

DuBiotech

Dubai Biotechnology and Research Park



Lab Complex



Warehouses



Business Center





THE NUCLEOTIDE LAB COMPLEX

The Nucleotide Lab Complex is composed of state-of-the-art laboratory buildings, with 256,000 sq. ft. of leasable area. It's designed to house various biotech, pharmaceutical and healthcare activities ranging from research and development, diagnostic, analytical and equipment training activities. Additionally, the facility has provision for commercial offices catering to sales and marketing, showrooms and training centres.

The lab seeks accreditation from a number of leading global bodies in order to meet international standards. The eco-friendly Nucleotide Complex has received the LEED Silver Certification, portraying an environmentally responsible profile. The facilities



provided will not only yield business profitability but also a healthy place to live and work. The environmental and financial benefits of a LEED certified building is energy efficiency, water savings and lowering operating costs. It also leads to improved air, thermal and acoustic environments, which contribute to employee productivity, reduced absenteeism and reduces harmful greenhouse gas emissions.

Technical Features

- Core and shell lab space that can accommodate up to 160 laboratory units.
- The lab units are designed to meet up to Class III of Bio-safety Standards/Guidelines.
- All lab units have a dedicated space for Biological Safety Cabinet with an exhaust system to enable air filtering.
- Air exhaust & ventilation system are provided to prevent cross contamination air from leaking/circulating between lab spaces.
- Acid resistant drainage & pH neutralisation systems for safe chemical discharge/waste.
- Sterilized high quality stainless steel mechanical equipments to ensure high standards of hygiene.
- Emergency power system (Electrical & Air) is installed in case of main grid power failure.
- Lab facilities such as water systems, drainage systems and vacuum/air systems.

Laboratory Gross / Releasable Area

| Floor level | Gross Floor Area (sq.ft.) | Leasable Floor Area (sq.ft.) |
|-------------|---------------------------|------------------------------|
| Basement | 43,920 | 22,580 |
| Ground | 81,700 | 58,198 |
| First | 75,890 | 60,169 |
| Second | 75,890 | 60,169 |
| Third | 75,890 | 55,478 |
| Roof | 1,570 | 0 |
| Total | 354,860 | 256,596 |

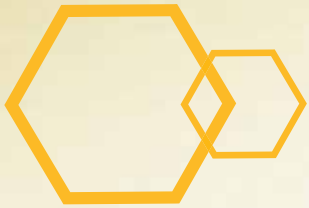


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LAB COMPLEX





INFRASTRUCTURE

Air Supply

The Heating Ventilation & Air Conditioning (HVAC) systems for the laboratory areas and the Vivarium will be engineered to support the programme requirements as follows:

- Once-through 100% treated conditioned air for all laboratory spaces:
 - To prevent cross contamination.
- Air handling equipment:
 - Each wing is served by dedicated air handling units.
 - Basement: Separate system provides N+1 reliability.
- 95% efficient (ASHRAE dust spot efficiency) final filters are provided:
 - Air handling units are connected to a common intake plenum, which provides pre-filtration and protection against airborne sand.

Laboratory Exhaust Systems

The building contains several exhaust systems as part of the base shell and core. Specialty hoods can be connected to the central system.

The building exhaust system consists of the following:

- Each wing is served by multiple (minimum of two) exhaust fans to provide general exhaust to the laboratory areas.
- Separate exhaust systems are provided for the Vivarium space with 100% redundancy (one unit operating on standby). Total installed capacity is 200% of anticipated demand.
- A separate exhaust system is provided for “wet” areas associated with animal husbandry including cage wash and sterilisation.
- Heat recovery coils are installed in the laboratory exhaust system.
- Laboratory exhaust is diluted 500 times prior to discharging into the atmosphere; 20 meters above the roof of the lab building.

