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**MILTON KEYNES SCHOOL BUILDING PROGRAMME**  
**VALUE FOR MONEY INVESTIGATION**

**VALUE FOR MONEY INVESTIGATION ON SCHOOL BUILDINGS**

for

**INTERNAL AUDIT**  
**MILTON KEYNES COUNCIL**  
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## **MILTON KEYNES SCHOOL BUILDING PROGRAMME**

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## **1.0. INTRODUCTION**

### **1.1. Background**

- 1.1.1 Milton Keynes Council Internal Audit (MKC) have instructed Deacon and Jones LLP (D&J) to undertake an investigation into Value for Money relating to six school projects which the Council has recently completed.
- 1.1.2 D&J have extensive experience in providing construction consultancy on educational projects since 1975 throughout the UK and abroad.

### **1.2. Scope of Appointment**

- 1.2.1 D&J are appointed by MKC to undertake analysis of the six schools and prepare a report on the following basis:
- .1 Visit comparable schools outside the Milton Keynes area and provide general outline description of the nature of the school, finishings, fixtures etc.
  - .2 Receive and analyse financial information relating to the comparable schools to provide a benchmark for the MK Schools.
  - .3 Receive and analyse data relating to the six Milton Keynes projects in terms of element costs, costs per unit area, cost per pupil and area per pupil.
  - .4 Adjust all information in respect of time to see that figures are presented on a like for like basis.
  - .5 Prepare a report which benchmarks the MK Schools against.
    - The comparable schools
    - BCIS and of Schools Cost Information
  - .6 The report will also contain recommendations how to optimise value for money on future projects.
- 1.2.2 D&J initial report to be submitted to MKC at beginning of December 2008 and subsequently reviewed at a meeting on 19 December 2008.
- 1.2.3 Amended Final Account figures were provided by MKC on 17 April 2009 and the report has been amended to reflect this.

### 1.3. Methodology

1.3.1 MKC have identified six school projects which are subject of the investigation. These are summarised below:

	Start on Site	Complete on Site	Procurement Route	Tender Sum	Final Account	Architect	Contractor
Hazeley Phase 1	Sept 04	Jul 05	Traditional	£9.201m	£12.0m	aMK	Shepard
Hazeley Phase 2	Aug 06	Aug 06	Traditional	£4.299m	£4.309m	aMK	Deejak
Oxley Park	Oct 04	Sept 05	Traditional	£3.560m	£3.825m	aMK	Deejak
Walton High	July 06	July 07	Design & Build	£2.173m	£2.231m	David Grindley Robert de Grey Architects	Kingerlee
Caroline Haslett	Feb 07	Aug 07	Traditional	£659k	£711k	aMK	Rok
New Bradwell			Traditional	£112k	£98k	aMK	JET Construction

1.3.2 Projects similar in size and scope have been identified in the Building Cost Information Service ("BCIS") data base and elemental cost and descriptions extracted.

1.3.3 Each of the Milton Keynes Schools and six of the comparable schools were visited by MKC and D&J.

1.3.4 Brief descriptions and photographic records were taken during each visit.

1.3.5 The cost information for the comparable schools has been adjusted using BCIS indices to provide a consistent base date with the Milton Keynes Schools for the financial comparison.

1.3.6 The elemental analysis has been reviewed to identify consistencies and discrepancies. D&J have technically reviewed the financial information to interpret the findings.

1.3.7 The nature of the materials used, spatial requirements, known issues have been reviewed.

1.3.8 All costs per square metre stated are based on the construction cost divided by the gross internal floor area.

1.3.9 The cost information provided by BCIS is based on Tender Prices rather than final outturn costs.



## 1.4. Comparable Schools

1.4.1 The comparable schools identified in the BCIS are set out in the table below.

MK School	Comparable School	Location	Site Visit
Hazeley Phases 1 & 2 Hazeley Phase 1 Hazeley Phase 2	School A School B School C	Derby Salford Stroud	Yes No Yes
Oxley Park	School D School E School F	Dorset Wiltshire London	No No No
Walton High	School G School H School I	Peterborough Humberside Hereford & Worcester	Yes No Yes
Caroline Haslett	School J School K School L	Essex Essex Manchester	Yes Yes No
New Bradwell			

1.4.2 Following the site visits it was established that School C provided an inappropriate comparable for Hazeley Phase 2. The closest comparable school in terms of design and accommodation was School A.

## 1.5. Procurement and Cost, Quality and Design

1.5.1 The procurement of any building project seeks to optimise the balance between four key criteria:-

- .1 Quality
- .2 Cost
- .3 Programme
- .4 Risk

1.5.2 The success of balancing these criteria is dependent on the procurement route adopted, the quality of the documentation prepared for tender as a basis for pricing and the on site control of quality.



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1.5.3 For the purpose of this report, competitive procurement strategy is considered as two distinct alternatives:

- .1 Traditional (The Client's design team prepare fully detailed designs on which the Contractor provides a lump sum tender and takes no design responsibility).
- .2 Design and Build (The Client's design team prepare conceptual information on which the Contractor provides a lump sum tender and takes responsibility for developing the design).
- .3 It is recognised that there are many variations to these two alternatives.
- .4 Both traditional and design and build procurement strategies can be operated on a single stage or two stage process.
- .5 Competitive procurement tends to be more adversarial but will, when managed competently, produce consistently lower out turn costs.

1.5.4 The principle features of the traditional route are:

- .1 Advantages
  - Flexibility for variations post contract
  - The Client's designers dictate the materials and products used giving greater control of quality.
- .2 Disadvantages
  - High number of variations due to design development, design coordination and correction of design errors.
  - Designers avoid design responsibility particularly in connection with specialist subcontract elements.
  - Risk of claims from Contractors for late and uncoordinated design information

1.5.5 If the design information is flawed or incomplete this leads to:-

- .1 Increased Costs
- .2 Wasted Costs
- .3 Specification Uncertainty
- .4 Poorly defined responsibilities
- .5 Delays to the Construction Programme



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- 1.5.6 The quality of the design information is dictated by several factors including:-
- .1 Competence / Resource of Designers.
  - .2 Realistic Design Period / Programme.
  - .3 Clarity of Brief by Client.
  - .4 Understanding of National Design Guides (Building Bulletins, NBS, BRE BS etc.).
- 1.5.7 It has been repeatedly demonstrated that high quality buildings can be delivered irrespective of the procurement route adopted (traditional or design & build) providing the tender / contract documents are precise and the contract is properly administered.
- 1.5.8 The roles of the Client's appointed representative have similarities irrespective of the procurement strategy adopted in respect of contract management in so far as they:
- .1 Review information prepared by the Contractor
  - .2 Instruct Client authorised changes
  - .3 Inspect the works periodically during the Construction Period and at practical completion
  - .4 Certify interim payments to the Contractor
  - .5 Authorise extensions of time to the contract period
  - .6 Administer the building contract
- 1.5.9 The success of the contract management depends on:
- .1 Contractual understanding
  - .2 Construction knowledge
  - .3 Clarity of communication
  - .4 Timely provision of information instructions, notices, certificates and the like



