

Case Study

Elgin High School

Customer Elgin High School

Location Moray, Scotland

Requirements A future proof networking installation to support the IT infrastructure of the school.

Equipment Excel Category 6_A Dca-rated cable and complimentary mounting hardware, Excel OM3 Dca-rated Loose Tube Cabling and Pigtails, Environ SR 42U Racks fitted with anti-tilt accessories, housing Excel 24-port Patch Panel Frames for copper and fibre cabling, Excel Power Distribution Units and Excel Specialist Support Laser Engraved Labelling Service.

excel
without compromise.

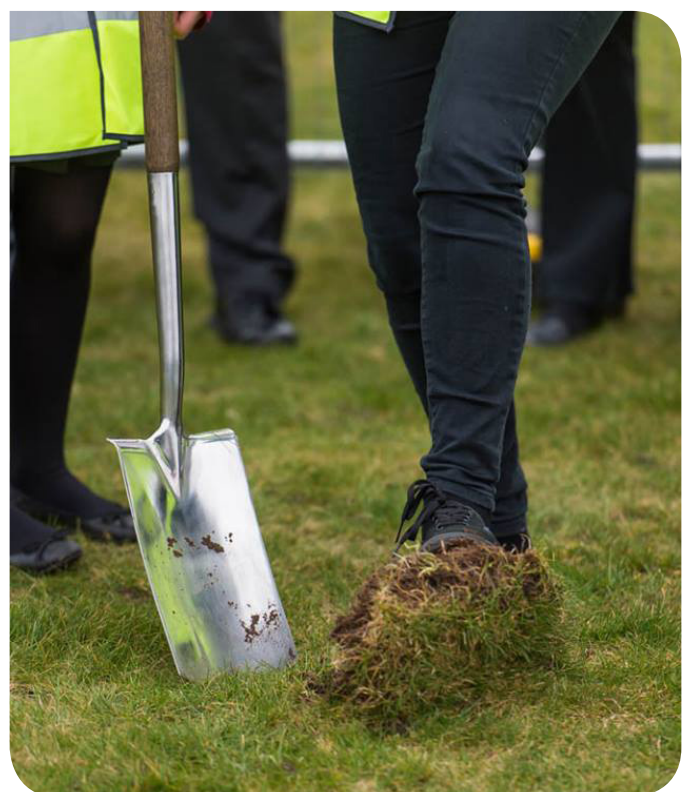
An Overview:

The project at Elgin High School centred around the replacement of the old school building to revolutionise the learning environment and mirror its students' aspirations. The school's IT systems needed a complete overhaul, and the cabling infrastructure was installed to support this expansion and the wider requirements demanded by the new school and its high-tech facilities.

The first day of the construction of the new school was focused around the students, who marked the official start date by helping the construction teams to "cut the turf". Students from across the curriculum contributed to the turf cutting ceremony. The Moray Council appointed hub North Scotland to deliver the project, and Balfour Beatty were selected as the main contractor. Angus Macfarlane, chief executive of hub North Scotland, said: "The turf cutting is an important milestone for the new Elgin High School project and signals the start in construction of what will be a first-class educational facility that will bring a host of wider benefits to the people of Elgin and the surrounding area."

The new Elgin High School will replace the existing school on the Northern portion of the same site. The existing school will remain in operation during the construction period and pupils and staff will be decanted following completion. This imposes tight timelines and restrictions on the infrastructure installation, to ensure minimal disruption to the building's occupants.

The school caters for more than 1,000 pupils from a mix of town and rural catchment areas. The school opens its facilities to not only its pupils, but also to the wider community, so this project was a major development for Elgin. The 10,378m² building will be designed to accommodate the students as well as with future expansion in mind. The school will play an important role within the Elgin community, with sports and performance provisions open for use by the wider public, so it was integral to the proposal that the infrastructure installed was futureproof and adaptable to changes within the environment.





Sourcing a Partner:

The main contractor for the project was Balfour Beatty. The M+E contractor was GA Barnie Group, with whom Excel Cabling Partner – Future Communications – have worked for several years on a variety of projects across a spectrum of vertical markets, each with unique demands.

Future Communications specialist in data, fibre optic, voice and audio/visual installations. The company was founded in 2010, and are now the largest independent Communications company in the North of Scotland. The client focused team have been responsible for the installation of some of the largest network infrastructures throughout the country, giving them the expertise required to satisfy the requirements of the community-centric project in Elgin.