Temperature and “Pressurization” Control-Air Changes

6

BSL-2
bench intensive

Biological Labs

- Minimum of 6 air changes per hour
- Single pass air (no return)
- Room heat load is considered, and design room temperature/humidity settings are met.
- Lab airflow should be negative in respect to adjacent, non-lab areas

8

(Hood intensive)

Chemical Labs

- Minimum of 8 air changes per hour
- Single pass air (no return)
- Room heat load is considered, and design room temperature/humidity settings are met.
- Lab airflow should be negative in respect to adjacent, non-lab areas

Compressed Air system

Located in the basement equipments room, the air-cooled air compressors will deliver dried, filtered and compressed air to each floor wing. The carrying network is made of table - Y copper pipes. Each outlet has a 1 CFM of 10 bar compressed air, but can be adjusted by the use of the dedicated adjustable pressure reducing valves.

Water RO/DI (Reverse Osmosis/ De-Ionization) Systems

Located in the basement equipments room, the air-cooled air compressors will deliver dried, filtered and compressed air to each floor wing. The carrying network is made of table - Y copper pipes. Each outlet has a 1 CFM of 10 bar compressed air, but can be adjusted by the use of the dedicated adjustable pressure reducing valves.

Vacuum system

The hazard fumes produced in the laboratories are collected under negatively pressurized network, filtered and then discharged to the surrounding roof atmosphere passing through flame arrestor.

The triplex central vacuum pumping system is located in the basement of the building and connected to a network of copper pipes, fittings and valves.



Laboratory Waste Management and Drainage System

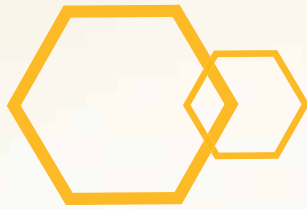
Laboratory waste water is treated and pH adjusted prior to being dispatched to the acceptable municipality sewage system standards. The pH adjustment equipments and pumps are sized to treat the entire expected laboratory water wastage with efficiency.

The acid waste is transferred safely from the entire building to the basement storage tank through robust PPR schedule-40 drainage piping system.

Telecommunication / IT

The building is supplied with a category-6 structural cabling system, capable of carrying voice, data and CATV signals over a backbone of fiber and category-3 cables; in line with Du requirements. Each wing is equipped with 6 consolidation points for the future Business Partner, to connect to, at their convenience.





UTILITIES

Chilled Water System

- The required quantity and pressure of chilled water for facilities is provided year round from the central chilled water system.
- Chilled water is drawn from the chiller system.



Electrical Services

- Electrical service to the Laboratory Building is supplied from the utility (DEWA) 11 KV primary loop. A transformer vault located on the first level is provided to house the utility supplied transformers. Preliminary loads indicated (5) 1.5 KVA transformers are required to provide secondary distribution at 220/380V, 50 Hz, 3 phase, 4 wire.
- The utility revenue metering is located on each of the transformer secondaries. Individual tenant meters are located in local electrical rooms.
- The main electrical room located immediately adjacent to the transformer vault houses the service entrance switchgear, distribution panels, automatic transfer switch, tenant power plug-in bus-duct, and tenant metering.
- Smaller electrical rooms located in the core on floors 1, 2, and 3 house distribution panels, Business Partner power plug-in bus-duct and Business Partner metering.
- The power distribution equipment allows 25% spare capacity.
- The standby generator, complete with weather/noise-protected non-walk-in enclosure, silencer, radiation, automatic engine start, load transfer equipment and engine accessories is furnished and installed for this project. The 500KW standby generator is sized to provide power to emergency lighting.



SAFETY FEATURES

The project is designed to function under strict safety conditions by the use of several monitoring and intervening systems, which are designed in accordance with NFPA standards and as per Dubai Civil Defense requirements:

Fire Suppression System

The system comprises wet risers and sprinklers network that is kept ready under pressurized water. In case the electrical pump fails during an emergency condition, a standby diesel pump will take lead in providing water for the system.

