



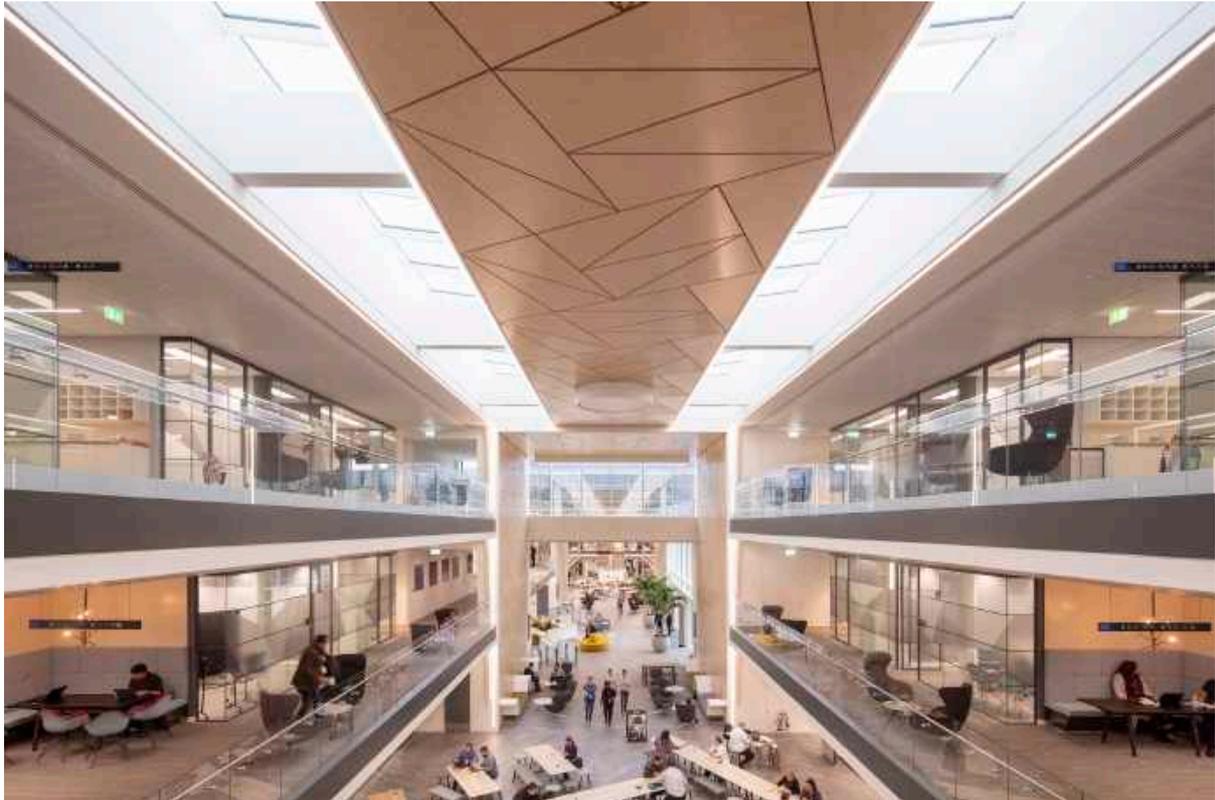
Arm HQ Building ABCD, Cambridge

Case Study

Asela Rodrigo, January 2020

Arm HQ, Building ABCD

Arm recently took occupation of their new headquarters known as Building ABCD. The building represents a milestone in smart buildings and deploys many of Prolojik's leading edge technologies including Lightmatrix PoE lighting, BMS and AV integration, as well as our Proxima location-based services sensors.



Arm Holdings' new headquarters building located on Peterhouse Technology Park, Cambridge is one of the most technologically advanced and extensive implementations of smart lighting in the world.

The £90 million building designed by Scott Brownrigg echoes Arm's pedigree in semiconductor design with internal and external architectural details reflecting crystalline silicon.

The 18,580m² facility accommodates 2,500 of Arm's innovators providing office, research and meeting spaces. The following Scott Brownrigg video posted on Vimeo is a great showcase of this unique space <https://vimeo.com/383292093>

The Arm ABCD was constructed by Kier, with BW Interiors engaged for the Arm fitout with Bancroft delivering the electrical and smart lighting infrastructure. MEP design, including the smart buildings concept was by Hilson Moran.

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Lightmatrix PoE Lighting

Prolojik delivered the detailed design and all active equipment for what is one of the worlds largest PoE lighting installations utilising our Lightmatrix system. We worked with over a dozen suppliers to integrate our LX-LED drivers into everything from downlighters, through office lights to linear fittings, providing both constant current and constant voltage drivers in wattages up to 60W over PoE. In all, we independently control around 6000 light sources over PoE within the building. The image below demonstrates the diversity of fixtures and our holistic approach to control all lighting types; PoE, DALI, phase dimmed from a single infrastructure, giving the lighting designers ultimate flexibility in selecting the preferred light source.



Integration with sensors, switches and scene panels, enables optimised occupation, illuminance and scene control with equivalent performance to any sophisticated DALI system.