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## **2.0. EXECUTIVE SUMMARY**

### **2.1. Introduction**

- 2.1.1 The executive summary provides a summary of the key findings of the investigation for each school.
- 2.1.2 All construction costs are adjusted to the base date for the Milton Keynes School.
- 2.1.3 D&J have not been provided with the detailed calculation of the Final Accounts for any of the projects and are therefore not able to advise if they have been correctly calculated. An opinion has been given regarding the quantum of the difference between the Tender Sum and Final Account.
- 2.1.4 The design of the MK schools is broadly consistent with modern school construction (with the exception of New Bradwell), however recognition should be given on future projects to the influence of DCSF design criteria and Government sponsored bodies such as CABE which seek to further enhance design quality and the impact of increasing environmental constraints. These factors will have a significant impact on capital costs in the future.
- 2.1.5 The overall view is that, through the competitive tender process, apart from Hazeley Phase 1 and New Bradwell, Milton Keynes Council received value for money for the specification built. It can be seen that this could have been improved by design and material selection and improved tender strategy.
- 2.1.6 It is not known if aMK are bound by standard procedures or protocols (“standing orders”) in respect of procurement and contract administration.

### **2.2. Hazeley Phase 1**

- 2.2.1 Hazeley Phase 1 does not provide Value for Money in respect of outturn cost or pre-tender performance of the design team.
- 2.2.2 The specification is consistent with modern school construction.
- 2.2.3 The procurement process adopted placed great risk on MK in respect of cost, programme and quality and is the primary cause for the failure to achieve value for money.
- 2.2.4 The construction period was too short, i.e. 10 months for Hazeley Phase 1 compared to 22 months for School A.
- 2.2.5 A number of key design issues have been identified (paragraph 3.4).
- 2.2.6 The failure to retain documentation by aMK does not comply with normal contractual requirements. aMK protocols should be reviewed.
- 2.2.7 The design failures associated with the flat roof design have increased the construction cost.
- 2.2.8 The difference between the tender and final account is higher than would normally be expected and could be subject of further investigation.



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### **2.3. Hazeley Phase 2**

- 2.3.1 Hazeley Phase 2 represents Value for Money in respect of outturn cost.
- 2.3.2 The specification is consistent with modern school construction.
- 2.3.3 A number of key design issues have been identified (paragraph 3.4).
- 2.3.4 It appears that the substructure and superstructure have been constructed under two different building contracts by two different contractors leading to split responsibilities.

### **2.4. Oxley Park**

- 2.4.1 Oxley Park represents Value for Money in respect of outturn cost.
- 2.4.2 The specification is consistent with modern school construction.
- 2.4.3 Improved Value for Money could have been achieved by simplifying the footprint giving rise to:
  - a) Less costly construction
  - b) Simplified Roof
  - c) Move efficient internal use of space
  - d) Improved external wall to floor ratio.
- 2.4.4 The difference between the tender and final account is higher than I would normally expect.
- 2.4.5 A number of key design issues have been identified (paragraph 4.4)

### **2.5. Walton High**

- 2.5.1 Walton High does not appear to represent Value for Money in that the tender sum is 30.37% higher than the average of the comparable schools.
- 2.5.2 The specific site conditions will have significantly contributed to the costs however this situation is compounded a high specification (refer to paragraph 5.3.5).
- 2.5.3 Improved Value for Money could have been achieved by addressing the items referred to in paragraph 5.3.5.
- 2.5.4 The difference between tender and final account is within acceptable tolerances.



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## **2.6. Caroline Haslett**

- 2.6.1 Caroline Haslett does not appear to represent Value for Money in that the tender sum is 32.65% higher than the average comparable schools.
- 2.6.2 The construction cost is distorted by the construction of an external play area under the main building roof (reducing the gross internal area) by 621.18 £/m<sup>2</sup>.
- 2.6.3 The general overall design is in line with modern school building, however there are instances of high specification:
  - a) Large glazed elements of external wall leading to increased specification.
  - b) Sliding folding partitions
  - c) External Lighting
  - d) Non-standard internal doors
- 2.6.4 The difference between the tender and final account is higher than I would normally expect.

## **2.7. New Bradwell**

- 2.7.1 The details of the scope of work available make it difficult to establish if New Bradwell provided value for money.
- 2.7.2 The general building works are limited in extent but do appear to provide value for money in so far as they have been competitively tendered.
- 2.7.3 aMK have provided sums which represent 36% of the Tender Sum and I have seen no evidence to suggest these were competitively tendered.
- 2.7.4 The M&E figure appears high, given these were competitively tendered the cause of the high cost is likely to lie in the scope and specification of the Works. The scope in the tender documents is not clear.
- 2.7.5 The build up of the final account is not available therefore no analysis is possible of variations which appear to total £14,238.00.
- 2.7.6 One of the companies invited to tender for the works was given a zero score in respect of previous experience. This is bad practice and discredits any prequalification process.
- 2.7.7 The extent to which the construction costs in respect of this project may be higher than expected could be in the region of £25,000.00. This arises through the specification and scope of work rather than pricing level. The works executed could not have been completed for less than £50,000.00 without significant reductions to the brief.



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## **2.8. Recommendations Arising from the Investigation**

- 2.8.1 D&J have not had the opportunity to review the procurement process at aMK and the following recommendations are based on the information provided.
- 2.8.2 The critical cornerstone of adopting the appropriate procurement strategy is to establish a clear and precise brief for the project.
- 2.8.3 Adopt realistic programmes for both design and preparation of tender information and construction.
- 2.8.4 Establish robust Procurement Strategy:
- .1 Prepare Standard Procedures
  - .2 Ensure tender documentation is:
    - .1 Relevant to the project
    - .2 Concise
    - .3 Clear
    - .4 Current
  - .3 Standard documentation / details (possibly a web based system)
  - .4 Maximum limit (by percentage) of Provisional Sums
  - .5 Prequalify Tenders or establish framework
  - .6 Prepare full Tender Report (only summaries provided)
- 2.8.5 Establish the impact of decisions related to capital cost on school running costs.
- 2.8.6 Review most recent school builds against the six projects considered by this report to identify:
- .1 Lessons Learnt
  - .2 Improved Performance
  - .3 Improved Value for Money
- 2.8.7 Establish Post Completion Review Procedure to ensure lessons learnt are carried forward onto future projects.

### 3.0. HAZELEY PHASES 1 & 2 ANALYSIS

#### 3.1. Introduction

3.1.1 Hazeley School Phases 1 & 2 is a new build two storey secondary school providing 10,094m<sup>2</sup> accommodation. The project was let as two contracts with different contractors. The design team differed between Phases 1 & 2 in respect of the following disciplines Quantity Surveyor, Planning Supervisor, Electrical and Mechanical Engineers. Phase 3 is currently under construction.

3.1.2	Floor Area	Tender	£/m <sup>2</sup>	Final Account	£/m <sup>2</sup>
Phase 1	6,751m <sup>2</sup>	£9,201,201	1,362.94	£12,000,000	1,777.51
Phase 2	3,343m <sup>2</sup>	£4,299,458	1,286.11	£4,309,020	1,288.97
Total	10,094m <sup>2</sup>	£13,500,659		£16,309,020	

\*The Final Account for Phase 1 could increase to £12,228,160.00.