Fire alarm system

A network of dedicated addressable heat and smoke detectors continuously monitor the building for any fire or smoke hazard. The system is capable of isolating the building from the fresh air inlet and activates smoke extract fans. The system will automatically call Dubai Civil Defense in case of fire.

Evacuation Plan





COMMERCIAL/ GENERAL UTILITIES

- Core & shell spaces
- Retail space
- Conference rooms
- Dedicated parking space
- Common utilities
- Storage areas





SUSTAINABILITY

The “Greenest” Labs in the UAE

In conformity with the green vision of TECOM Investments; the Nucleotide Complex is designed as a LEED-certified ‘green’ building. Our intent is to improve occupant well-being, environmental performance and economic returns of buildings.

Indoor Air Quality:

The building is armed with an array of features to protect the health of the tenants such as:

- Higher intake of fresh air compared to conventional buildings through HVAC systems and operable windows.
- Tenant-controlled thermostats to accommodate individual heating and cooling needs.
- “No Smoking” policy inside and outside within 25 feet of the building entrances.
- Lower emissions of pollutants and toxic particulates in the premises through the use of low emitting environmentally friendly materials in common area fit outs such as paints and carpets.

Green Features of the Lab Complex

The lab complex has many features to ensure Business Partner comfort and safety whilst reducing their environmental impact. This in turn reduces distractions and improves productivity.



Daylight:

The lab is designed to harvest optimal daylight exposure through use of:

- Strategically placed windows, with direct views for tenants in 90% of the occupied spaces.
- Lighting controls for greater occupancy control over light levels.
- No glare through solar shading

Resource Efficiency:

By setting up office in these premises you will be reaping savings from our energy and water saving features such as:

- All lighting, heating and cooling systems, and electrical appliances are energy efficient.
- Enhanced thermal insulation to reduce air conditioning needs.
- Installed water restrictors on all water fixtures to reduce the overall water consumption.
- Ongoing monitoring and maintenance ensure better performance of the building.
- Individual sub-meters are installed for all Business Partners to enable tracking of consumption.
- Commissioning process activities ensure that energy systems are running smoothly and efficiently.



Recycling:

Dubiotech will be implementing a comprehensive recycling programme for our Business Partners.

Tenant Design Guideline:

While tenants will fit out their spaces, we provide a comprehensive Tenant Design Guideline to aid you in designing a green environmentally-friendly office. (for a copy of the guideline contact DuBiotech's Partner Relations Manager).

External Site Features:

Reduced heat island effect through reflective roof materials , shaded parking lots and maximum open space surrounding the buildings.

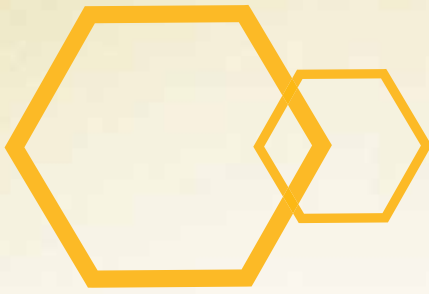
Regional Materials:

The building materials used for this project have been extracted, harvested or recovered, as well as manufactured from areas within 500 miles of the project site. This reduces carbon emissions compared to shipping materials from abroad.

Facility for Education:

