



URBAN DESIGN

To reduce its overall environmental footprint, Masdar City's urban planning emphasises high-density, pedestrian-friendly mixed-use development, low-rise construction and easy access to public transportation. Streets and public plazas have been 'activated' to encourage people to spend time in them.

Passive sustainability strategies include:

- Windows that make up less than 40% of exterior wall surfaces
- Well insulated and airtight building envelope to help reduce energy consumption
- Horizontal and vertical shading prevent direct sunlight into buildings
- Fully shaded colonnades reduce direct sunlight on building walls to ensure cooler temperatures
- Stairs are prominently located, while elevators are hidden away to encourage the use of stairs. This is the opposite of what is found in conventional buildings
- Fountains, which flow water over surfaces, rather than spray water in the air, help lower the perceived temperature

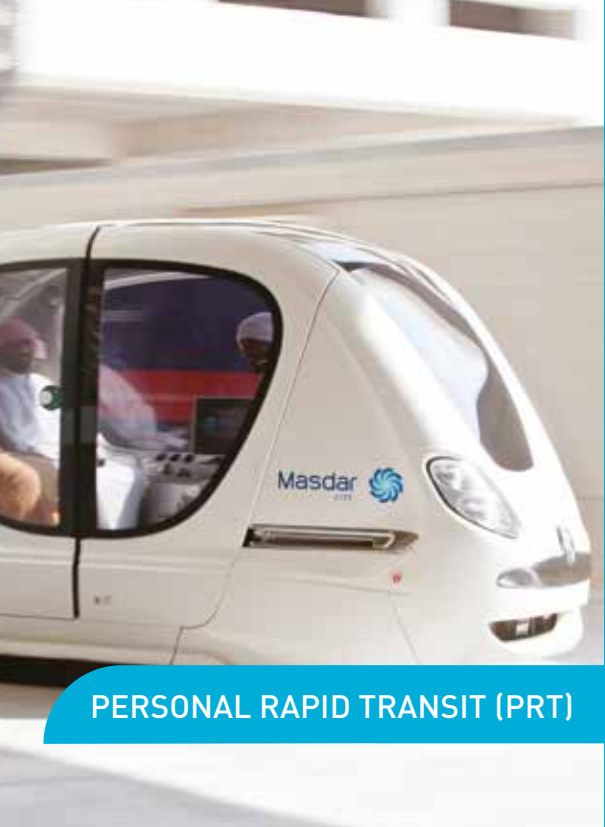


TRADITIONAL DESIGN

As you walk through Masdar City, you will notice that it looks both extremely modern and traditional. That's because the City incorporates many passive design features which don't require energy to deliver benefits. These features have been used by urban dwellers in the region for millennia.

Some of these techniques are obvious, such as the window shading, narrow spaces between buildings and colonnades. Others are less so, such as the northeast-southwest orientation of the city streets, which optimises shading of streets and building walls, and facilitates natural airflow throughout the City.

These strategies combined contribute to the perceived notion that Masdar City's outdoor spaces are much cooler than other parts of Abu Dhabi city.



PERSONAL RAPID TRANSIT (PRT)

The on-demand Personal Rapid Transit (PRT) system of electric-powered, automated, single-cabin vehicles offers the privacy, comfort and non-stop travel of a taxi service, and the sustainability of a shared public transport system. Operated using a touch screen to indicate your preferred destination, the vehicles run along PRT-only corridors located under the street level of the Masdar Institute campus. The passenger cars run on a 1,700-metre track that passes from the parking garage PRT station to the Masdar Institute PRT station.

The cars are controlled by computer and use sensors to ensure nothing is in their path and to locate magnets that have been embedded in the concrete floor every two metres to assist vehicle navigation. An overhead leaky coaxial cable antennae runs the length of the PRT corridors and provides a wireless link between the individual cars and the PRT system computer.

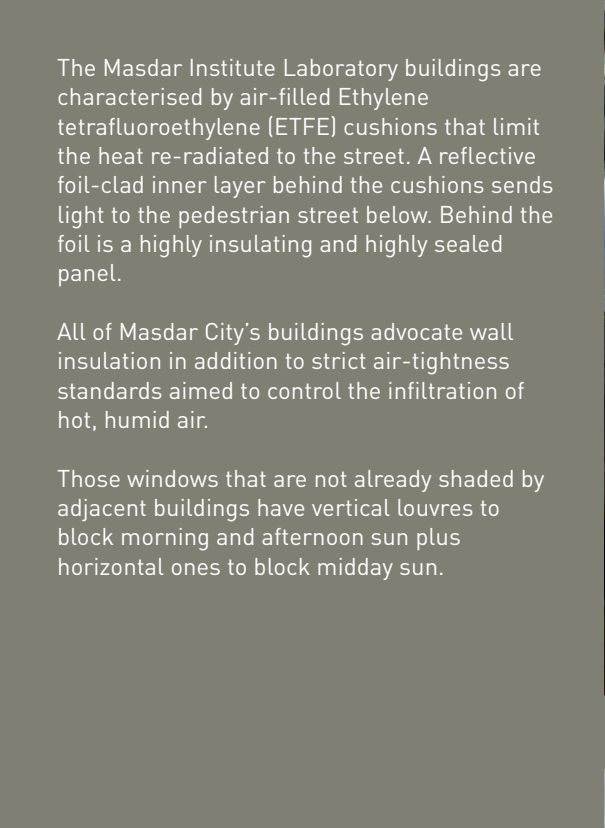


PRT STATION

The PRT (Personal Rapid Transit) Station marks the beginning of the Masdar City experience for most visitors. The floors are constructed with prefabricated concrete slabs that are manufactured offsite and fitted together on site, dramatically reducing construction waste. Benches are made of polished low-carbon concrete.