	Start on Site	Completion	Procurement
Phase 1	Sept 04	July 05	Traditional
Phase 2	Aug 06	Aug 06	Traditional

3.1.3 The comparable schools identified in the BCIS are School A for Phases 1 & 2, School B for Phase 1 and School C for Phase 2.

3.1.4 Following the site visit to the School C it was clear that the school did not provide an appropriate comparison to Hazeley Phase 2. The closest comparable school in terms of design was School A.

3.1.5 The Traditional Procurement route adopted on Hazeley Phases 1 and 2 should provide good level of control however the following are particularly noted:

- .1 The quality control on Phase 1 was severely compromised because:
  - The design was largely incomplete at Tender
  - The site inspections seem to have failed to identify on site quality problems
- .2 The cost control risk on Phase 1 was high due to incomplete design at Tender Stage.
- .3 The programme risk on Phase 1 was high due to incomplete design when letting the contract.
- .4 The risk profile of Phase 1 was extremely high due to the way the Procurement Strategy was delivered.
- .5 The risk profile of Phase 2 appears to have been much lower than Phase 1 as greater control seems to have been achieved.



### 3.2. Outline Specification

#### 3.2.1

	Hazeley Phase 1	Hazeley Phase 2	School A	Commentary
Storeys	Two	Two	Two	No comment required
Footprint	Two rectangular wings from an central hub	Single rectangular wing from central hub	Complex wings radiating from central hub	Hazeley more economic footprint.
Roof	Flat with single ply membrane covering.	Flat with single ply membrane covering.	Sloping standing seam.	Single ply membrane roofs are difficult to detail and easily damaged during construction.
Elevations	Curtain walling / timber cladding	Curtain walling / timber cladding.	Glazed / metal panel blockwork, polished block.	Hazeley more economic elevations.
Internal Partitions	Solid and stud partitions	Solid and stud partitions.	Blockwork, glass blockwork	Plasterboard to stud partition is not robust
Wall Finishings	Plaster and paint yacht varnish to lower level corridor walls	Plaster and paint yacht varnish to lower level corridor walls	Exposed block, polished block, glass block WC's fully tiled	Large numbers of school have exposed blockwork for greater durability
Floor Finishings	Vinyl sheet floor tuber skirtings to corridors. Carpets to classrooms. Junckers strip timber to gym	Rubber sheet flooring with tall metal skirtings to corridors. Carpets to classrooms.	Vinyl to classrooms and corridors.	All floor finishes consistent with current practice
Ceiling Finishings	Suspended ceilings	Suspended ceilings	Suspended ceilings	No comment required



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	<b>Hazeley Phase 1</b>	<b>Hazeley Phase 2</b>	<b>School A</b>	<b>Commentary</b>
Internal Doors	Hardwood veneer with painted frames Stainless steel ironmongery.	Hardwood veneer with painted frames Stainless steel ironmongery.	Hardwood veneer with exposed timber frames Stainless steel ironmongery.	No comment required.
Balustrades	Perforated mesh balustrades in steel angle frame timber handrails.	Perforated mesh balustrades in steel angle frame timber handrails.	Stainless steel and glass.	Hazeley more economic solution.
WC Cubicles	Laminate faced cubicles	Laminate faced cubicles	Laminate faced cubicles.	No comment required.
External Works		External sports pitches	External sports pitches.	No comment required.
Other	Includes Phase 2 foundations		Extensive renewables. CCTV to all classrooms.	All new schemes will have renewable and energy saving targets imposed by the Planning Approval.

### 3.3. Financial Issues

#### Hazeley Phase 1 Tender

Summary	Hazeley	Adjusted to Hazeley Phase 1 Contract Period	
		School B	School A
Construction Cost (base date adjusted to mid point of MK School construction period)	£9,201,201	£13,176,615	£15,132,051
Gross Internal Area	6,751m <sup>2</sup>	6,876m <sup>2</sup>	10,094m <sup>2</sup>
Cost per square metre	1,362.94 £/m <sup>2</sup>	1,916.31 £/m <sup>2</sup>	1,499.10 £/m <sup>2</sup>
Procurement Method	Traditional	Negotiated Target Cost	Design & Build

#### Hazeley Phase 2 Tender

Summary	Hazeley (Final Account)	Adjusted to Hazeley Phase 2 Contract Period
		School A
Construction Cost (base date adjusted to mid point of MK School construction period)	£4,309,020	£16,364,526
Gross Internal Area	3,343m <sup>2</sup>	10,094m <sup>2</sup>
Cost per square metre	1,288.97 £/m <sup>2</sup>	1,621 21/m <sup>2</sup>
Procurement Method	Traditional	Design & Build

3.3.1 D&J would have expected the School A rather than Hazeley Phase 1 to have produced a higher construction cost due to:

- .1 Complexity of the footprint and roof
- .2 Quality of internal and joinery
- .3 The contract sum includes post contract design fees.
- .4 Extent of sustainability / renewable features
- .5 Oversized internal doors
- .6 Internal wall finishings



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- 3.3.2 The Tenders for Hazeley Phase 1 and Phase 2 reflect this expectation however in the case of Phase 1 the extent of Provisional Sums included in the Contract Sum provides a misleading basis for evaluation / comparison given the significant increase in the Final Account.
- 3.3.3 There are two very significant points that arise immediately from the elemental summary for Hazeley Phase 1, namely:-
- .1 The value of provisional sums included in the contract sum is £6,991,200.00 (including overheads and profit on the provisional sums). This represents 75.9% of the Contract Sum which is unusually high. This is further compounded by the fact that the quantified elements of the contract sum are not firm and are subject to remeasure.
  - .2 The Final Account in the amount of £12,000,000.00 exceeds the Contract Sum by £2,798,799 which represents an increase of 30.4%. It should be noted that the Contract Sum includes a contingency in the amount of £289,832.00 therefore the total amount of variations is £3,088,631.00 or 33.57% of the Contract Sum.
- 3.3.4 Provisional Sums are included in building contracts where there is insufficient or incomplete design information is available at the point when the contract is let. The very high proportion of Provisional Sums represents a very high risk to the Client in respect of uncertainty of cost, specification and programme.
- .1 The provisional sum is an estimate made by the Quantity Surveyor (QS) acting for MKC and the actual cost cannot be established until the design information is available. The establishment of the actual cost is not made in competition potentially leading to a higher outturn cost.
  - .2 If there is incomplete design information available when the contract is let the risk associated with quality increases in respect of:
    - .1 Quality Control
    - .2 Design Coordination
    - .3 Late Information leading to delays to the construction contract
  - .3 The programme risk is also high as it is extremely difficult for a contractor to accurately programme the works based on provisional allowances and the information is provided on a piecemeal basis.
  - .4 The risks associated with the procurement strategy adopted on this project are so high that the project can be seen as a problem waiting to happen. This issue is worthy of separate investigation. D&J have requested a copy of the Tender Report which should allow the decision making process to be analysed.
  - .5 The extent of provisional sums included in the contract is not good practice and is likely to be the main contributor for the poor value for money. The failure of the design team to provide the tender information suggests the design team has not delivered Value for Money.



