Modern Methods of Construction Centre [MMC] and Tower Block Refurbishment

Cauldwell Street, Bedford | £21m | Bedford College

Project Management Solutions MK

Contract: JCT Design & Build 2016 | Lead Consultant: Devonshire Architects | Project Manager: PMS MK | Main Contractor: Ashe Construction | Duration: 2020 – 2023

Information	MMC+ SALIX Works	Tower Block plus campus wide district heating upgrade
Carbon reduction status achieved by the project[s]	Net Carbon in use	Fully decarbonise
Start Date	04/01/2021	06/06/2022
End Date	28/09/2021	08/12/2023
Duration of the construction works	38	79
Preconstruction period [weeks]	12	35
GIA [project area m^2]	3177	6147
Construction Budget	£5,500,000	£15,148,799
Overall Project Budget	£6,475,000	£15,598,799
Senior Client Project Contact	pat.jones@weston.ac.uk [Please note Pat Jones is now CEO at Weston College and was in the role of Deputy CEO at Bedford College at the time of these works]	
Cost/m2	2,038	2,538
Funding	100% funded by : SEMLEP; SALIX; Post Sixteen funding and The Connolly Foundation.	40% funded by: T Level Capital Funding and The Towns Fund.
Lead Consultant & Principal Designer	Devonshire Architects	Devonshire Architects
Procurement	Open [via GOV Contracts Finder] - Two Stage Tender	
Contract	JCT Standard Form of Design & Build Contract [2016 edition]	
Contractor	Ashe Construction [Hitchin]	Ashe Construction [Hitchin]
Main Contractor contact [who can provide a project reference for PMS]	Kevin O Dell kodell@tandbcontractors.com	Andrew Morris andrew.morris@ashegroup.co.uk
Site Address	MMC; Bedford College, Cauldwell Street, Bedford, MK42 9AH	Bedford College, Cauldwell Street, Bedford, MK42 9AH

Introduction

PMS MK [formally PMS] has provided embedded capital works project management and cost consultation at Bedford College for a period of 17 years. Over this period, PMS has worked on over 30 projects with a combined value of £66m. In 2020, the college decided after a strategic review, to embark on multi-phase project at the main campus at Cauldwell Street in Bedford.

The campus is located on a very tight town centre located within 50m of the River Ouse. Two buildings constructed in the 1950's were beginning to physically fail and therefore it was decided to develop a strategy for redeveloping and remodelling this key part of the college estate.

PMS MK led the client and consultant team to evaluate options for the Tower Block, including 5 scenarios ranging from recladding only through to full decarbonisation. Options were challenged, tested against budget, and aligned with client objectives

Early-stage risk workshops highlighted the impracticality of demolition due to decant and budget risks. Risk registers were maintained from project inception.

One of the main drivers for the project was to access as many capital grants as possible. The project was assessed against available funding streams (Towns Fund, T Level, SEMLEP, SALIX). PMS MK secured 100% funding for Modern Methods of Construction Centre [MNC] and 35% for the Tower Block refurbishment.

The multi-phase scheme also included completing a district heating system connected to the Great River Ouse. PMS MK developed a phased programme across 5 years, procuring the construction works via two-stage open tender on Contracts Finder, ensuring flexibility for funding confirmation and compliance with Public Sector Procurement Regulations.

PMS MK chaired regular design team meetings ensuring coordinated output from architects, engineers, and M&E consultants. A federated Revit model was maintained by design consultants. PMS MK coordinated clash detection workshops and resolution timetables.

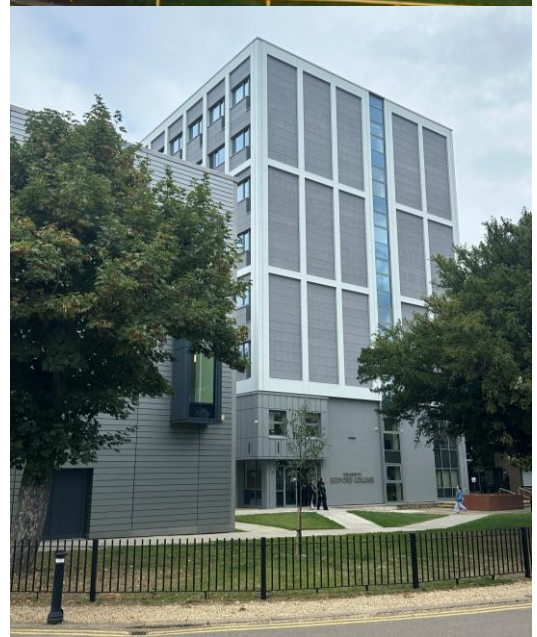
PMS MK worked closely with key college stakeholders (student services, estates, teaching staff) conducting structured workshops to ensure a concise scope of works was defined. Operational college staff were consulted on the design of energy systems, entrances, and live-working requirements.

At the outset, the college had set the delivery a team challenge of keeping both buildings live during the works. PMS MK ensured rigorous segregation of live teaching spaces, the installation of integrated, temporary fire alarm systems which were relocated floor by floor and that RAMS were reviewed and approved for high-risk activities, including working at height and noisy drilling) The phased return of teaching floors minimised disruption to teaching and allowed the college staff to stagger the reoccupation. These temporary arrangements maintained continuity of operations.