Over the past eight years, Future Communications have nurtured partnerships with top players within the technology industry, not least by becoming an accredited Excel Cabling Partner, which allows them, among other things, to offer a comprehensive 25-Year Warranty as well as keeping up to date with the latest technological and industry trends in regular training and partner events. These benefits of the Excel Partner status mean that the team at Future Communications comprise of a talented, skilled workforce with the knowledge to apply innovative solutions that cater to clients' specific, complex and diverse IT needs. Having worked with the Excel product portfolio for several years, the team's comprehensive knowledge was key to Excel being selected for the Elgin High School project, and their specialisms and capabilities with the range ultimately lead to them being selected by the Moray Council to complete the installation with the right products to fulfil the project requirements.

The Right Product:

Given the prominence of the Elgin High School project within the local community, it was integral to the proposal that the right products were selected for the installation. The products needed to encompass the latest technological trends to cater for the school and extra-curricular requirements. The overall solution needed to be futureproof, with an ability to adapt to a changing environment, given

the prospects for the site's expansion in years to come.

First and foremost, the cabling infrastructure needed to mirror the community's pride in the project; it needed to meet high-quality performance expectations with high-speed connectivity as well as fit in aesthetically with the newly refurbished surroundings. It was vital that a technically proven cabling infrastructure solution was chosen for the foundation of the school's IT network at the new premises. The number of students using the network during the school day along with members of the surrounding community who would be taking advantage of the on-site facilities dictated that a reliable, consistent product be installed.

The decision to choose products from the Excel range was taken based on the brand's reputation coupled with Future Communications' prior experience with the product range. These factors gave the Moray Council (on behalf of Elgin High School) the confidence that the project would be



carried out smoothly and to the high standards expected by the school and its occupants.

The product portfolio from Excel constitutes an end-to-end solution where performance and ease of installation are prerequisites. With an emphasis on compatibility and standards compliance from cable to cabinet, reliability and product availability, Excel is the complete trusted solution.

Excel products are also verified by a range of independent third parties. Excel has invested in such test and verification programmes for over 15 years. Third party verifications

are an independent tick in the box; as well as testing the component and channel the manufacturing facilities are visited for spot checks to ensure the consistent quality in the manufacturing process, so the Moray Council could rest assured that the products that were being installed in Elgin's High School were of the highest quality and durability, suitable for a project such as this with vast ideas for future expansion.

Design and Installation:

The cabling infrastructure solution was designed with the school and the wider community in mind. With the project taking place between April and September 2017, the revised Construction Products Regulation (CPR), which came into play from July 2017, was swarming the industry. The initial proposal took the important changes regarding technical standards into consideration to ensure the newly refurbished school was compliant to British CPR requirements. This was a particularly integral consideration for this project. In the event of a fire at the school, it was important for the students' parents and members of the community using the facility to know that the cabling installed within the building was compliant to the latest technological standards. What's more, Future Communications ensured that the new infrastructure was fully documented, tested, warranted and labelled, allowing for future additions, moves and changes, creating a far more manageable process for the school's IT department.

Excel Category 6_A, compliant to CPR Euroclass Dca, s2, d2, a1, cabling was chosen as it has been specifically designed to exceed the ISO/IEC, TIA and CENELEC for Category 6_A component requirements. This delivers Class EA link performance over distances of up to 90 metres which supports the applications including 10GBASE-T. Each cable consists of two sets of two pairs wrapped together in an "S" configuration with high quality, strong, aluminium/polyester foil tape providing screening for each pair. The "S" Foil configuration ensures separation of the pairs that ensures the performance. The individual pairs are set to different lay lengths to ensure optimum performance.

The Category 6_A cabling was terminated into an Excel Unscreened Keystone Jack, the design of which incorporates staggered 50 microinch plated contact pins within the jack to ensure optimum performance levels are achieved as well as a metallised cap around the terminated pairs to minimise alien crosstalk. What's more, support of emerging applications such as 10 Gigabit Ethernet is guaranteed over channel distances of up to 100 metres, making it the perfect accessory for the chosen cabling. These jacks fitted into Excel shuttered outlet modules, which were installed into the Excel faceplate, featuring an ergonomic bevelled edge to compliment the aesthetics of the newly refurbished school building.