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- 3.3.5 The difference between the contract sum and the final account is concerning and should be subject to further investigation. D&J have requested a copy of the build up of the final account to facilitate a high level commentary.
- .1 It is not possible, based on the available information, to establish the reasons for the increase.
  - .2 An elemental analysis of the final account cannot be prepared.
- 3.3.6 It is noted that the outturn cost for School B is the highest however this project was procured on a negotiated basis which could add as much as 10% to the construction costs.
- 3.3.7 In discussion with the Deputy Headmaster at School A it appears they experienced problems with Client Management and had to employ an experienced construction consultant. It could be argued that identifying the problem and the input of the consultant could have assisted in controlling the cost.
- 3.3.8 The School C construction cost is surprisingly low and in D&J opinion does not provide a realistic comparable to Hazeley. At the site visit it was noted that the quality of finishes and construction was lower than Hazeley. The construction costs exclude carpets to classrooms, kitchen equipment and lockers. However this does not fully explain the extremely low cost. The construction is load bearing masonry with timber trussed pitched roof which is inconsistent with the Hazeley Project. The School C provides functional space which reflects the design criteria of the existing buildings.
- 3.3.9 The contract period from August 2004 to July 2005 is too short for a project the size of Phase 1. This is compounded by the fact that the design was incomplete. The delivery of the design information throughout the project would be under great pressure from the construction progress which can lead to ill considered designs and precludes robust cost control.
- 3.3.10 It is noticeable that the construction cost per square metre for Hazeley Phase 2 has a consistency with School A (when the complexities of School A are taken into account). This consistency is interesting in two respects, namely:
- .1 It suggests that the cost control was significantly stronger than Hazeley Phase 1.
  - .2 It suggests that better value for money was achieved relative to Hazeley Phase 1.
- 3.3.11 The Hazeley Phase 2 contract sum excludes the cost of foundations which were executed prior to the Phase 2 works starting on site. It is assumed therefore that the Phase 1 costs include the foundations. The construction of the substructure and superstructure of the structure by two different contractors should be challenged. In the event that there is a structural failure the responsibility may not be clear.

3.3.12 D&J have seen a letter from Procurement and Contracts, Milton Keynes Council to Shepherd Construction Limited dated 13 June 2008 relating to Phase 1 which purports to be an acceleration agreement. This letter fundamentally changes the terms and conditions of the building contract and is poorly drafted:

- .1 The detail of the agreement in the letter is unclear.
- .2 It is not clear if paragraph 3 applies or not.
- .3 The target dates and payments are unclear.
- .4 The final figure which arises from the acceleration costs should be stated in the letter.
- .5 The letter refers to future settlement of the Provisional Sums D&J have not seen correspondence confirming the outcome.

#### **3.4. Design / Quality / Management**

The following issues were noted in respect of design and quality

- |                                      |  |
|--------------------------------------|--|
| .1 Locker Recesses<br>(Phases 1 & 2) | The locker recesses do not appear to be designed to a locker module creating recesses in which pupils can hide.  |
| .2 Roof Ponding<br>(Phase 1)         | The flat roof over the dining room has been completely replaced since practical completion to create falls below the waterproof membrane.  |
| .3 Gym Roof<br>(Phase 1)             | The gym roof has leaked due to holes for the vents being cut oversize. This is a workmanship issue and should have been made good as a defect under the Building Contract.   |
| .4 Spiral Staircase<br>(Phase 2)     | There is a sizeable gap between the edge of the spiral staircase and the wall. The location of the handrail reduces the risk of accidental stepping into the gap. The material is stained by coffee spills and its suitability in this location should be questioned. The style and material selected are very odd for the location. |
| .5 Stud Partitions<br>(Phases 1 & 2) | It was reported that students were damaging the plasterboard. D&J note that it has recently become unusual to use plaster or plasterboard finishes in schools due to the risk of damage and painted blockwork is often adopted as a more robust and economic solution.   |

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- |     |  |  |
|-----|--|--|
| .6  | Woodwork room finish<br>(Phase 2)          | The rubber floor finish to the woodwork rooms becomes slippery when sawdust falls on it. The risk is managed by applying costly sealer to the rubber each term. The material suitability in this location should be challenged as this appears to be a design error. The DFES document "Floor Finishes in Schools" clearly states that floor coverings to heavy duty areas such as workshops should be type C (Heavy Practical Flooring) and goes on to say ".....but contaminants such as oil or sawdust may be present at times and floor will require the appropriate degree of slip resistance". This shows that a competent designer should have been aware of this risk. |
| .7  | Main Reception /<br>Entrance               | The main reception / entrance lacks presence and is indistinct.  |
| .8  | Storage Space                              | It was reported during the site visit that there is insufficient storage space for tables and chairs. These are stored in stairwells.  |
| .9  | Overhead door closers                      | Non-projecting overhead door closers should be selected for schools projects.  |
| .10 | Air Conditioning to<br>Comms / Server Room | The photographs taken by MKC show temporary AC units in the server room indicating that the initial installation is insufficient. This would appear to be a design error.  |
| .11 | Corridor Width                             | The corridor width particularly in Phase 1 is much narrower than on the other schools visited thus restricting circulation. The design of this should be challenged.   |
| .12 | Lift Pit Floods                            | It has been reported that the lift pit floods due to the SUDS drainage system.   |

### 3.5. Key Point Summary

3.5.1. The Investigation into Hazeley Phases 1 and 2 identifies the following key issues:

- .1 The outturn cost for Phase 1 is higher than comparable schools.
- .2 The outturn cost for Phase 2 is lower than comparable schools.
- .3 Difference between Contract Sum and Final Account on Phase 1 is very concerning and is a consequence of:
  - a) The Procurement Strategy Adopted.
  - b) Replacement of the roof due to design failure.

- 
- .4 The level of Provisional Sums suggests the project was tendered prematurely at great risk to cost, quality and programme.
  - .5 The Contract Period was unrealistically short.
  - .6 Design Issues have been identified (paragraph 3.4).
  - .7 Quality control issues have been identified.
  - .8 Serious questions regarding contract administration and cost control in respect of Phase 1 need to be addressed which are outside the scope of this report.
  - .9 Potential split of design and construction responsibility issues regarding the Phase 2 substructure and superstructure.
  - .10 Contractual documentation should be retained for 12 years and repeated requests for documents by the Internal Audit Team have generated very little response from aMK.

3.5.2. In my opinion the Hazeley Phase 1 project did not achieve value for money based on:

- .1 Cost comparison with other schools.
- .2 Performance of design consultants.
- .3 Extent of specification / quality issues.
- .4 The construction programme was too short, compounded by the fact that the design was incomplete at tender.
- .5 There is no detailed calculation of the Final Account.
- .6 The Procurement Strategy adopted was a problem waiting to happen.

