehnološke učinkovitosti ter varnosti. Lucrezio sklad projektira in gradi tehnološke arhive, katerih velikost je mogoče povečati v skladu s proračunom ter časovnim rokom za izgradnjo. Zgradbe so opremljene s potrjenimi in odobrenimi tehnološkimi sistemi in z najnovejšo generacijo prevoznih regalov ali avtomatskega razvrščanja gradiva z nudenjem celovitega sistema podpore končni stranki/uporabniku.

Lucrezio is a Real Estate investment fund for qualified investors **regulated by the Central Bank of Italy** granting the highest levels of financial solidity and transparency.

Lucrezio, promoted by the fifth generation of a successful Venetian business family, operates worldwide in multiple business areas.

Lucrezio is leader in high-tech Real Estate projects with a **focus on the project and realization of turn-key high-tech Archives** and security buildings mainly for Public Administrations.

The following is a list of the primary archive projects in Italy:

- **New high-tech Central Archive for the Municipality of Venice** (construction ended in 15 months, 9 months before the delivery terms);
- **New Central Archive of Region Lombardia**, delivered to the State Archive of Milan in December 2011: with a storage capacity of 80,000 linear meters (80 Km) it is today's largest Archive in terms of capacity belonging to the Italian Ministry of Cultural Heritage and Activities;
- Project and current realization of the **new State Archive for the Municipality of Venice** to be located in Mestre (Venice mainland) and scheduled for inauguration in November 2012;
- **Project of an "Archive Citadel"** which includes archives belonging to the main Public Administrations of an Italian Region;
- **Project of centralized State Archives** in countries with special security concerns and challenging climatic conditions;
- Project of a **new Central Archive of Region Toscana** to be delivered to the State Archive of Florence with a storage capacity of 50,000 linear meters (50 Km).
- Project of a **new Central Archive of Region Veneto**, equipped with mobile shelving and automated storage and retrieval systems (ASRS), with a storage capacity of 110,000 linear meters (110 Km), which includes a library, an auditorium and a printing center.

Lucrezio has been sharing expertise with its high-tech partners, **delivering the best available solutions for Archives and libraries** such as:

- Palace of Justice (Law Courts), Brescia, Italy;
- Bank of Italy "Centro Donato Menichella", Rome, Italy;
- High-tech Central Archive for the Municipality of Treviso, Italy;
- State Archive, Palermo, Italy
- Civic Museum of Altamura, Bari, Italy;
- Klinikum Kreuzschwestern Wels GmbH, Wels, Austria;
- Silesia Bibliothek, Katowice, Poland;
- Princess Noura University, Riyadh, Saudi Arabia;
- The National Archives, Atlanta, U.S.A.;
- Willis Library, University of North Texas, U.S.A.;
- Libraries and Archives Canada, Canada;
- …

Thanks to the specific know-how acquired, Lucrezio provides the best available solutions for the project and realization of turn-key high-tech Archives destined to Governments and Public Administrations all over the world.

The main strength of Lucrezio's solutions has to be found in its global approach consisting not only in the mere project and realization of building, but in an integrated Real Estate development process based on:

1. study and analysis of present needs, *"As it is"*;
2. dynamic evaluation and estimate of future needs, *"To be"*;
3. identification of specific high-tech needs in order to select the best available solution(s);
4. integrated project of new turn-key and high-tech solutions for Archives ("full delivery concept");
5. guaranteed construction time delivery of maximum 18-24 months (on-time) and cost control (on-budget).

Lucrezio is therefore able to offer a global support service to the final Client/User of the building: **from identification of real necessities to their full implementation, which may include assistance in the management and relocation of documentation waste materials**.

Strategic planning and a rigorous **Project Management,** in compliance with local and national laws and regulations, allow to coordinate all different needs, indentifying, with final Client/User, the proper solution in terms of:

- site and logistics: urban or rural site, road links, public transport, public services, …;
- climate and environmental problems: temperature, humidity, protection against dust and/or pollution, ...;
- type of building: particular engineering features for the new structure and/or renovation;
- technological system of conditioning and/or heating and/or humidity control;
- storage and filing solution(s);
- security technologies both for documents (i.e. type of fire prevention) and for the building (i.e. type of intruder prevention);
- delivery time;
- budget;
- …

Lucrezio realizes **technological and modular Archives, creating solutions that can be expanded over time** preventing the risk of oversized/undersized storage rooms while meeting real future necessities of the final Client/User. The new sections will be attached to the rear of the building without changing the original space distribution, layout and storage systems. This approach enables to plan investments and deploy them according to actual needs, thus anticipating the planning of future solutions which are thus already available.