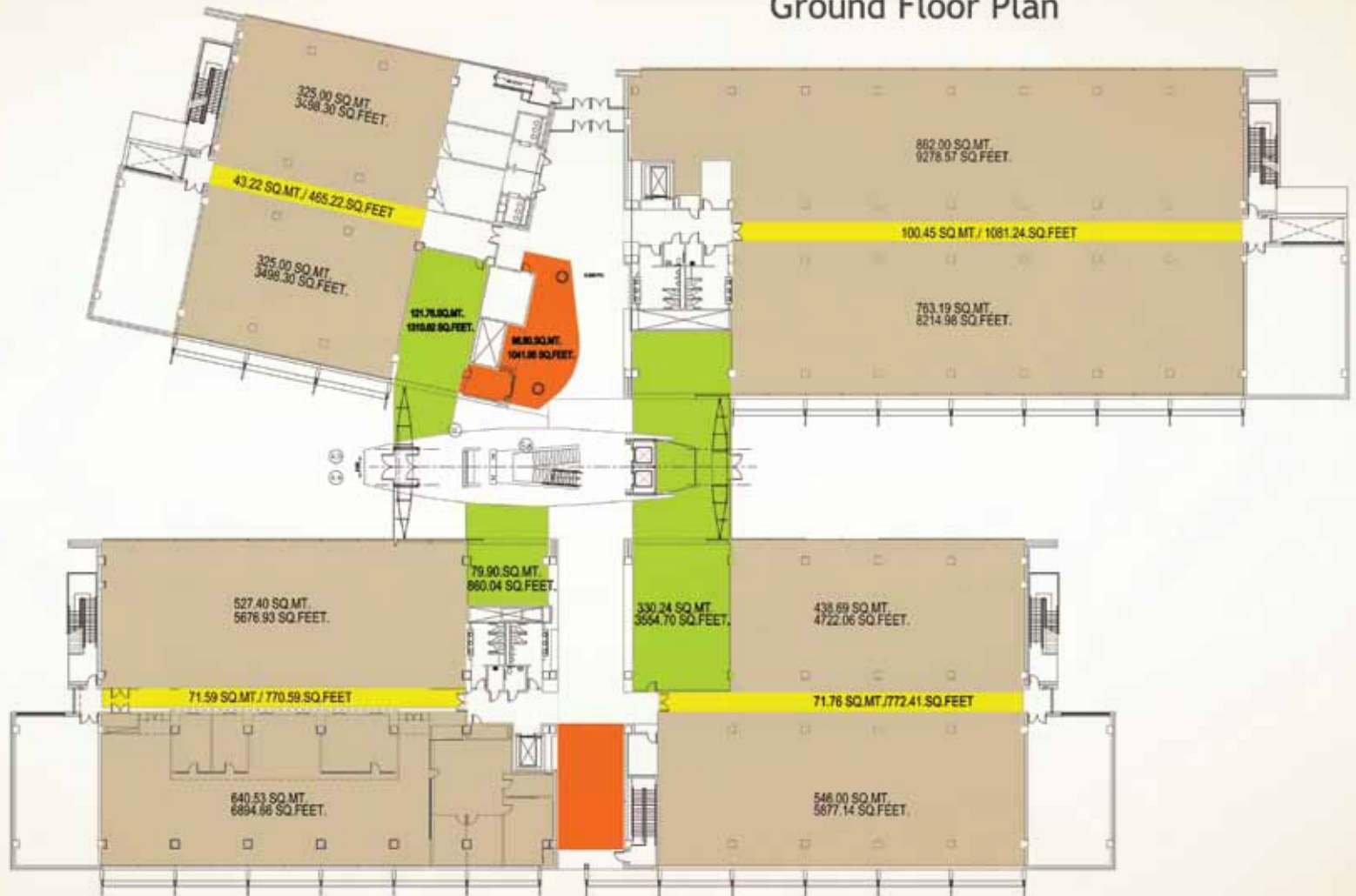
The lab complex will be used to showcase what is a green building and to highlight the efficiency.





LAB FLOOR PLANS

Ground Floor Plan



Leasable Area Diagram

| | |
|--|--|
| Leasable Lab 4427.81 square meters 47660.95 square feet | |
| Leasable Conferencing 175.8 square meters 1892.31 square feet | |
| Leasable Corridor Area 287.02 square meters 3089.48 square feet | |
| Leasable Retail Area 531.90 square meters 5725.37 square feet | |

Typical Floor Plan (1-2)