All lighting is wired back to the IDF rooms using CAT6 cable using a cost-effective data basket distribution, with the cabling quantity defined by wattage allowing daisy-chaining of luminaires. Within the buildings eight IDF rooms, Prolojik

provided 42U services racks containing our 48-port LX848 PoE lighting switches. Each switch provides up to 3kW of lighting power at 56V fed from integral auto-changeover hot-swappable power supplies.



Our in-house design team scheduled all data cabling to ensure optimum loading and our engineering team worked closely with Bancroft's cabling provider TCG to deliver a clear and traceable patching architecture. The resulting installation is both simpler to manage and is modular for future changes.



In total, Arm ABCD contains 70 LX848 switches internetworked between eight IDF

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rooms using CAT6 and Fibre networks using our LX800E fibre gateways.

Emergency Lighting



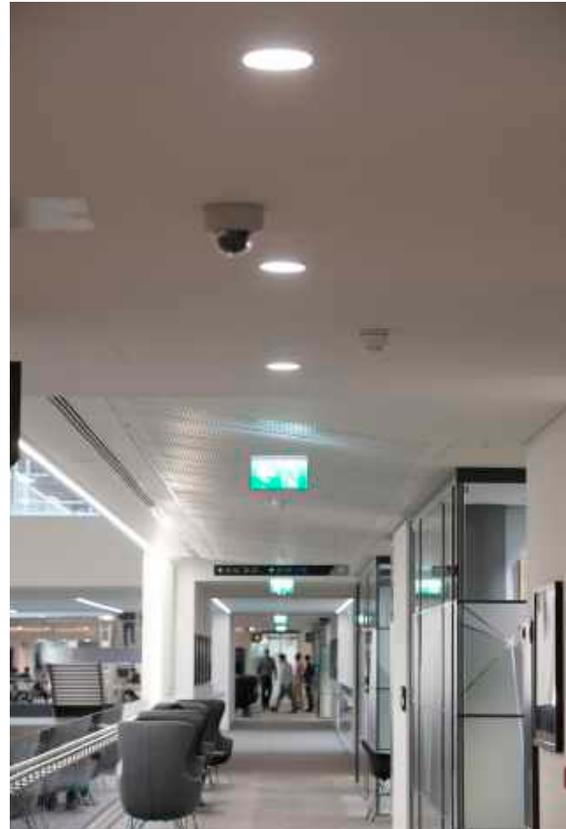
A unique feature of Lightmatrix is its ability to not only support any luminaire suppliers' fixtures, but also fully support emergency lighting. Working with our ICEL (Industry Committee for Emergency Lighting) approved partners LitePlan and ELP, we support self-contained emergency lighting for 3-hour emergency autonomous operation along with fully automated emergency testing and reporting over PoE. This significantly reduced the cabling demand and allowed the delivery of a unified system.

Proxima LBS Networks

Arm ABCD deploys over 1000 of Prolojik's Proxima Bluetooth LBS (Location-Based Services) multi-sensor, networked through 30 of our Bluetooth hubs. The sensor network supports lighting management with occupancy and illuminance data, and enables detailed space usage insight.

We have engineered the Proxima sensors with a calibrated antenna which allows accurate trilateration of people and assets within the building, achieving 1m radius accuracy within 30 seconds. The sensors

additionally support Google Eddystone and Apple iBeacon protocols allowing indoor way points and targeted messaging to building users.



This combination of sensor functions enables a unique level of space analytics to be achieved allowing enhancement of applications such as:

- Wayfinding
- Room booking
- User specific space management
- Usage profiling
- Targeted messaging

Find out more about Proxima at <https://vimeo.com/242492330>

AV Integration

Prolojik's PN350 AV gateways are installed in 120 locations to provide integration

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between the audio/video system and the lighting control.



The AV gateways support scene-recall, override and bi-directional control of associated services.

HVAC Integration

One of the key benefits of our open systems approach is our ability to directly integrate the lighting data with third-part systems. The ability to utilise the occupancy data to achieve both lighting energy saving, as well as share the data over BACnet/IP is one such benefit. This optimisation halves the number of installed sensors and reducing build cost, without compromising the building functionality. Arm ABCD utilises multiple BACnet/IP gateways to share occupancy data with the BMS over the services ICT network.



IP Supervisor

Prolojik has provided our Perspective supervision platform on dedicated rack servers within the IDF rooms allowing full monitoring and control of the Lightmatrix and base-build lighting systems. Features include real-time feedback and control, emergency testing and monitoring, scheduling, as well as providing integration APIs for extracting space analytics data from the Proxima sensor network. This data will be used by the client to deliver user experience mobile Apps to the building users.

Summary

Arm ABCD is a unique building merging the high aspirations of a leading-edge client with innovative technologies. We have designed the systems within the building and leveraged our open standards approach to provide a building which is highly functional but can also operate as a living lab for the Arm team to continuously review and redefine its use.

Contact Prolojik at info@prolojik.com to find out more.

ⁱ ARM Peterhouse Technology Park, Scott Brownrigg - Vimeo



 www.prolojik.com

 info@prolojik.com

 +44 (0) 1494 515 100

 @prolojik

 Prolojik Limited

 Perspective House, 7 Cliveden Office Village,
Lancaster Road, High Wycombe, HP12 3YZ