Lucrezio, thanks to its considerable know-how is able to project and realize high-tech Archives which combine **design and innovation** according to local and national characteristics (climatic conditions, security issues, laws and regulations, etc.).

Lucrezio's exceptional know-how balances security/safety and energetic efficiency in the design and realization of turn-key high-tech archives, applying the highest technological standards with the following key features:

SECURITY

- Integrated access control solutions: a comprehensive, modular and reliable system for access control.

Main features: biometric identification (iris and fingerprint scanning), magnetic badge reader, TAG (transponder), body scanner, metal detector.

- Fire safety systems: different systems are used for extinguishing fire such as gaseous extinguishing agents (chemical or natural gases), a combination of water and gas (e.g. water mist), or through concentration of oxygen reduction (or deoxygenating system).

Main features: smoke detectors, panic rooms, outdoor water faucets, CO_2 extinguishers, hydrants network.

- Integrated video surveillance: integration of surveillance cameras on to a security management station is a key to provide a holistic security solution.

Main features: night vision cameras, infrared rays and volumetric alarm system, pressure and vibration sensors, bulletproof window.

SAFETY

- Earthquake proof buildings built to be resistant to sideways loads
- Power and light uninterruptible power supply for sensitive areas (UPS and LPS)
- Fire safety systems: different systems are used for extinguishing fire such as gaseous extinguishing agents (chemical or natural gases), a combination of water and gas (e.g. water mist), or through the concentration of oxygen reduction (or deoxygenating system).

Main features: smoke detector, panic room, outdoor water faucet

- Building management system (BMS): computer-based control system that controls and monitors the building's mechanical and electrical equipment

SUSTAINABILITY

- Wireless smart lighting systems: the lighting systems is controlled by "smart" wireless sensor
- Roof mounted solar panels
- Water recycling through decentralized systems collecting rainwater for supply to non portable flushes
- Insulation materials to reduce heat transfer and achieve thermal comfort with low energy consumption

Buildings are delivered **"turn-key"**, i.e. **equipped with all certified and authorized highest technological systems together with:**

- **mobile shelving system on rails - m**aximum exploitation of horizontal space;
- **automated storage and retrieval systems (ASRS)** - maximum exploitation of vertical space;
- **static shelving**: that represents the right completion in particular circumstances;
- special chests of drawers for filing maps and drawings of any size;
- **tailor-made filing systems for oversized documents**;
- **vertical rotating shelf filing system for** filing cards, files, registers, and so on;
- **mobile shelving systems for filing CDs, magnetic cassettes of various shapes** and sizes, reels and more;
- **special filing systems for storing paintings** and frames in extremely small spaces;
- …

As any material possesses its own peculiar requirements, it is important to know beforehand the filing solutions to install, both as far as environment is concerned as well as accessibility to document management process.

Archives file not only paper documents, but also audio-visual media that have specific environmental needs, as well as the necessity of transferring data in more advanced technological data storage systems.

Storage systems can be implemented in the same Archive as well as integrated with digitalization systems and operational and documental management systems from the early project phase.

A clear example of the technological equipment and systems implemented by Lucrezio in order to improve efficiency and safety is the realization of the new Central Archive of Region Lombardia (Milan) which will be described in more details in the following pages.

The **Client/User is involved from the preliminary stages of the project** in order to meet all his requirements taking as well into account local challenges but also opportunities to satisfy present and future maintenance necessities.

Among the innovative technologies that allow a centralized control of the entire Archive it is worth mentioning the **Building Management Systems (BMS)**, a single **centralized global management system of the building**: all technological systems (mechanical, electrical, security, etc...) implemented are controlled and managed centrally in order to have continuous monitoring, even by remote, of the facilities as well as of air conditioning and alarm systems.