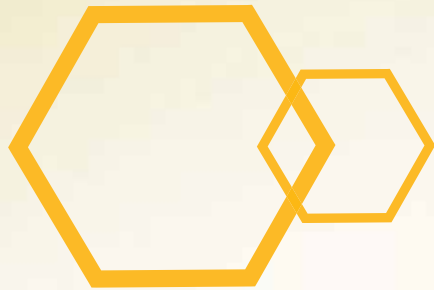


Leasable Area Diagram

| | |
|---|--|
| Leasable Lab 5013.20 square meters 53962.08 square feet | |
| Leasable Conferencing 318.26 square meters 3425.75 square feet | |
| Leasable Corridor Area 301.8 square meters 3248.57 square feet | |







DUBIOTECH WAREHOUSING FACILITIES

Dubai Biotechnology and Research Park (DuBiotech), the Life Sciences hub of the Middle East, offers pre-built units designed specifically for storage, showroom, distribution, logistics and light manufacturing for the pharmaceutical and biotechnology industries.

The pre-built units are a complex of 25 warehouses; each warehouse encompasses a mezzanine floor, which serves as offices that can be organized with office partitions along with an independent pantry, visitors & owners parking.

The facades have been skillfully chosen according to the urban guidelines. Landscaping is provided in all buffer zones and along the loading and storage areas. A dedicated loading and



unloading dock has been provided for heavy vehicles and forklifts with enough given space in the roadways for moving goods easily and vigilantly.

The strategic location of the warehousing facilities eases the imports, exports and logistics operations through a well connected highway network in close proximity to the Jebel Ali port. It is also easily accessible from Dubai International Airport and the new Al Maktoum Airport, which has a handling capacity of about 120 million passengers annually along with 12 million tons of cargo.



THE FACILITY:

The Blocks are distributed in 5 sectors as Block A, B, C, D & E.

- Block A - 6 warehouses
- Block B - 7 warehouses
- Block C - 6 warehouses
- Block D - 6 warehouses
- Block E - 1 Restaurant



Mechanical Provisions

1. DuBiotech warehouses are protected by a network of external fire hydrants ready for operations during an event of fire
2. Each warehouse is protected internally by an automatic sprinkler system and fire hose cabinet. The office area in each warehouse is air conditioned by ducted split units. Separate DEWA water meter is provided at each warehouse
3. A/C & ventilation provision is provided for all warehouses

Electrical Provisions

1. Fire detection and emergency lighting with automated dial up monitoring to civil defense
2. Separate distribution panel for each warehouse
3. Additional power (15 kw) for refrigerating unit
4. Telephone and data outlets



General Electrical Services

1. Reliable 24/7 power supply (400 V, 50 Hz, 3 phase DEWA supply)
2. GHz IP network for telephone services from Du
3. Semi fitted electrical Installations
4. Electrical tariff metering for all warehouses
5. External lighting system
6. Wiring accessories (Switches, Sockets, Isolators, Clipsal & ABB)
7. Light points at offices and fully fitted installation at warehouses

Provisions

- Energy tariff meter provided
- Lighting & small power - light & sockets provided
- Telephone - consolidation panel provided
- Fire & emergency - provided



Common Areas

- Prayer Room
- Landscaped area
- Restaurants

Other Services

- Service Block (L.V Room, Garbage etc)
- Visitors Parking
- Roadways between blocks (A, B, C ,D)
- Garbage Disposal room in each block
- Each warehouse is provided with 3 car parking slots (unless otherwise shown on the drawings)
- Handicap parking (3 slots)