3.5.3. In my opinion the Hazeley Phase 2 project did provide value for money in respect of cost comparison against other projects. Notwithstanding this there are specification and quality issues which have been identified.

3.5.4. In my opinion the specification of both Phases 1 and 2 is broadly consistent with that expected for a large modern school. The deviations from this are identified in the paragraph 3.4.



## 4.0. OXLEY PARK

### 4.1. Introduction

4.1.1 Oxley Park is a new build two storey primary school providing 2,496m<sup>2</sup> accommodation.

4.1.2	Floor Area	Tender	£/m <sup>2</sup>	Final Account	£/m <sup>2</sup>
Oxley Park	2,496m <sup>2</sup>	£3,560,436*	1,426.46	£3,824,625	1,532.30

\*The tender includes £500,000.00 for landscaping which was funded by English Partnerships.

	Start on Site	Completion	Procurement
Oxley Park	Oct 04	Sept 05	Traditional

4.1.3 The comparable schools identified in the BCIS are School D. School E and School F none of which were visited.

4.1.4 The Traditional Procurement route adopted on Oxley Park should provide good level of control however the following are particularly noted:

- .1 The quality control was well maintained.
- .2 The cost control was well maintained.
- .3 The risk profile of Oxley Park is low.

### 4.2. Outline Specification

4.2.1	Oxley Park	School D	School F	Commentary
Storeys	Two	Two	Two	No comment necessary.
Footprint	Complex irregular shape.	Three separate blocks.		This will contribute to increased cost.
Roof	Monopitch standing seam	Part pitched metal. Part flat felted.	Part pitched metal. Part flat felted	Cheaper material could have been adopted.
Elevations	Facing brickwork with punched windows.	Part facing brick Part blockwork with render or timber cladding.	Facing brickwork with solar shading.	Oxley Park elevation materials are economic.
Internal Partitions	Solid and stud partitions.	Solid walls and stud partitions.	Metal stud partitions.	Solid partitions are more robust.

#### 4.2.1

	Oxley Park	School D	School F	Commentary
Wall Finishings	Decorated plaster.	Painted plaster.	Paint to plasterboard dry lining.	Plaster can be subject to damage.
Floor Finishings	Carpet with timber skirtings.	Carpet and vinyl.	Carpet and vinyl.	No comment required.
Ceiling Finishings	Acoustic ceiling.	Plasterboard and mineral fibre.	Plasterboard suspended ceilings.	No comment required.
Internal Doors	Painted timber with clear finished frames. Aluminium ironmongery.	Flush timber doors.	Flush timber doors with beech linings.	Painted doors damage more easily.
Balustrades	Perforated steel plates and steel handrails.		Polyester powder coated balustrade and handrails.	No comment necessary.
Other	External access balcony at first floor level. Access bridge over stream. External shading in playground.	Walkway at first floor connecting 3 No. blocks.		
Heating	Under floor throughout apart from staircase.	Gas LPHW central heating.	Under floor water heating. VRV cooling system in wall.	

4.2.2 There is no specification detail available for School E.

#### 4.3. Financial Issues

Summary	Oxley Park	School D	School E	School F
Construction Cost	£3,560,436*	£6,052,355	£3,018,461	£4,523,909
Area Gross Internal	2,496m <sup>2</sup>	3,166m <sup>2</sup>	2,216m <sup>2</sup>	2,502m <sup>2</sup>
Cost per square metre	1,426.46£/m <sup>2</sup>	1,911.58£/m <sup>2</sup>	1,362.08m <sup>2</sup>	1,808.14£/m <sup>2</sup>
Procurement Method	Traditional	Partnering	Design & Build	Design & Build

\* Includes £500,000 for landscaping that was funded by English Partnership.

- 
- 4.3.1 The average tender prices for the comparable schools is 1,693.93£/m<sup>2</sup> which is higher than Oxley Park.
- 4.3.2 The Final Account totals £3,824,625 which represents an increase to the tender sum of £264,189 (7.4%) which is higher than I would normally expect. It is not possible from the information available to examine the reasons for the increase.
- .1 The footprint and roof could have been simplified.
  - .2 The first floor accommodation could have been arranged to afford internal access. The access decking however provides good access to classrooms externally.
  - .3 The cost includes work associated with site abnormalities such as the access bridge could not have been avoided. The bridge however was part of the funding provided English Partnership as it was outside the school site boundary.

#### **4.4. Design / Quality / Management**

The following issues were noted in respect of design and quality

- |       |                     |  |
|-------|---------------------|--|
| 4.4.1 | Stair cores         | Cold due to no under floor heating   |
| 4.4.2 | Storage Space       | The school were using circulation space as storage areas. It is felt this could have been improved by better use / management of the available storage space.  |
| 4.4.3 | Counselling Space   | Recesses in corridors were used as counselling / chill areas. The staff advised these areas worked successfully. The use of these areas could be reviewed and possibly reduced and used for alternative uses.  |
| 4.4.4 | Reception           | The Reception is congested and not operationally friendly, e.g. the receptionists cannot see the door whilst operating the entry control.  |
| 4.4.5 | Access              | The ground floor is accessed from the front and the first floor from the rear via an external balcony which although not internal space increases the circulation area and raised the cost per square metre. This successfully controls parents and prevented them from "wandering around" the school. |
| 4.4.6 | Internal Doors      | The paint finish on the internal doors throughout is deteriorating very quickly. This could have been mitigated by adopting larger push plates.  |
| 4.4.7 | External Lighting   | It was reported that the external lighting to the staff car park access was poor.  |
| 4.4.8 | Dining Arrangements | The main hall is used for dining. The moveable tables need to be moved and erect everyday. The school reported that the tables were too heavy to lift and that members of staff had suffered back problems.  |





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## 4.5. Key Point Summary

4.5.1 The investigation into Oxley Park identifies the following key issues:

- .1 The construction cost falls below the average cost for the comparable schools.
- .2 The contingency sum is unusually low for a traditionally procured project (2½% in lieu of 5%).
- .3 The complexity of the roof and external circulation space has increased the construction cost and there could have been opportunity to improve value for money.
- .4 The design of the reception area does not allow it to operate efficiently, for example the front door cannot be seen from the door release button.
- .5 Possible operational management issues (storage, dining arrangements).
- .6 External lighting to staff car park is poor.
- .7 Finishing to internal doors throughout the school leading to higher maintenance costs

4.5.2 In my opinion the Oxley Park project did provide value for money in respect of cost comparison against other projects. A part of the project was grant funded by English Partnerships the scope of this work is not clear. Notwithstanding this the value for money could have been improved by adopting a more regular footprint.



## 5.0 WALTON HIGH

### 5.1. Introduction

5.1.1 Walton High is a new build sixth form providing 1,054m<sup>2</sup> accommodation on three levels. This site has significant slope from front to back.