Backlit recycled-glass walls accent the PRT station entrance. Inside, the eye-catching glass-walled numeration of the PRT berths and multiple smaller international numbers are embedded into the single large Arabic numeral.

The parking berths have recharging panels in the floor, allowing vehicles to recharge while on standby in the station.



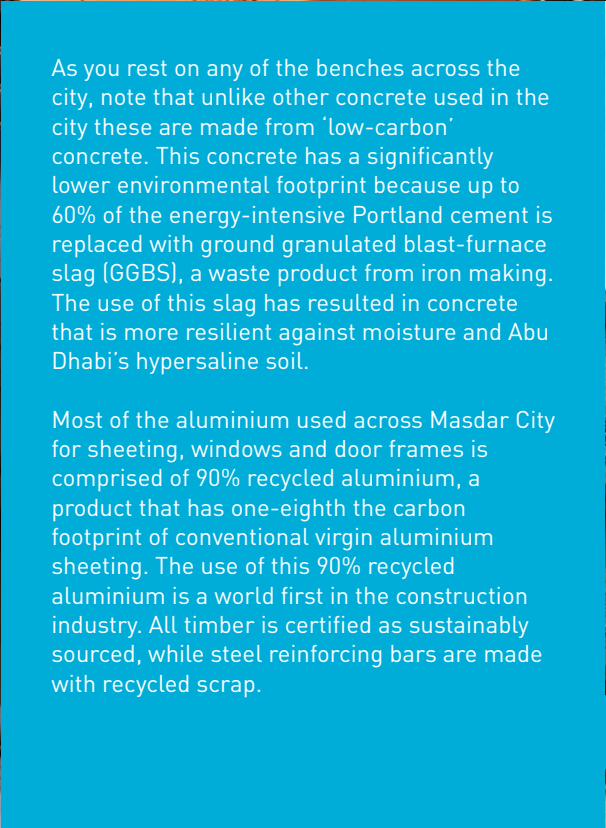
The Masdar Institute Laboratory buildings are characterised by air-filled Ethylene tetrafluoroethylene (ETFE) cushions that limit the heat re-radiated to the street. A reflective foil-clad inner layer behind the cushions sends light to the pedestrian street below. Behind the foil is a highly insulating and highly sealed panel.

All of Masdar City's buildings advocate wall insulation in addition to strict air-tightness standards aimed to control the infiltration of hot, humid air.

Those windows that are not already shaded by adjacent buildings have vertical louvers to block morning and afternoon sun plus horizontal ones to block midday sun.



BUILDING FAÇADE

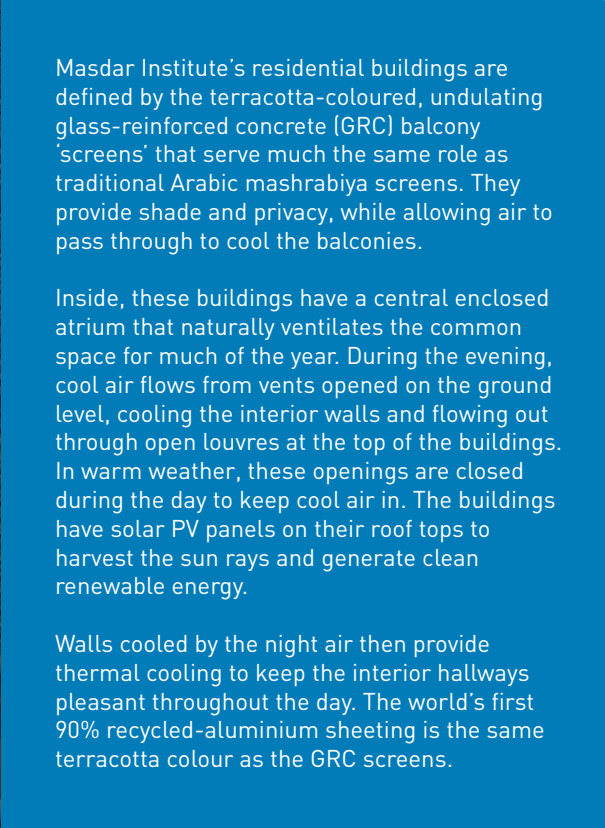


As you rest on any of the benches across the city, note that unlike other concrete used in the city these are made from 'low-carbon' concrete. This concrete has a significantly lower environmental footprint because up to 60% of the energy-intensive Portland cement is replaced with ground granulated blast-furnace slag (GGBS), a waste product from iron making. The use of this slag has resulted in concrete that is more resilient against moisture and Abu Dhabi's hypersaline soil.

Most of the aluminium used across Masdar City for sheeting, windows and door frames is comprised of 90% recycled aluminium, a product that has one-eighth the carbon footprint of conventional virgin aluminium sheeting. The use of this 90% recycled aluminium is a world first in the construction industry. All timber is certified as sustainably sourced, while steel reinforcing bars are made with recycled scrap.