BMS performs multiple results within a single system: continuous monitoring of operations, also in absence of personnel (e.g. the correct setting of temperature/humidity levels for each compartment); energy consumption and costs related control (e.g. monitoring windows opening simultaneously with the activation of air conditioning system); control for security purposes (the contextual activation of volumetric, thermal and laser alarms).

The whole building is designed in an integrated way and it includes proper space for diverse and specific functions such as offices, laboratories, areas open to the public for consultation and storage rooms.

Spaces are organized according to each destination, to ensure maximum performance, technological efficiency and total security.

Operational areas are complementary but independent one from the other and are designed according to different technological (lightning, air conditioning, wiring, etc.) and security (access control, smoke detectors, fire prevention systems, security levels, etc.) needs ensuring, *inter alia*, a constant control of energy consumption.

The same principle applies to the design of storage rooms. These rooms, although globally monitored and managed by the BMS control system, are divided into completely separated compartments not only to ensure total safety but also to enable a more efficient use of each compartment by the public.

Specific attention will be drawn to designing welcoming, "friendly" and eclectic public areas, that, besides being separated to working areas, must be suitable to welcome not only traditional study halls but also possible areas for temporary exhibitions, meetings, reproduction rooms, …

Technological efficiency is also achieved, for example, through the building lightning systems which guarantee maximum performance inside reading rooms, operational areas and storage rooms, providing the proper lux load, interacting with other technological systems (fire systems, air conditioning, temperature and humidity control, etc...) and with the layout of storage systems. Smoke detection and fire prevention systems are designed according to the layout of the storage system in relation to the user's needs (total flooding system with inert gas, water mist, oxygen reduction, etc...) and in compliance with regulations and requirements issued by local and national authorities.

Overall security of an Archive is provided by the most advanced surveillance technologies, consisting of integrated access control solutions able to monitor and preserve the safety of equipments, information and people.

External active surveillance systems (multiple curtains model) integrate the most sophisticated video surveillance systems (e.g. HD camera Day&Night), specific anti-intrusion technologies (e.g. pressure sensor and/or heat and motion detectors) and special access control systems with biometric or traditional authentication (e.g. fingerprint or iris scanning, magnetic badge reader, TAG (transponder).

Implementation of control and authentication systems are supported by a detailed study of the flows related to employees/public/documents/equipment in order to eliminate interferences between public and private (only for personnel) areas.

The study is carried on by taking into account both normal flows, so called "standard" flows, as well as flows in times of particular "load", i.e. times of the day when operations are intense due to high levels of people accessing the Archive. The study happens to be of great help also to the employees who directly face different workloads and have to maintain constant and high levels of efficiency.

Another important feature is related to the safety of the Archive and is planned from the beginning of the project phase. It involves the implementation of all engineering requirements necessary to make **Archives earthquake proof**, built to be resistant to sideways loads, in order to be marked as **strategic and anti-collapse buildings** on official maps.

Another very important factor is the commitment taken by Lucrezio to ensure **constant control of timing and budgeted costs** for each project. This enables a real and accurate financial control, a fundamental concern for Public Administrations as it prevents variations to the original project plan as well as to initial estimates of public expenditure.

It is also of high significance **the positive impact that Lucrezio can produce inside local communities by creating a fruitful cooperation with local companies and professionals** involved in the construction.

A CASE STUDY: THE NEW CENTRAL ARCHIVE OF LOMBARDIA (MILAN)

Commissioned by the Italian Ministry of Cultural Heritage and Activities

The **new Central Archive of Region Lombardia** commissioned by the Ministry of Cultural Heritage and Activities (General Directorate for Archives) stands as a point of reference among the Italian projects delivered by Lucrezio.

Lucrezio has been selected after submitting a bid to the General Directorate for Archives on March 16, 2011 having as object the realization of an advanced high-tech Archive.

This Archive is the largest high-tech Central State Archive in Italy: **9,800 square meters of covered space (over a total 36,000 sqm of disposable land) can immediately accommodate 80,000 linear meters (80 Km) and another 150,000 linear meters (150 Km) of historical documents**.