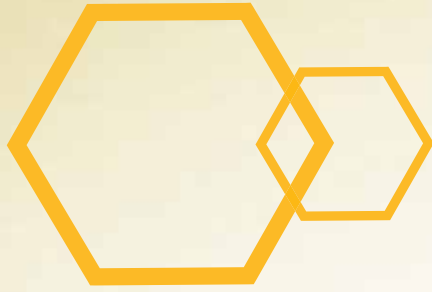


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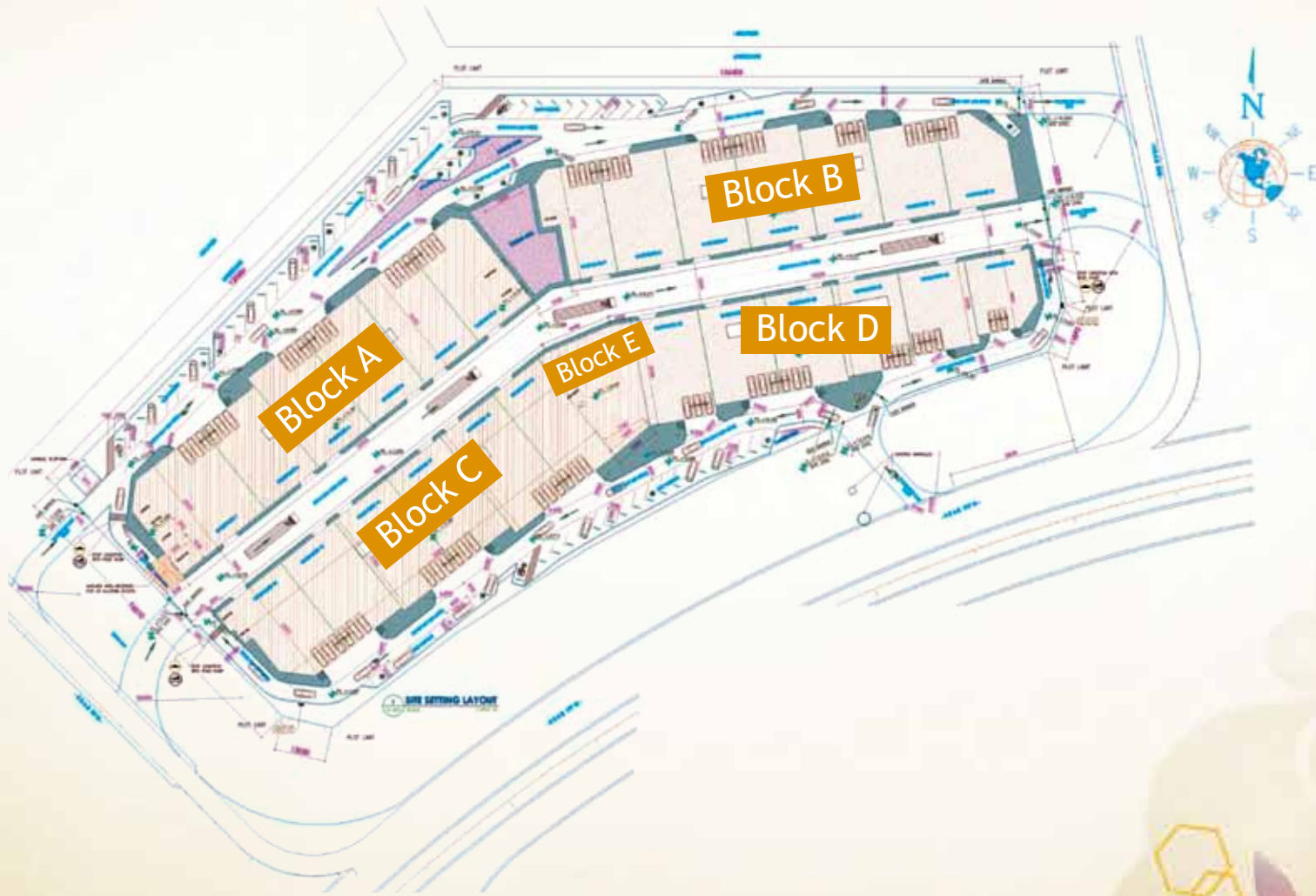
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BLOCK INDICATIONS FLOOR PLAN



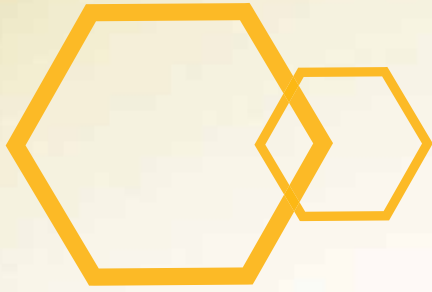
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DUBIOTECH EXECUTIVE BUSINESS CENTRE

The DuBiotech Executive Business Centre offers contemporary state-of-the-art furnished offices and open space workstations that cater to small and medium sized companies and start ups.