5.1.2	Floor Area	Tender	£/m <sup>2</sup>	Final Account	£/m <sup>2</sup>
Walton High	1,054m <sup>2</sup>	£2,173,920	2,062.54	£2,230,562	2,116.83

	Start on Site	Completion	Procurement
Walton High	July 06	July 07	Design & Build

5.1.3 The comparable schools identified in the BCIS are School G, School I and School H.

5.1.4 The Design and Build Procurement route adopted on Walton High provide good level of control however the following are particularly noted:

- .1 The quality control of materials was maintained however there appear to be issues relating to the layout although it is not clear.
- .2 The cost control if these arose from the concept design or design development appears to have been maintained.

### 5.2. Outline Specification

5.2.1	Walton High	School G	School I	School H	Commentary
Storeys	Three	Two	Two	Two	No comment necessary.
Footprint	Predominantly rectangular.	Rectangular "L" shape			Walton High difficult site conditions.
Roof	Not apparent supported on glulam beams.	Standing seam low pitch roof	Built up metal roof cladding on steel trusses	Monopitch trusses and flat roof with Sarnafil, rooflights	Glulam beams tend to be more expensive than steel.
Elevations	Brick, velfac windows, Kalwall glazing, timber cladding.	Facing brick cavity walls, aluminium windows (tbc).	Facing brick cavity wall construction	Facing brick cavity walls, aluminium and glass curtain walling	Combination of materials at Walton High leads to higher cost.
Internal Partitions	Blockwork, plywood faced stud partition.	Block.	Blockwork	Blockwork and proprietary partitions.	Plywood more robust than plaster.



	Walton High	School G	School I	School H	Commentary
Wall Finishings	Painted plaster. Exposed plywood.	Painted plaster.	Painted plaster / plasterboard linings	Painted plaster	
Floor Finishings	Carpet with timber skirtings. Vinyl to staircases.	Carpet with timber skirtings.	Carpet generally part rubber sheeting	Carpet, vinyl / rubber sheeting on screeds	No commentary necessary.
Ceiling Finishings	Suspended ceilings	Suspended ceilings	Suspended ceilings	Suspended ceilings, plasterboard and skim.	No commentary necessary.
Internal Doors	Hardwood veneer with painted frames, stainless steel ironmongery.	Hardwood veneer with clear finish timber frames, stainless steel ironmongery.	Flush doors	Proprietary flush doors	No commentary necessary.
Balustrades	Stainless steel with glass infill panels.	Coated steel with glass infill.		Aluminium balustrades and handrails	More economic balustrade materials available.
External Works	Not extensive	Not extensive	Brick and macadam paving, railings	Precast concrete and macadam paving	
Other	Steeply sloping site. Cycle store in external "well" External Teaching Area Large over size entrance door.				Large door expensive and has led to maintenance problems.

### 5.3. Financial Issues

Summary	Walton High	School G	School I	School H
Construction Cost	£2,173,920	£2,941,267	£865,890	£1,200,529
Area Gross Internal	1,054m <sup>2</sup>	1,338m <sup>2</sup>	692m <sup>2</sup>	926m <sup>2</sup>
Cost per square metre	2,062.54£/m <sup>2</sup>	2,198.33£/m <sup>2</sup>	1,251.20£/m <sup>2</sup>	1,296.52£/m <sup>2</sup>
Procurement Method	Design & Build	Traditional	Traditional	Traditional

5.3.1 The average tender prices for the comparable schools is 1,582.02 £/m<sup>2</sup> which is lower than Walton High by £480.52 (30.37%).

5.3.2 There is no elemental breakdown of the Walton High tender sum therefore a like for like comparison is not possible.

5.3.3 There are site specific factors that contribute to the high construction costs:

- .1 Sloping site
- .2 Small footprint
- .3 Difficult Access
- .4 The Walton High Tender includes design fees £77,500 (73.50£/m<sup>2</sup>)

These factors would not solely explain the difference and the balance will lie in the specification.

5.3.4 The School G incorporates high quality specifications throughout which contributes to the higher rate of 2,198 £/m<sup>2</sup>.

5.3.5 The construction cost varies between the MK school and the comparable schools in terms of specification due to the following:-

- .1 Plywood linings to internal partitions
- .2 Kalwall translucent external wall material
- .3 Bike store construction in well exposed to weather
- .4 External teaching area.
- .5 Use of exposed Glulam beams to support the roof.

5.3.6 The difference between the contract sum and the outturn cost is £56,642.00 which represents an increase of 2.6% which is not unusually high. The contingency included in the contract sum is zero which is unusual. I would normally expect to see a contingency in the region of 5% of the contract sum.



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#### **5.4. Design / Quality / Management**

The following issues were noted in respect of design and quality

- |       |                                    |  |
|-------|------------------------------------|--|
| 5.4.1 | Main Entrance Door                 | The main entrance door is unusually wide and has significantly warped for a second time.   |
| 5.4.2 | Sliding Partition<br>(First Floor) | The sliding folding partition between teaching spaces is too heavy to be operated by teachers and can only be moved by prior arrangement with the maintenance team.                  |
| 5.4.3 | Blinds                             | Free hanging blinds are used to control glare. These are quite badly damaged and would be better located within double glazed cavities (although this is a more expensive solution). |
| 5.4.4 | Location of Toilets                | Due to the orientation of the accommodation there are large vertical travel distances to the male toilets.   |
| 5.4.5 | Lockers                            | Insufficient space allowed for lockers.  |
| 5.4.6 | External Timber Deck               | The timber presents a slip hazard when wet and is starting to split.   |
| 5.4.7 | Plywood Lining                     | Plywood lining to partitions provide a more robust finish than plaster.  |
| 5.4.8 | Translucent Glazing                | This provides very high levels of natural lighting within the building.  |

#### **5.5. Key Point Summary**

- 5.5.1 The investigation into Walton High identifies the following key issues:
- .1 The construction cost is much higher than the comparable schools and this is a combination of the site specific difficulties and the specification.
  - .2 There are design issues associated in particular with the main entrance doors, locker space, external decking and blinds.
- 5.5.2 In my opinion the Walton High School project did not provide Value for Money in respect of cost comparison against other projects. It is recognised that the project carries site specific premiums. However, the construction costs could have been improved by specification selection (refer to paragraph 5.3.5).



## 6.0. CAROLINE HASLETT

### 6.1. Introduction

6.1.1 Caroline Haslett is a new build single storey extension to an existing primary school providing 364m<sup>2</sup> accommodation. The extension is a standalone building containing four classrooms which is not connected to the existing school.

6.1.2	Floor Area	Tender	£/m <sup>2</sup>	Final Account	£/m <sup>2</sup>	
	Caroline Haslett	271m <sup>2</sup>	£658,865	2,431.24	£711,000	2,623.62

	Start on Site	Completion	Procurement
Caroline Haslett	Feb 07	Aug 07	Traditional

6.1.3 The comparable schools identified in the BCIS are School J, School K and School L.

6.1.4 Following the site visit to School K it was clear that the school did not provide an appropriate comparison to Caroline Haslett School.

6.1.5 It should be particularly noted that the gross internal area advised by aMK is 364m<sup>2</sup> which is incorrect as it includes the covered play area. The correct gross internal floor area is 271m<sup>2</sup>.