GREEN BUILDING MATERIALS



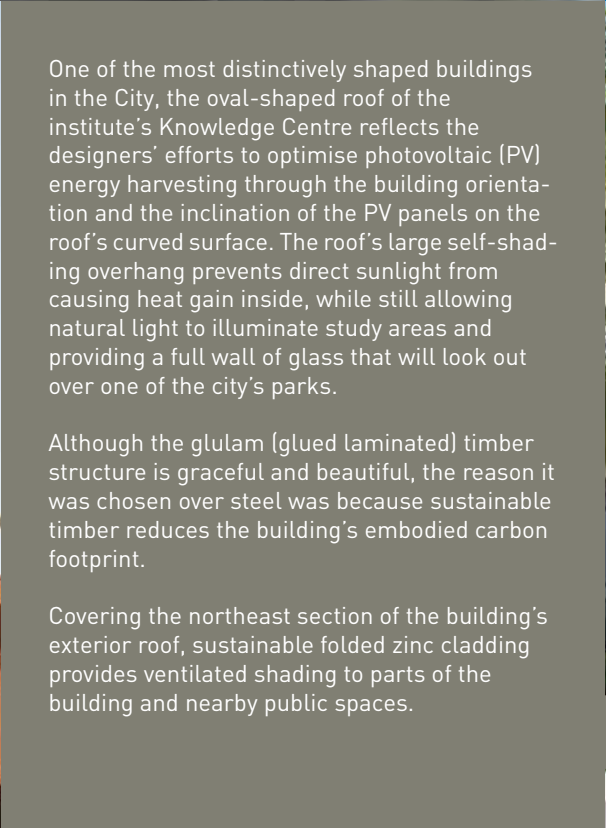
Masdar Institute's residential buildings are defined by the terracotta-coloured, undulating glass-reinforced concrete (GRC) balcony 'screens' that serve much the same role as traditional Arabic mashrabiya screens. They provide shade and privacy, while allowing air to pass through to cool the balconies.

Inside, these buildings have a central enclosed atrium that naturally ventilates the common space for much of the year. During the evening, cool air flows from vents opened on the ground level, cooling the interior walls and flowing out through open louvres at the top of the buildings. In warm weather, these openings are closed during the day to keep cool air in. The buildings have solar PV panels on their roof tops to harvest the sun rays and generate clean renewable energy.

Walls cooled by the night air then provide thermal cooling to keep the interior hallways pleasant throughout the day. The world's first 90% recycled-aluminium sheeting is the same terracotta colour as the GRC screens.



RESIDENTIAL BUILDINGS



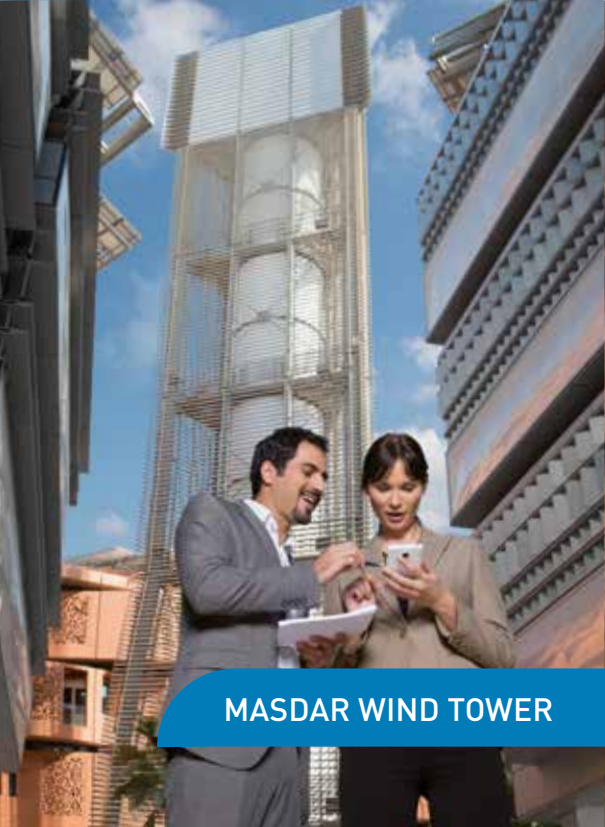
One of the most distinctively shaped buildings in the City, the oval-shaped roof of the institute's Knowledge Centre reflects the designers' efforts to optimise photovoltaic (PV) energy harvesting through the building orientation and the inclination of the PV panels on the roof's curved surface. The roof's large self-shading overhang prevents direct sunlight from causing heat gain inside, while still allowing natural light to illuminate study areas and providing a full wall of glass that will look out over one of the city's parks.

Although the glulam (glued laminated) timber structure is graceful and beautiful, the reason it was chosen over steel was because sustainable timber reduces the building's embodied carbon footprint.

Covering the northeast section of the building's exterior roof, sustainable folded zinc cladding provides ventilated shading to parts of the building and nearby public spaces.