A facility to ease the processes for start ups, the DuBiotech Business Center offers competitive total office solutions, round the clock services, furnished and equipped facilities, fast track visa processing in addition to various other benefits. DuBiotech's Business Centre is designed as the ideal location for companies to immediately commence business operations.





DuBiotech's Business Centre value proposition includes:

- The integrated business environment and the value added services vary from a 'one stop shop' that handles fast track licensing procedures, visa applications and document processing to a host of administrative services that include:
 - Facilities management
 - Mail room
 - A reception area
 - Conference Rooms
 - Access to hardware and office equipment
- Simultaneously, Business Partners enjoy a multitude of benefits and the following value added services:
- Immediate ready-to-operate, fully furnished offices equipped with high-tech IT and Telecom services
- Use of meeting rooms, conference room, training rooms and lounge area
- Guest reception service
- Round-the-clock maintenance and security services, in addition to daily housekeeping.
- Daily collection and distribution of mail and faxes
- Access to local daily Arabic & English newspapers



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WAREHOUSES

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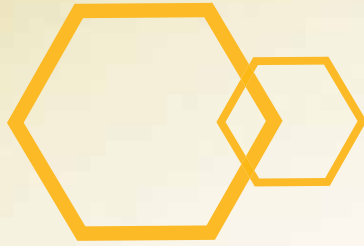


STRATEGIC LOCATION

The Nucleotide Lab Complex in the DuBiotech site is ideally situated in Dubai and occupies a prominent location between Al Khail and Emirates Road highways. It is just 15 minutes drive from Dubai International Airport and 60 minutes from Abu Dhabi, the capital of the UAE.

Additionally, Jebel Ali Port is just 15 minutes away, allowing quick access for import, export and logistic operations.





ABOUT DUBIOTECH

Dubai Biotechnology & Research Park - DuBiotech - has grown to become the premier Life Sciences cluster in the Middle East today - with about 90 leading companies in the pharmaceutical, biotechnology, medical devices and agribusiness that are licensed by DuBiotech and contributing to the success of the cluster.

DuBiotech was launched in 2005 by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai in line with the vision of developing Dubai's knowledge-based economy. To accommodate the entire life sciences value chain, DuBiotech is committed to providing key facilities, investing in infrastructure and creating a unique free zone that incorporates industrial, academic, commercial and residential projects.

The park integrates tailored facilities such as the Nucleotide Lab Complex, multipurpose warehousing facilities, adaptable and premium fitted out offices at the DuBiotech Business Center, as well as land to support the rigorous requirements of research and development, manufacturing, distribution, hospitality, residential, retail, healthcare and high value-added services.

DuBiotech offers a unique business environment through a mixture of incentives such as advanced infrastructure, support services, freedom of capital movement, tax-free income and easy access to different markets. All of these together position DuBiotech as the strategic and ideal location for life sciences companies.

In addition, DuBiotech offers single-window services such as regulatory affairs management, partner development, registration and licensing, government services and leasing services.

DuBiotech is actively building affiliations and alliances with distinguished universities, specialist hospitals, world regulatory bodies and other research parks to link the DuBiotech community with the global life sciences industry.

As part of its commitment to Corporate Social Responsibility (CSR), all DuBiotech buildings including its headquarters, laboratory complexes, manufacturing and community service blocks are 'green' and LEED certified.



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