The backbone of the solution was constructed of Excel OM3 50/125 µm loose tube optical fibre cable, compliant to CPR Euroclass Dca, s2, d0, a1. These compact, lightweight cables are extremely flexible and are quick and easy to install,

making them ideal for this installation environment where time on site is tight. The cables are constructed around a gel filled (non-dripping and silicon free) tube containing up to 24 colour coded 250µm primary coated fibres. This tube is covered with swellable (for the longitudinal water tightness) yarns as strength members. The print legend on the cable now includes information regarding the CPR DOP number, Test and Classification of the cable for traceability. This is particularly important for the school's IT department, who will be pivotal to the success of any future expansion of the site.

The use of fibre gives some significant benefits when completing a project such as this. The fibre was deployed to link the racks together, negating any issues with runs that would have been over length for a traditional copper link. Fibre optics allow for large amounts of bandwidth to be transmitted, making it the ideal choice for the backbone when linking the racks together. This high grade fibre optic cable offers the ultimate in future proofing the core and backbone of the solution, with the cable offering performance levels of 10GBASE-SR/SW over 300 metres.

An Environ SR800 42U Server Rack was used to house the main IT equipment. These racks are a versatile range of 800mm wide racks with features suitable for a wide range of applications within the data, security, audio visual and telecommunications markets. At Elgin High School the racks were fitted with an anti-tilt kit for enhanced stability, as well as Environ plinths. The plinth increases the overall height of the SR rack by approximately 100mm and allows for easy cable access into the base. The plinth is manufactured with removable sides to further aid access for cabling and levelling purposes. Following the handover of the project, this will be especially important for the school's IT department, who will be responsible for maintaining the infrastructure. Making this as easy as possible will help to ensure effective upkeep of the system. The SR Racks housed a range of Excel copper and fibre patch panels, power distribution units and cable management systems to create a complete end-to-end solution.

Finally, to support the school's IT department in maintaining the infrastructure solution, Future Communications installed a range of laser engraved labels onto the patch panels and cabinets, to allow the school to easily identify what equipment the cables connected to, so that any issues could be easily identified and fixed with minimal disruption to the network. Excel's comprehensive range of bespoke laser engraved labels sit within the Specialist Support Services, which provides the highest quality laminated, laser engraved labels printed to the end users specific requirements to create a unique solution.

The Result

After 18 months, the £28.8 million high-tech campus replaces the existing building, and includes a fitness complex, auditorium, library and state-of-the-art catering facilities. At the handover were Elgin High School Head Teacher Hugh McCulloch, Nick Goodchild from Moray Council, with Iain Lumsden from contractors, Balfour Beatty Construction, and Linda Shearer from hub North Scotland. As part of the project, a new teaching and sports facility has been built adjacent to the existing Elgin High School, which will also have an important role as a community facility, with sports provisions and performance facilities open for use by the wider public.

Following the completion of the project after the October half term holidays, students arrived at the school to see their new building. Speaking as the first wave of pupils entered the building, McCulloch said: "The look on the pupils' faces has been absolutely fantastic; they are completely and utterly amazed and spellbound by the fact that this is now their new school. The outstanding facilities on offer – the performance areas, the sports facilities, the teaching and learning environments are truly outstanding. Quite frankly, they are second to none, not just within the authority, but across the nation. This is a very proud day for the fantastic staff here, the pupils and me."

After he welcomed them to their new school, senior pupils took groups around the school to familiarise them with the layout and facilities. The school bristles with new technology, including equipment for senior students to take advantage of distance learning and smart boards in each classroom. Elgin High School now has an IT infrastructure solution that allows the school to fully support their students with the use of wide range of electronic devices they need to assist with their learning and to enrich their time at school.

Speaking of the finished project, which was completed in September 2017, Moray Council's chair of the Children and Young People's Committee, Cllr Tim Eagle, said, "This is truly a very welcome milestone for Elgin High pupils and staff. I know that everyone has worked hard to get the school ready for today - including all over the half-term holiday – and by the look on the young people's faces it has been worth it. I congratulate our staff across all departments for what they've achieved."

The second phase of the redevelopment scheme is due to commence imminently and will see the old school being demolished to make way for the construction of a new 3G sports pitch and upgraded parking facilities.

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