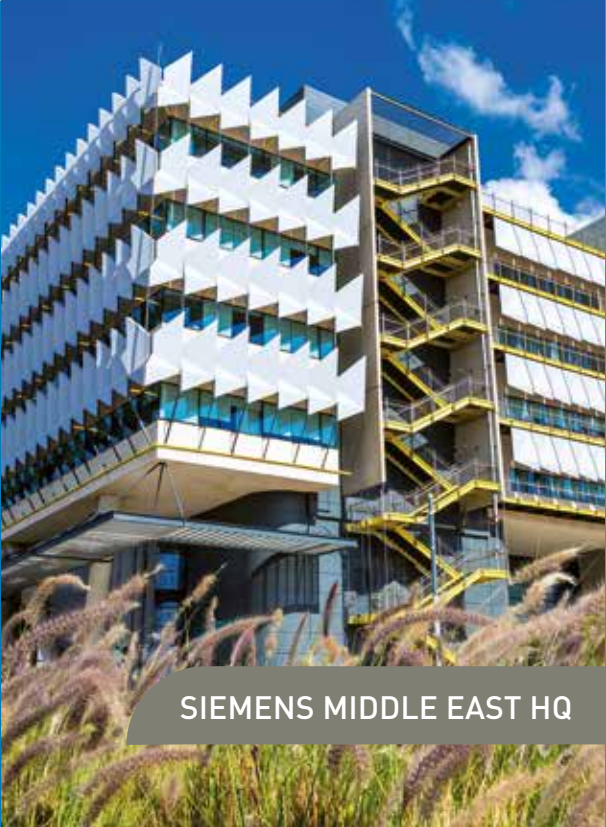
KNOWLEDGE CENTRE



MASDAR WIND TOWER

Rising 45 metres above the plaza in which it stands, the Masdar Wind Tower is a modern interpretation of one of the region's most iconic traditional architectural features. Its height allows it to capture upper-level winds and direct them to the open-air public square at its base. Sensors at the top of the steel structure operate louvres to open in the direction of prevailing winds and to close in other directions to divert wind down the tower.

A PTFE (Teflon) fabric membrane carries the wind downward, while mist generators at the top further cool the air. This combination of evaporative cooling and air movement help to lower the perceived temperature in the courtyard.



SIEMENS MIDDLE EAST HQ

The Siemens Building is a LEED Platinum-certified, high-performance office building, whose unmistakable exterior façade has been designed like a 'box within a box'. The inner 'box' is the highly insulated, airtight wall that provides maximum insulation. Surrounding this is the 'outer' box comprised of a lightweight aluminium external shading system featuring fins of varying forms. These prevent excess solar heat from reaching the inner 'box' and warming the building's interiors, while maximising views and daylight.

The building, which is the company's Middle East headquarters, 'floats' above and shades a public plaza, whose funnel shape accelerates prevailing winds underneath the building. This flushes hot air out of the surrounding public spaces using natural air-flow dynamics.

The atriums draw up the warm ground-level air from the building's plaza and expel it, allowing natural daylight to permeate the interior office spaces. Smart metering systems are deployed to monitor energy and water use.

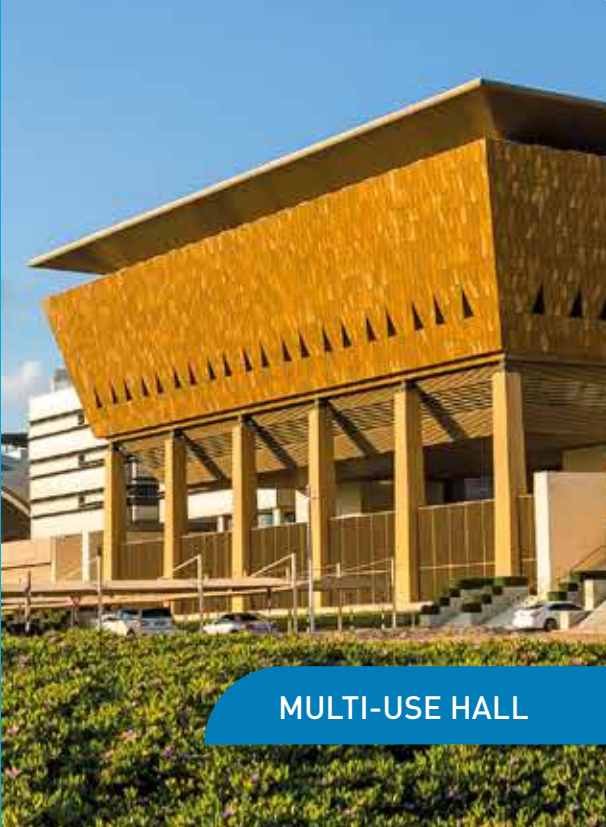


INCUBATOR BUILDING

The distinctive, ultra-modern façade of the Incubator Building slopes outward as it rises in an effect that reduces solar gain by up to 63%. The use of 'fritting' on the glass walls also keeps heat at bay yet still promotes diffused natural lighting inside.

These circular dots of ceramic frit are applied more densely on windows higher up the building, where there is more direct sunlight, and less densely further down. Some exterior windows can be manually opened to provide natural ventilation of fresh air in cooler weather to significantly reduce cooling requirements. The design of walkways into the building's open-air interior courtyard helps to 'lock in' the cooler shaded air.

Different coloured fritting has been applied to different sections on the façade. Higher up the building, the dots are bright yellow and reflective, while 'cooler' colours are used towards the building's base.