6.1.6 The Traditional Procurement route adopted on Caroline Haslett should provide good level of control however the following are particularly noted:

- .1 The quality control was maintained however the project contains high quality and expensive materials.
- .2 The cost control was maintained during the post contract phase. Greater stringency could have been achieved during the pre-contract phase.

### 6.2. Outline Specification

6.2.1	Caroline Haslett	School J	School K	School L	Commentary
Storeys	Single	Single	Single	Three	No comment necessary.
Footprint	Plain rectangular	Plain rectangular		Predominantly rectangular	No comment necessary.
Roof	Concrete tile covered pitched roof	Pitched standing seam	Pitched roof with metal slate cladding and flat roof felted	Not apparent supported on glulam beams	Concrete tiles are economic solution.

	<b>Caroline Haslett</b>	<b>School J</b>	<b>School K</b>	<b>School L</b>	<b>Commentary</b>
Elevations	Render and curtain walling	Brickwork with punched windows	Brickwork	Brick, Velfac windows, Kalwall glazing, timber cladding	Curtain wall is high specification to provide thermal and acoustic performance.
Internal Partitions	Blockwork and stud partitions	Blockwork	Blockwork	Blockwork, plywood faced stud partition	
Wall Finishings	Decorated plaster. Small timber skirtings.	Decorated plaster.	Plaster part tiled	Painted plaster. Exposed plywood.	Plaster vulnerable to damage.
Floor Finishings	Vinyl sheet to corridor. Carpet to classrooms.	Vinyl sheet, part carpet in resource room		Carpet with timber skirtings. Vinyl to staircases.	Vinyl sheet hard wearing and easy to clean.
Ceiling Finishings	Acoustic tiles, painted plasterboard.	Suspended ceilings.	Plasterboard.	Suspended ceilings	No comment necessary.
Internal Doors	Painted timber doors and frames. Stainless steel ironmongery.	Laminate faced doors with clear finish to frames.	Flush doors.	Hardwood veneer with painted frames, stainless steel ironmongery	Painted door vulnerable to damage.
Balustrades	Not applicable	Not applicable	Not applicable	Stainless steel with glass infill panels.	
WC Cubicles	Bespoke laminated faced panelling.				
External Works	Covered external play area.	External play area.	Macadam paving	Not extensive	Expensive construction.

	Caroline Haslett	School J	School K	School L	Commentary
Other	External lighting in motion detectors. Motorised blinds. Non standard doors.	Difficult access.		External Teaching Area	Poorly detailed lighting.

### 6.3. Financial Issues

Summary	Caroline Haslett	School J	School L
Construction Cost	£658,865	£634,912	£405,696
Area Gross Internal	271m <sup>2</sup>	306m <sup>2</sup>	255m <sup>2</sup>
Pupils			
Cost per square metre	2,431.24£/m <sup>2</sup>	2,074.76£/m <sup>2</sup>	1,590.81£/m <sup>2</sup>
Cost per pupil			
Procurement Method	Traditional	Traditional	Traditional

6.3.1 The average tender price for the comparable schools is 1,832.79£/m<sup>2</sup> which is significantly lower than Caroline Haslett.

6.3.2 The construction cost varies between the MK school and the average of the comparable school.

- .1 The covered external play area significantly distorts the cost (621.18£/m<sup>2</sup>)
- .2 Extensive use of glazing in lieu of solid wall construction.
- .3 Relocation of existing sensory garden.
- .4 High quality fixtures and fittings.

6.3.3 The difference between the contract sum and the outturn cost is £52,135.00 which represents an increase of 7.91% which is higher than I would normally expect. The contingency included in the contract sum is £31,733.00 which represents 5.06% which is usual.



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#### **6.4. Design / Quality / Management**

The following issues were noted in respect of design and quality

- |       |                             |  |
|-------|-----------------------------|--|
| 6.4.1 | Sliding Folding Partition   | Was fitted incorrectly preventing it from moving correctly. This is a workmanship and a site inspection issue.                                 |
| 6.4.2 | Loose Slate Surfacing       | The loose slate was significantly dislodged and one window pane has been broken possibly by a slate fragment. Design issue.                    |
| 6.4.3 | External Lighting           | Problems reported with external lighting in that it creates glare and luminaires have had to be replaced.                                      |
| 6.4.4 | Ease of Maintenance         | Smoke detectors are fitted at high level leading to difficulty for access. Health and Safety Issue.  |
| 6.4.5 | Render Elevations           | The render to the elevations is wearing badly and showing signs of staining.   |
| 6.4.6 | Argon filled double glazing | This is more expensive than air filled but provides improved thermal insulation and acoustic properties.                                       |
| 6.4.7 | Storage                     | The storage accommodation was very good.   |
| 6.4.8 | Office Accommodation        | An office space has been created with a demountable screen. It is not clear if this is a shortfall in the accommodation or a briefing failure. |

#### **6.5. Key Point Summary**

- 6.5.1 The investigation into Caroline Haslett identifies the following key issues.
- .1 The construction cost is higher than School J and School L.
  - .2 Significant maintenance issues have been identified (smoke detectors, render elevations).
  - .3 Certain elements incorporated into the design (external lighting) are not considered good detailing, creating glare and low life of luminaries).
- 6.5.2 In my opinion the Caroline Haslett project did not provide value for money in respect of cost comparison against other projects. This arises due to the design and specification adopted.

## 7.0. NEW BRADWELL

### 7.1. Introduction

7.1.1 New Bradwell is the alteration of two classrooms at an existing school providing 99m<sup>2</sup> accommodation. One classroom provides Food Technology accommodation and the other an ICT Suite.

7.1.2	Floor Area	Tender	Final Account
New Bradwell	99m <sup>2</sup>	£111,868.00	£98,356.00
	Start on Site	Completion	Procurement
New Bradwell			Traditional

7.1.3. The work undertaken at New Bradwell is unique to this project in that it is minor alteration work to two small areas of an existing school.

### 7.2. Outline Specification

#### 7.2.1 Food Technology

- .1 Fitted kitchen units
- .2 Plastered and decorated walls with glass blockwork infill
- .3 Suspended ceiling
- .4 Vinyl sheet flooring
- .5 Mechanical supply and extract incorporating heat exchange units
- .6 Refurbishment of windows
- .7 Work in existing boiler room and to the existing installation

#### 7.2.2 ICT Suite

- .1 New painted doors and frames with fan lights
- .2 Work to existing window reveals
- .3 Security grilles and blinds
- .4 New radiator heating, radiators enclosed in veneered timber with aluminium grilles
- .5 Sliding folding partition
- .6 Lighting
- .7 Fitted Furniture.



