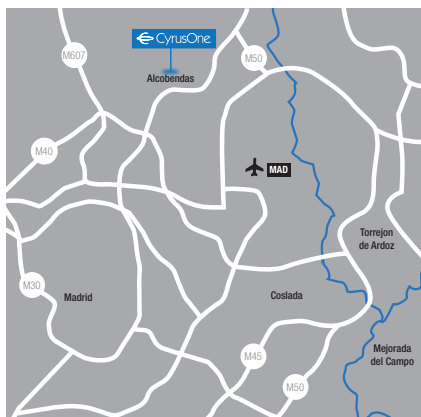


# MAD1

**CyrusOne Data Center**  
**Madrid – Alcobendas**  
**Plot 5A**  
**Valdelacasa**  
**Alcobendas**  
**Madrid**  
**Spain**

**Latitude: 40 32 07.23 N**  
**Longitude: 3 39 36.40 W**

**CyrusOne MAD1** is a brand-new state-of-the-art data center strategically located in the municipality of Alcobendas. The data center will ultimately deliver 6,000 sq m (64,584 sq ft) of world-class technical space within a two-story building with a total IT load of 18 MW.



## Overview

- 6,000 sq m (64,584 sq ft) of world-class technical space in a single two-story building
- 18 MW of total IT load to the facility
- Highly resilient, concurrently maintainable power and cooling to Tier III
- Dedicated electrical plant to each data hall of 9 MW
- Low PUE through the use of free cooling chillers
- 900 mm heavy duty raised floor with 3,600 mm clear height in the data hall
- Active / Active dual redundant power supplies of 34 MVA to site
- Carrier neutrality and diverse fibre connectivity to site
- Secure managed delivery bay with 3 tonne goods lift
- Multi-layer industry-leading levels of physical and electronic security with 24/7 year-round onsite support

## Power

- Mains power supplied via 100% rated A&B 66 KV incomers diversely routed active / active with a capacity of 34 MVA
- All IT power metered and charged as consumed
- 7 to make 6 block redundant topology to provide 9 MW per floor
- 99.99% reliability with the ability for concurrent maintainability
- IT power supplies are derived from primary and reserve feeds from each block to create an IT distribution topology between all 6 blocks with a reserve from the 7<sup>th</sup>
- Block redundant UPS topology with 10-minute battery back-up as standard
- Fully rated LV back-up redundant generators with 48-hour fuel autonomy, capable of continuous running
- Re-fuelling contracts to ensure timely replacement

## Cooling

- Cooling configured on a resilient ring chilled water system
- 9 MW IT capacity cooling solution per floor
- N+1 free cooling air-cooled chillers
- Computer room air handling units at N+4
- Circulation pumps N+1
- Low PUE due to cooling solution and optimum chilled water temperature to maximise free cooling hours
- Cooling infrastructure individually managed and linked to BMS
- Independently regulated temperature and humidity
- Power supplies to cooling equipment for full redundancy configured in a block redundant topology

## Energy Efficiency

- Scalable UPS capable of ECO and sequence modes
- Variable speed drive chilled water pumps
- Variable speed drive CRAH unit fans
- ASHRAE TC9.9 Class A1 hall conditions
- Air cooled plant rooms with variable speed fans when conditions permit
- Low PUE through the use of optimum chilled water temperatures

## Connectivity

- Carrier neutral access and diverse fibre connectivity to active A&B Meet Me Rooms from multiple telecommunications providers
- Four diverse fibre routes onto site

## Fire Detection and Suppression

- Three-stage fire detection systems into data halls
- VESDA (Very Early Smoke Detection Apparatus) in data halls and UPS plant pods for early warning
- Fire detection in all rooms, in air plenums and in voids as required
- Nitrogen filled pre-action sprinkler system to data halls
- Double knock approach sprinkler system to all areas, zone activation
- Fire detection and suppression systems interconnected to central BMS

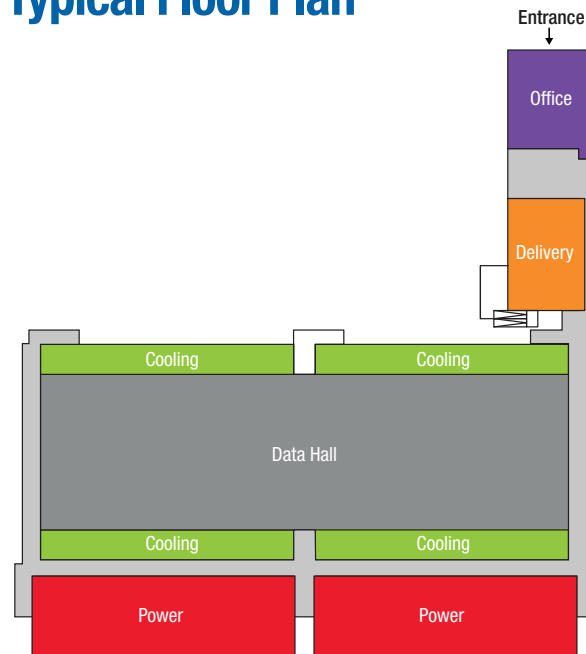
## Building & Energy Management Systems (BMS & EMS)

- Power and building monitoring systems to provide alarms
- Power surge management
- 24/7 year-round-on-site M&E engineers undertaking Planned Preventative Maintenance (PPM) programmes
- Real-time monitoring of electrical and mechanical systems

## Compliance (Operated to International Standards)

- ISO 14001 Environmental Management
- ISO 27001 Information Security Management
- ISO 9001 Quality Management
- ISO 50001 Energy Management

## Typical Floor Plan



## Security

- 2.5 metre high security perimeter fence with concrete base
- Vehicle lock at the entrance to site with PAS 68 rated gates to protect from physical attack
- Manned gatehouse at the entrance to site
- Extensive external CCTV to cover external areas of the site including the perimeter fence
- 24/7 year-round-on-site security located in a secure control room
- Extensive CCTV and access control throughout the facility
- Progressive layers of security to restrict access through the site
- Mantraps with biometric readers into data halls if required

## State-Of-The-Art Engineering

- Air cooled UPS modules cooling only at high ambient conditions
- Sequence and variable mode UPS modules, dedicated to each hall
- Integrated A&B MV infrastructure along with distributed N+1 LV generators for increased resilience
- Phasing to allow for tenant specification requirements
- Remote intelligence control algorithms to remove reliance on central BMS

## Sustainability

The building is certified BREEAM Very Good, guaranteeing it complies with multiple sustainable criteria, including:

- Sustainable site and waste management - General Contractor demonstrates best practice and meets our KPI's in all areas
- Reduction of CO2 emissions through design – this brand-new high-performance building only utilizes best in class highly efficient technology and OFCI's
- Reduction in water use and reuse – the closed-loop chilled water system delivers industry-leading PUE alongside measured low water usage
- Lower environmental impact of the building over its full life cycle – achieved through the use of 'Green Guide' high-performance materials
- Limited impact on ecology – damage is limited during construction and habitats are enhanced thereafter by investment in creating biodiverse landscapes with native pollinating planting schemes where possible
- Reduced impact on climate change & local environment – using materials with low global warming potential (GWP) provision of electric vehicle charging, sourcing staff locally and supporting the local economy
- Best practice design for health, wellbeing and occupancy ensuring thermal comfort, lighting and control, indoor air quality and acoustic performance, encouraging reduction in car travel through the provision of cyclist facilities