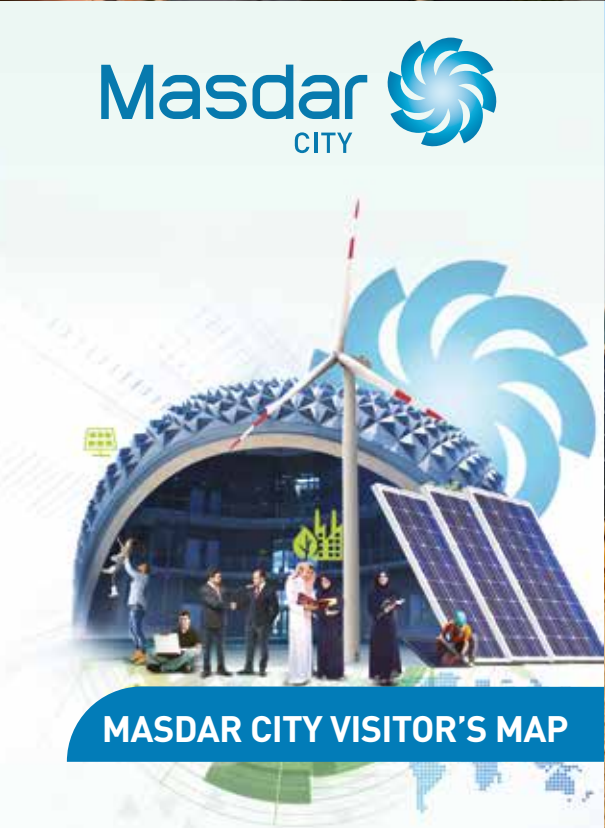


MULTI-USE HALL

This sports building and performance hall features an open-air swimming pool. Above the pool is an indoor gym and a large multipurpose hall that is used for conferences and sporting events.

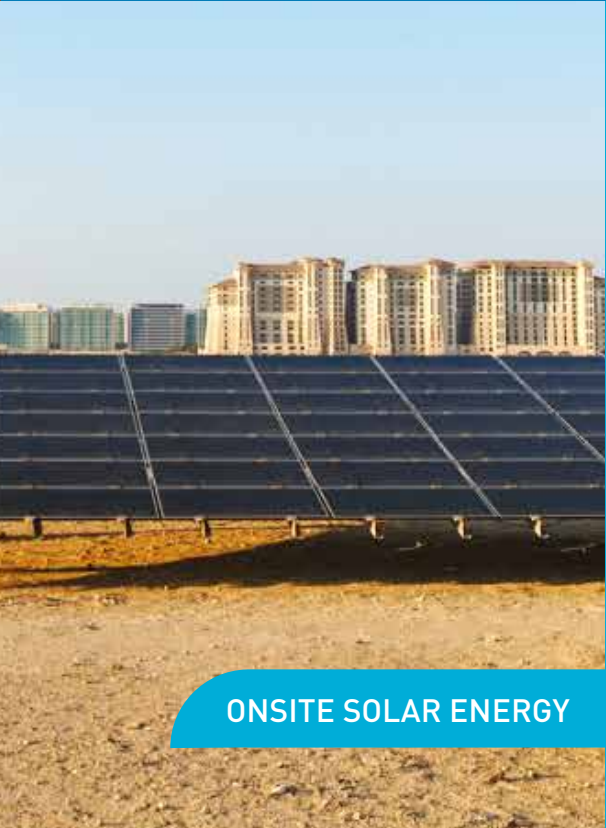
Ensuring accessible leisure and recreational opportunities for workers, residents and visitors to Masdar City is central to the sustainability objective of creating a viable work-life balance. That's why streets and public squares are intentionally designed to encourage sitting, whether for a work or informal meeting, to read or simply to enjoy the weather. Cafés and restaurants benefit from the City's pleasant micro-climate. Future development includes more open spaces such as parks, playgrounds and sports fields.

The unusual design choice of putting a building above an outdoor swimming pool optimises land use and provides necessary shading to the pool.



Masdar
CITY

MASDAR CITY VISITOR'S MAP



ONSITE SOLAR ENERGY

Masdar City is a growing clean-technology hub that is pushing the boundaries of urban design and renewable energy. The City features a 10MW solar photovoltaic farm with 87,777 polycrystalline and thin-film modules that occupy a 22-hectare site.

At its commissioning in 2009, the plant was the largest grid-connected solar facility in the Middle East. The farm produces approximately 17,500MWh of clean electricity and diverts 7,200 tonnes of CO₂ annually.

The rooftop PV arrays have a capacity of 1MW and produce nearly 1,500MWh of electricity a year.



IRENA HQ

The seven-storey, 32,000 square-metre complex comprises an atrium surrounded by three buildings home to the International Renewable Energy Agency (IRENA) headquarters. The complex has a 1,000 square-metre rooftop solar PV array that will meet 10% of the building's electricity requirement.

The office building, the first in Abu Dhabi to earn a 4 Pearl Estidama construction rating, reduces overall energy demand by more than 60% compared to a baseline non-Estidama building in Abu Dhabi. It also uses 54% less water than a comparable structure, and 75% of its hot water demand is heated on site with solar heaters. The complex was constructed with advanced sustainable building materials, such as low-carbon concrete, recycled aluminium and steel, and FSC-certified timber.

Melius Restaurant is located on the ground floor.



DIGITAL GUESTBOOK

The Masdar digital guestbook is an engaging and interactive souvenir of your visit to Masdar City. Created by American artist Joshua Davis, the guestbook invites you to sign your name on the screen. Based on each signature, the guestbook software uses randomisation to create a unique, computer-generated art form that evokes a schematic urban planning map.