The archive houses 1,400 sqm of multi-purpose areas designed to be flexible and functional such as offices for personnel, laboratories for documentation processing, as well as spaces destined to public consultation, exhibitions, conferences, training, temporary storage, etc...

Spaces are designed to better support archive operations and are conformed to the specifications indicated by the State Archive of Milan. **Offices are of the highest quality**, with structured **cabling systems**, designed to support different types of local networks (i.e. telephone network, fiber optic cable, ADSL/broadband high-speed, Wi-Fi, etc...) and managed **by the integrated BMS management system** which controls all mechanical, electrical and security systems of the entire building.

Operational areas, both open to public and reserved to personnel, are equipped with **Visual Way Design**, a signaling system for the management of flows (people/equipment/documentation).

Storage spaces, in addition to their considerable storage capacity, have been realized with structural, construction and equipment features of the highest levels, making this Archive **high-tech, innovative, efficient and advanced**.

The building is earthquake proof, **preventing from any possible collapse** as stated in the regulations governing buildings of strategic importance.

Storage rooms are all equipped with specific systems to guarantee a **constant recycle of air and temperature/humidity control**, creating the perfect environment for the preservation of contemporary and historical documentation.

Water mist fire extinguishing system, thanks to water sprays, ensures compliance with fire safety regulations while preventing paper damages.

Efficient smoke detectors monitor any occurrence of fire and are widely distributed according to the layout of the various technological and storage systems.

Electrical, mechanical, air conditioning and fire prevention systems are autonomous in terms of power supply (**UPS and generators**) inside each of the 8 archive sectors (1,000 sqm each).

A fire ring with **independent private water reserves** totaling 110,000 liters has been located outdoor in order to complete the fire prevention system.

Security levels are the highest available and rely on indoor volumetric alarm systems, access control based on destination and total fencing of the area, all integrated with a **double anti-intrusion external system** (microwave alarm and peripheral video surveillance with HD cameras).

Flooring inside storage rooms is characterized by a substantial lift capacity equal to 1,200 kg/sqm. **Anti-splinter and anti-static systems** are joint in to drain or dissipate static charges.

High storage capacity is achieved by installation of **compacted mobile shelving** that runs on tracks through a simple shelving system. Vertical parts inside storage rooms are equipped with specific anti-rollover and blocking systems.

Lightning system is designed according to specific needs and responds to **different lux levels**.

The realization of this Archive embodies the concept of public-private partnership. The Archive was designed and made operational **offering pragmatic solutions to present and, more importantly, to future storage needs of Milan State Archive**.

This Archive can be expanded up to an additional storage capacity of 70,000 linear meters (70 Km), making the new Central Archive of Region Lombardia a case of excellence both on national and on international level.

SUMMARY

Lucrezio is a Real Estate investment fund originated by the idea of an important Venetian entrepreneurial family. It operates all over the world and is specialized in planning and realizing "turn-key" archives and security buildings mainly for public interest. Among its most significant projects considering their high technological value there are: the new high-tech Central Archive for the Municipality of Venice; the new Central Archive of Region Lombardia: the most relevant solution as far as its size in Italy by the Ministry of Cultural Heritage and Activities, with a filing capacity of 80,000 linear meters (80 km); a global design aiming at realizing centralized archive systems in Foreign Countries, with a focus on safety and climatic problems; planning of the new Central Archive of Region Veneto, with automated and retrieval systems (110 km), a library, an auditorium, a press room. Lucrezio has moreover taking part to planning and development of integrated projects of archives and libraries collaborating with its technological Partners, as well as Public Administrations and Italian and foreign companies. Thanks to this expertise Lucrezio can realize turn-key high tech Archives all over the world, with design, innovation, technological efficiency, safety, with last generation mobile shelving system on rails or automated filing. Lucrezio's main strength lies in its integrated real estate developing process, carried out by respecting delivery times (at the latest within 18/24 months since the beginning of works) and budget, by offering a global support service to the final Client/User. By its rigorous Project Management, Lucrezio projects and develops modular, technological Archives that can be expanded over time, according to the final Client/User demands, avoiding the risk of building structures that cannot be used over time. This approach allows investments reduction and their use according to real and actual needs.

Original scientific article
Submitting date: 17.07.2012
Acceptance date: 30.07.2012