The MMC is a single storey building [GIA 3177 m2] - which accommodated construction workshops, small areas of teaching space and a plant room servicing 60% of the entire estate. The Tower Block [GIA 6147 m2] is a nine-storey building that provides specialist and general teaching accommodation; student services; main campus refectory and senior team offices.

The nine-storey Tower Block is the main administration and teaching hub on the Cauldwell Street campus. The in situ concrete building was constructed in 1959 and was clad mostly in glass.

Images show Tower Block before and after works.



Project Outcomes

PMS MK worked with operational teams to prepare for handover, including training and early involvement of maintenance staff. All commissioning certificates, warranties, and O&M manuals collated and verified by PMS MK before practical completion.
At the end of the five-year project the results were as follows:

The MMC

- Opened to learners on time and was fully operational in all areas.
- £850,000 of specialist equipment was procured and installed including the only commercial cold rolled forming machine in any HE/FE teaching location in the UK.
- The project was assessed as A+ EPC rated in use.
- Although there were as series of client changes during the works, the project was delivered on budget.
- 30% of the MMC was demolished and a new double height workshop was constructed.
- Over-cladding and reroofing of the existing build avoided total demolition of the MMC saving time and money
- The central plant room was remodelled ready for the next phase of the district heating works.
- The site set up along the boundary of Cauldwell Street allowed the parking for staff & learners to function normally during the works.
- This building has an extended usable life.
- The Tower Block was fully overclad with new class A rated aluminium/CPC panels. Working closely with the cladding specialist to ensure all the fire stopping and detailing was to the current best standards. This was backed up by regular fire engineer/approved inspector site checks.
- A temporary site L1 fire alarm system was integrated into the main panel and was relocated as the works progressed down the building.
- External windows and doors were replaced and the walls fully insulated to 2023 thermal standards.
- The works were carried out during the normal teaching year. The on-site team only took possession of a floor at a time.
- The project was delivered with no injuries or serious accidents.
- New MES equipment with a COP [coefficient of performance] of 13 was integrated into the fabric of the new walling system.

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- Improved security access to the building was incorporated into the project.
- The new North Entrance provided 65% of access to the Tower Block for learners and provide pedestrian access to Bedford Town Centre.
- All teaching accommodation was returned on schedule to the college, including the complex refurbishment of the specialist IT teaching area on the first floor.
- A highly cost-effective cost/m2 for a building that now has at least another 30 years of economic use.

KPI Delivery:

- **Budget compliance:** 100% achieved
- **Programme compliance:** all phases delivered on schedule
- **Client satisfaction:** positive feedback; follow-on commissions awarded

Image shows MMC building

Project Challenges and Solutions

In late 2019, the college wanted to appoint a delivery team for the multi-phase scheme but initially only had the funding for the MMC element. This was overcome by appointing a contractor for the first element of the works and agreeing a PCSA for partnering on the reminder of the project. This allowed PMS to provide a live project cost plan supported by the contractor.

Five scenarios [the options set out below ascended in cost] for the Tower Block were costed:

1. Recladding and minor remodelling works.
2. The project would be expanded to include the full removal and relocation of the ground/basement plantroom and the creation of a new north facing river entrance to the campus.
3. Installing elements in the mechanical and electrical systems (MES) design that would be result in a fully decarbonised building.
4. To install MES central WHP plant and services to achieve net carbon zero for all campus buildings served by gas boilers.
5. To install a new high speed feature lift on the south side of the Tower Block.

With input from the contractor, it was finally agreed that the budget would only accommodate the works up to option 3.

Keeping staff and students safe especially during the tower bock works was a key priority. To achieve rigorous site segregation the second man staircase was repurposed for operatives to use with an override linked to the fire alarm.
PMS MK ensured pre-construction information collated aligned to CDM 2015 roles and responsibilities and that a risk register maintained and updated with the Principal Designer.

Lessons Learnt

The college worked with the core team after practical completion to review the performance of the project and to record the lessons learnt. The team acknowledged that achieving a 'right first time' commissioning and controls solution was an area for improvement.
Partnering directly with plant manufacturers [e.g. Nilan] allowed problems with controlling the equipment to be resolved directly. The on-site premises team commented that managing a site alongside a live building required additional staff resources to be supplied.

Key Project Management Achievements (Mapped to 3 West Redevelopment ITT Requirements)

- Maintained live risk registers, held regular workshops. Risks tracked against time, cost, and quality.
- Delivered within approved budgets; managed live cost reporting, scenario testing, and value engineering.
- Phased programme achieved; floors handed back to operations on time.
- Extensive collaboration with teaching, estates, and student services teams; managed live site within occupied campus.
- No major incidents; proactive RAMS management; compliance with CDM 2015 & Building Safety Act 2022.
- Achieved net zero carbon in use, COP 13 MES integration, and fabric upgrades to modern standards.
- Regular progress, cost, and change control reports produced; end-of-stage reports and lessons learnt compiled.

Site location map