The slower, more carefully you sign your name, the better the resulting artwork, so be sure to take your time. Once the design is created, the guestbook will send a copy to your email.



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WELCOME TO MASDAR CITY

Masdar is building one of the world's most sustainable, low-carbon urban developments, Masdar City. As one of the most modern, sustainable communities and an emerging technology cluster, it combines traditional Arabic architectural techniques with current technology to create a cool and pedestrian-friendly environment where people live, work, learn and play. Masdar City provides an environment in which businesses can thrive and push the boundaries of innovation. The development is presently home to more than 350 companies which contribute to Abu Dhabi's transition to a knowledge-based economy. A collaborative mind-set and entrepreneurial spirit energises Masdar City, creating opportunities for investors and tenant organisations alike.

Knowledge, research and learning are at the heart of Masdar City's unique ecosystem, which will incorporate the full education cycle, from elementary and high schools to undergraduate and postgraduate institutions. Through Masdar Institute of Science and Technology, tenants have access to advanced research facilities, and every graduating class from the Institute adds to an unmatched talent pool.



MASDAR

A wholly-owned subsidiary of the Abu Dhabi Government-owned Mubadala Development Company, Masdar has a mission to invest, incubate and advance the establishment of a clean energy industry in Abu Dhabi and around the world. Masdar comprises three business units, namely Masdar Clean Energy, Special Projects and Masdar City & Free Zone. It is complemented by Masdar Institute, an independent, research-driven graduate university.

Today, Masdar is a renewable energy innovator and investor that is preparing the sustainability leaders of the future. With each unit focused on a key component of the value chain, Masdar operates with the broad scope necessary to meet the most pressing sustainability challenges of today and tomorrow.



MASDAR FREE ZONE

Masdar Free Zone at Masdar City offers companies of all sizes an unparalleled opportunity to do business in one of the most dynamic and aesthetically-pleasing renewable energy and clean-tech clusters in the world. Located near the Abu Dhabi airport, 20 minutes from downtown Abu Dhabi and 40 minutes from Dubai, this tax-free zone currently hosts 400+ companies, including General Electric, Siemens, Mitsubishi Heavy Industries and Lockheed Martin to name a few.

Committed to making registration, leasing and visa-processing a fast and seamless experience, Masdar City has set up a One-Stop Shop service centre that allows new partners to establish their businesses within just a few days. Businesses that join the free zone at Masdar City have 100% foreign ownership, freedom of capital and profit repatriation and complete access to the city's state-of-the-art, energy and water efficient infrastructure which allow lower operations costs.



MASDAR INSTITUTE

Masdar Institute of Science and Technology is the world's first graduate-level, research-driven university focused on advanced energy and sustainable technologies. It aims to support Abu Dhabi's economic diversification by developing highly-skilled human and intellectual capital and partnering with industry leaders.

The Institute, which was created in collaboration with the Massachusetts Institute of Technology (MIT), includes graduate programs consolidated into four departments: Electrical Engineering and Computer Science; Engineering Systems and Management; Mechanical and Materials Engineering; and Chemical and Environmental Engineering.

Its faculty and students explore a diverse range of issues – from water and energy to microelectronics and climate change. Its research activities are organized under five Institute Research Centers – the Institute Center for Energy, Institute Center for Water and Environment, Institute Center for Smart and Sustainable Systems, Institute Center for Microsystems, and the Institute Center for Innovation and Entrepreneurship.

Main Buildings

- A Incubator Building
- B Knowledge Center
- C Multi-use Hall
- D Siemens Building
- E Wind Tower
- Masdar Institute Campus

Cafés and Restaurants

- 1 Barbacoa Mexican Restaurant
- 2 Café Cento
- 3 Caribou Coffee
- 4 IL Café Di Roma
- 5 Jim's Kitchen Table
- 6 Just Falafel
- 7 Osha Emirati Gourmet
- 8 Papparoti Café
- 9 Quiznos Sub
- 10 Spinneys Cafeteria
- 11 Sumo Sushi & Bento