### 7.3. Financial Issues

Summary	New Bradwell
Construction Cost	£98,356
Area Gross Internal	99m2
Pupils	
Cost per square metre	993.19£/m2
Cost per pupil	
Procurement Method	Traditional

7.3.1 The construct cost is compiled as follows:

	£	£	£
.1 Food Technology Room			
a) General Builder's Work		7,982.00	
b) Equipment			
• Furniture (quote provided by MKC)	8,376.00		
• Cookers and hoods (2 Nr)	846.00		
• Wash hand basins	350.00	9,572.00	17,554.00
.2 IT Room			
a) General Builder's Work		1,676.00	
b) Sliding Folding Partition (quote provided by MKC)	5,914.00		
c) Security Grilles to Windows	1,668.00	7,582.00	9,258.00
.3 Mechanical Installations			
a) Firm Price		29,954.00	
b) Provisional Sums		11,500.00	41,454.00
.4 Electrical Installations			
a) Firm Price			17,002.00
.5 Contingency			11,750.00
.6 Preliminaries			14,850.00
<b>.7 Tender Sum</b>			<b>£111,868.00</b>

- 
- 7.3.2 The final account totals £98,356.00 which is £13,512.00 lower than the tender sum.
- 7.3.3 The building elements included in the final account are reasonable for the works executed. The mechanical and fittings figures distort the overall cost levels.
- 7.3.4 It can be seen from the MEAT analysis that the work was competitively tendered to 4 building companies which is good practice for this size of project. The tender returns range from £94,943.00 to £122,824.00 given that 36% of the tender sum is fixed sums provided by aMK the range of tenders received is surprisingly high. This typically suggests either.
1. The tender documentation as unclear.
  2. The highest bidder was not keen to do the work.
- 7.3.5 The three lowest tenders are evenly spread and the highest is significantly higher than the other tenders which skews the spread of tenders.
- 7.3.6 I note that the accepted tender was the third lowest financial bid and the second lowest after the weighted analysis. The MEAT evaluation summary records that the lowest bidder withdrew its tender. The reason for withdrawal is not clear. I do note that the lowest tenderer received a score of zero in respect of past experience which very seriously questions why the company was invited to tender.
- 7.3.7 I have analysed the elements of the tender which is based on sums / quotations provided by Architecture Milton Keynes ("aMK") and this shows that 64% of the accepted tender is actually competitively tendered. I would normally expect, in the region 80% of the value of the works to be competitively tendered.
- 7.3.8 The value of the work provided by aMK is £37,665.00 of which £17,144.00 is based on quotations supplied by aMK and £23,250.00 is based on provisional sums (including contingency).
- 7.3.9 The measured work generally appears reasonable and this is reinforced by the competitive tender process. However the mechanical and electrical (M&E) installations are surprisingly high. I have inspected the M&E tender information and specifications and found:
1. The scope of work is not clearly defined.
  2. We have no priced bid document identifying the build up of the figures for this element of the Work.
  3. Reference is made to under floor heating in the specifications but not on the drawings so it is unclear if it is in the tender.
  4. It appears the IT communication costs are included in the contract sum. There is a quote from JCE dated 10 September 2007 but this is dated after tender submissions but before MEAT analysis.
  5. The school employed others directly to undertake works to the fire, security and smoke cloak therefore these costs are not included in the contract sum.

- 
6. The M&E installations were competitively tendered which suggests the magnitude of the cost is driven by the scope and specification.
  7. I have reviewed the specification and noted the following works which may lead to the M&E costs being higher than anticipated.
    - a. The tender documents require as built drawings of the plant room but it is not clear from the documents if any work was to be undertaken in the plant room.
    - b. The specification suggests that boilers are required with flue dilution which if it was to have been installed would have been a costly item.
    - c. The heating hot water connects into the existing installation and it is not clear how extensive the connection works were. Furthermore if chlorination of the existing pipework was required this would have led to higher costs.
    - d. The photographs show as supply and extract installation incorporating heat exchange units which would give rise to higher costs than simple extract but has the benefit of reusing the heat gain.

#### 7.3.10 Analysing the quotations and provisional sums in turn:

1. The quotations provided by aMK are for furniture to both rooms (£8,376.00), cookers and hoods (£846.00) wash hand basins (£350.00), sliding folding partitions (£5,914.00) and security grilles to the windows (£1,668.00).
2. I have not seen any evidence that the quotations provided by aMK were obtained on a competitive basis. The amount for furniture in the Food Tech and IT rooms is from a recognised supplier of educational fittings. The material adopted for the work surfaces is Trespa and more economic alternatives are available and would have been adequate however the cost of the Trespa worktops in the quotation (page 1) totals £1,000.00. The amount of the quotation appears high however the copy of the quotation provided to D&J is incomplete and this prevents full analysis.
3. The Provisional Sums are for Mechanical Installations (£11,500.00) and contingency (£11,750.00). The contingency sum in the region of 10% is reasonable for this size and type of project. The Provisional Sums for the Mechanical Installations contains £10,000.00 for comfort cooling to the IT room which was omitted from the contract.



4. The Provisional Sums total £23,250.00 including contingency in the amount of £11,750.00 and a provisional sum of £10,000.00 for comfort cooling to the IT room. Given that the final account was £98,356.00 this suggests that £14,238.00 was spent on variations the detail of which is unknown, compiled as follows:

Tender Sum		111,868.00
<u>Less</u> Contingency	11,750.00	
Comfort Cooling	10,000.00	27,750.00
		<hr/>
		84,118.00
Undefined Variations		14,238.00
		<hr/>
Final Account		£98,356.00
		<hr/>

#### 7.4 Key Point Summary

- 7.4.1 The scope of the works, in particular the M&E is not well defined.
- 7.4.2 The documentation provided is incomplete in particular furniture and the priced build up of the M&E.
- 7.4.3 The costs appear high in respect of the fittings / furniture and the M&E this could be in the order of £25,000.00.
- 7.4.4 36% of the value of work included in the tender was stated amounts by aMK within the tender documents.
- 7.4.5 A tenderer has been invited to tender who has scored nil in respect of “past experience”.
- 7.4.6 The works have been competitively tendered and the three lowest financial bids are closely spread which suggests competitive prices were secured for 64% of the value.
- 7.4.7 The competitive process suggests that the reason for the costs being higher than expected lies in the specification and scope of work rather than the pricing levels.
- 7.4.8 The build up of the variations costs has not been provided.
- 7.4.9 Based on the information I have seen it appears that some elements of the Works are higher than I would have anticipated for this type of work, however the magnitude of this would be in the region of £25,000.00.



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**MILTON KEYNES SCHOOL BUILDING PROGRAMME**

**VALUE FOR MONEY INVESTIGATION**

**APPENDIX A**

**BCIS SUMMARY OF SCHOOL CONSTRUCTION COSTS  
(ADJUSTED TO REFLECT MK SCHOOLS CONSTRUCTION PERIODS)**



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**MILTON KEYNES SCHOOL BUILDING PROGRAMME**

**VALUE FOR MONEY INVESTIGATION**

**APPENDIX B**

**ELEMENTAL ANALYSES**





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**MILTON KEYNES SCHOOL BUILDING PROGRAMME**

**VALUE FOR MONEY INVESTIGATION**

**APPENDIX C**

**IMPLEMENTATION OF RECOMMENDATIONS ON SUBSEQUENT PROJECTS (MK)**



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**MILTON KEYNES SCHOOL BUILDING PROGRAMME**

**VALUE FOR MONEY INVESTIGATION**

**APPENDIX D**

**RECOMMENDATION NOT IN PLACE (MK)**