Retail

- 12 F-Mart Supermarket
- 13 Organic Supermarket

Bus Stops

- Public Bus
- Big Bus

Services

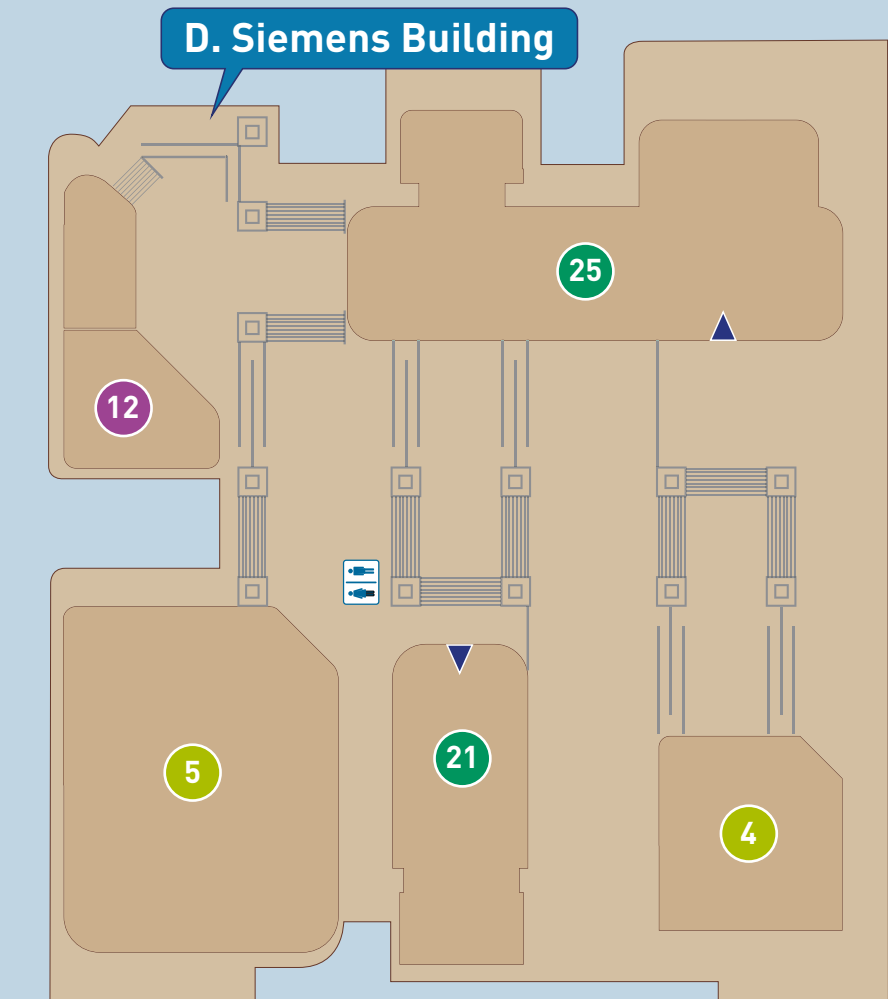
- 14 Al Hilal Bank
- 15 Al Manara Pharmacy
- 16 Emirates Post
- 17 Etisalat
- 18 Modern Laundry
- 19 NBAD Bank
- 20 The Doctors Medical Centre

Corporate Offices

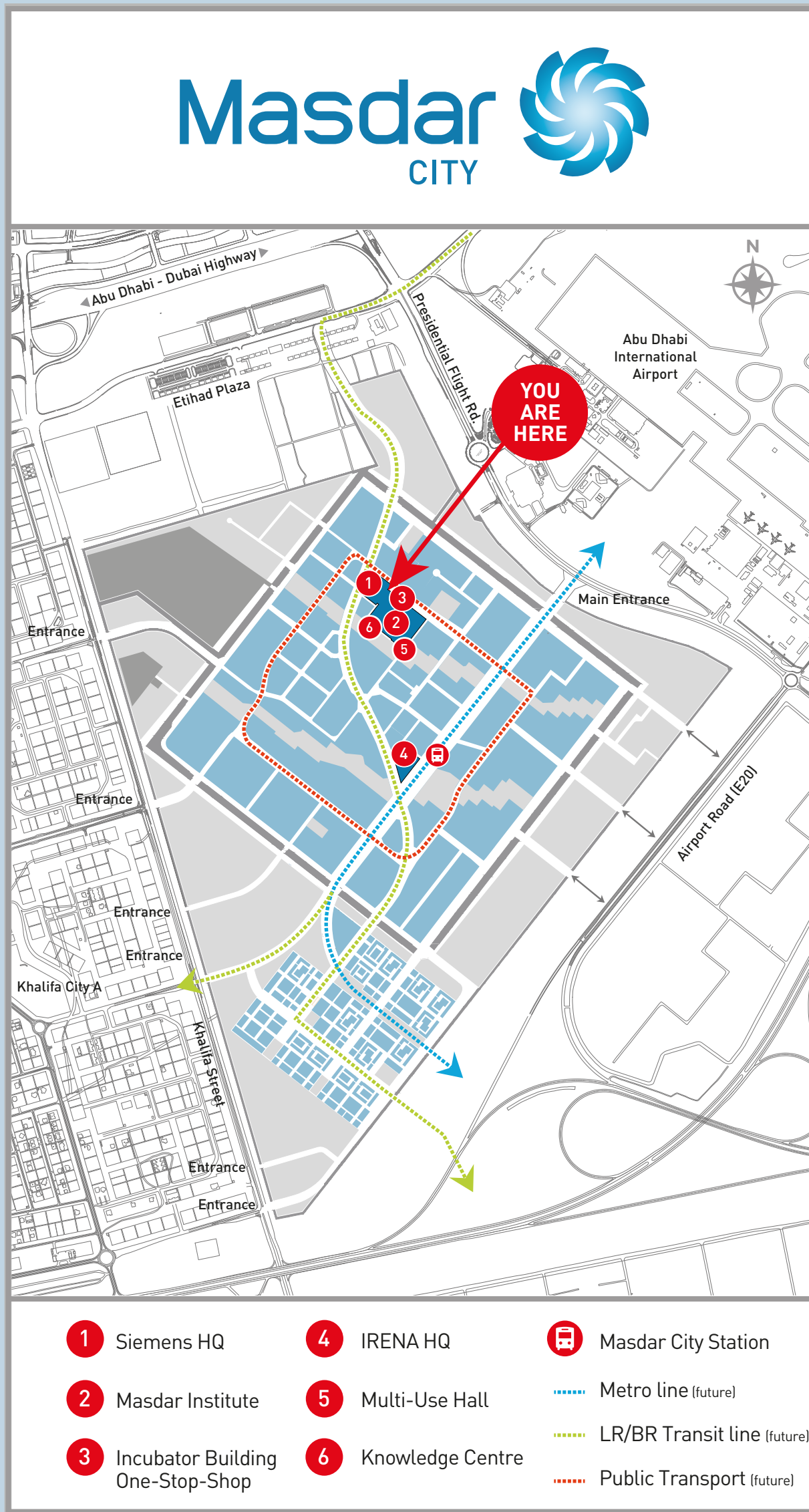
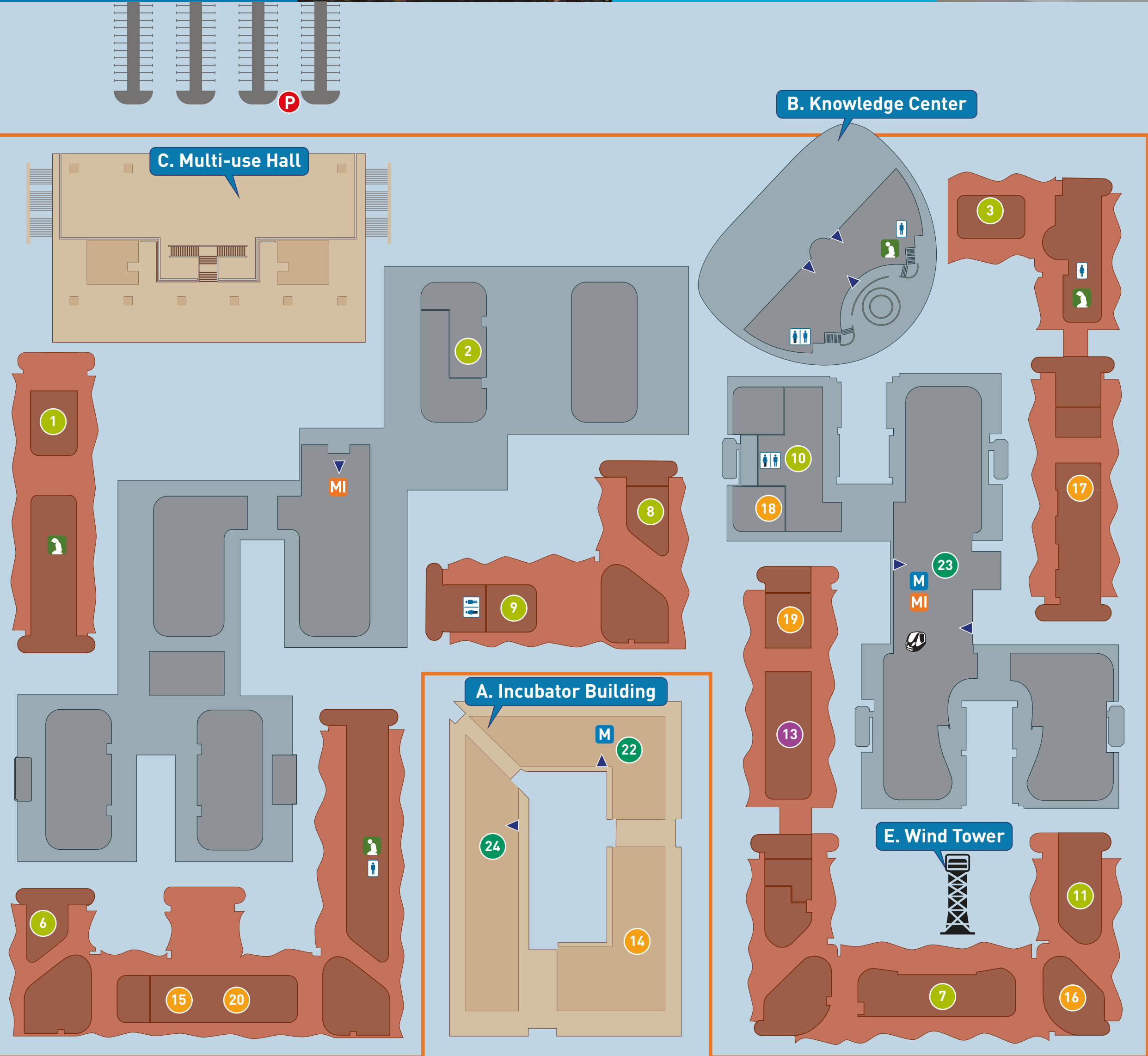
- 21 Etihad Airways
- 22 Masdar City Offices
- 23 Masdar Corporate Offices
- 24 Masdar Free Zone One-Stop Shop
- 25 Siemens Middle East

Facilities

- Personal Rapid Transit (PRT)
- Male Prayer Room
- Female Prayer Room
- Toilets
- Masdar Reception
- Masdar Institute Reception
- Building Entrance
- Car Park (Staff Only)



D. Siemens Building



Masdar
CITY

- 1 Siemens HQ

2 Masdar Institute

3 Incubator Building One-Stop-Shop

4 IRENA HQ

5 Multi-Use Hall

6 Knowledge Centre

Masdar City Station

Metro line (future)

LR/BR Transit line (future)

Public Transport (future)