New Building for the British Library
This report has been prepared under Section 6 of the National Audit Act, 1983 for presentation to the House of Commons in accordance with Section 9 of the Act.

John Bourn
Comptroller and Auditor General

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Contents

Summary and conclusions  1

Part 1: Background  6
Part 2: Managing the project: Roles and responsibilities  9
Part 3: Design, development and construction of stage 1A  11
Part 4: Costs  15
Part 5: Requirements of the British Library and the extent to which they will be satisfied  19

Appendix

The British Library’s existing London Estate: contents, capacity and cost of buildings and target vacation dates  23
Artist's impression of stage 1A of the new building for the British Library. Reproduced with the kind permission of PSA Services.
Summary and conclusions

1. The British Library was established in 1972 by amalgamating a number of existing institutions. For many years the collections of these institutions have been spread over several locations. A new building at St Pancras, which is expected to be completed by 1996 and last for over 150 years, is being constructed at an estimated cost of £460 million. Because of the size and complexity of the project, Ministers decided that construction should proceed in stages, with the British Library having to review and justify their requirements at each stage in the light of changing circumstances and technology. The first stage is under construction and due to be completed in 1993. The new building is intended to unite most of the Library's London-based collections and reading rooms in a controlled environment and provide improved facilities for users and staff.

2. This report presents the results of an examination by the National Audit Office of the arrangements for the design and construction of the new building. The National Audit Office examined the performance of the three organisations principally responsible for the project: the Office of Arts and Libraries (previously the Department of Education and Science); the Property Services Agency (PSA Services from April 1990) and the British Library. The report addresses three main issues:

(a) how the project developed;

(b) whether the design and construction of the new building have been managed efficiently, economically and effectively;

(c) whether the British Library's requirements will be satisfied by the building under construction.

3. The main findings and conclusions of the National Audit Office are as follows:

On the development of the project:

(a) The site was purchased in 1976 and construction, which started in 1982, was to be in stages with no firm commitment by Ministers to build all or any of the stages. The final configuration of the new building was determined when Ministers agreed the completion stage in November 1988 (paragraphs 1.7, 3.4, 4.15 and 5.8).

(b) The outline design proposals in 1977 could not provide the basis for detailed cost estimates or construction timetables. It has therefore not been possible to quantify the effect of the phased construction programme on cost and efficiency (paragraphs 4.1 and 4.3).

(c) Approval of the project in stages enabled changes in operational requirements to be absorbed as construction progressed. This has extended the construction programme,
delayed the introduction of the improved service to users and the transfer of books to a controlled environment, and prevented the earlier release of some buildings in the Library's London estate (paragraphs 1.7, 4.1, 4.3 and 4.4).

(d) Theoretical reviews and cost comparisons of locating the new British Library building outside London, or elsewhere in central London, carried out by the Department of Education and Science in 1973 and 1980, were of limited value, since they could not identify any suitable alternative sites (paragraphs 1.6 and 1.8).

(e) During these reviews the British Library gave no specific consideration to providing storage in cheaper locations for material used infrequently. They told the National Audit Office that this was because a main objective of the new building was to bring readers and books closer together. They also said that they had recognised that when the new building was full they would continue to store low value and infrequently used material in other cheaper accommodation (paragraph 1.9).

(f) Because of pressure on public spending in 1979 the first stage of the project was split into two sub-stages so that work could proceed while the consequences for public expenditure of the second sub-stage were being considered. The physical division was arbitrary and without building logic and after seven years the two sub-stages were reamalgamated. The Office of Arts and Libraries were not in a position to quantify the effects of these changes on the costs and efficiency of the project (paragraphs 3.4 to 3.8).

On the management of the project:

(g) Concern in 1986 about the effectiveness of the project’s management led Ministers to commission a review which found that the Office of Arts and Libraries had little authority over the implementation of the project; the Property Services Agency had not provided adequate management information; the system used for measuring price movements was unsuitable for this project at that time; and the Steering Committee, responsible for taking major decisions and overseeing progress, had not met since June 1983. Similar weaknesses were found by an independent project audit commissioned by the Property Services Agency in early 1987 (paragraphs 2.5 to 2.9).

(h) To overcome these weaknesses and in line with changes being introduced for all major works projects, the Office of Arts and Libraries appointed in 1987 an experienced project director and took over the Chair of the Steering Committee. From April 1988, they also assumed direct financial control of the project (paragraphs 2.10 and 2.11).

(i) The Property Services Agency improved management information by introducing from November 1986 quarterly, and from January 1988 monthly, progress reporting to the Office of Arts and Libraries. The latter established procedures for analysing these reports and identifying significant issues requiring attention (paragraphs 2.12 and 2.13).
(j) In 1984 the Property Services Agency were concerned that the production of working drawings and related documentation was out of step with the procurement and construction programme. To overcome the risks to the construction programme they took remedial action but this was not fully effective until mid 1987 (paragraphs 3.9 to 3.14).

(k) The Property Services Agency considered that the construction management contract was the most efficient and economic contractual method for this particular project. But not all the potential benefits have been fully obtained. Early restrictions on funding prevented the most efficient rate of build. The Agency considered, however, that the flexibility of the contractual arrangements reduced the worst effects of the delays in the production of design information and of the changes required to reflect decisions on funding (paragraphs 3.16 to 3.25).

(l) PSA Services expect to recover the slippage of more than 22 weeks on construction within the planned construction period and to achieve the phased handover dates between 1991 and 1993 which were established for the first stage in 1986 (paragraph 3.26).

On costs:

(m) From 1978 until 1988, when cash targets were introduced, the construction timetable was constrained by the need to keep the project within annual funding limits. It is not possible to quantify what effect this may have had on cost and efficiency (paragraphs 4.2, 4.3, 4.5 and 4.13).

(n) Owing to the late award of contracts, delays in completing brickwork, and reprogramming for the completion stage, the project was underspent against provision by £3 million in 1987–88 and £10 million in 1988–89. There was an underspend of £2 million in 1989–90 (paragraph 4.5).

(o) Excluding inflation, the estimated cost of stage 1A has increased by 20 per cent (£23.5 million at 1979 prices) (paragraphs 4.7, 4.11, 4.12, Table 1 and Figure 2).

(p) The increase included £5.8 million (at 1979 prices) added to the estimate for sub-stage 1AB. This arose from an error in apportioning cost estimates between sub-stages 1AA and 1AB which resulted in too large a share being allocated to, and spent on, the first sub-stage (paragraph 4.7).

(q) Indices used prior to 1986 for revising cost forecasts to reflect inflation were inappropriate for the project and resulted in forecast costs of stage 1A being understated by £25.3 million (16 per cent) at 1985 prices (paragraphs 4.8 to 4.11 and Table 1).

(r) Ministers agreed a cash target of £300 million for stage 1A in November 1988 and the Office of Arts and Libraries expect to complete the stage within that limit. Ministers agreed a cash target of £150 million for the completion stage in July 1990 (paragraphs 4.13 and 4.14).
On satisfying the Library’s requirements:

(s) The new building will meet the Library’s key requirements as formulated in 1987; but on a less ambitious scale than they had originally envisaged (paragraph 5.21).

(t) Users will have a better service when the collections are united in the new building. The Library undertake selective surveys of usage in the main reading rooms but there has been no detailed re-assessment of future demand since 1976. There will be a modest increase in the number of reader seats provided (paragraphs 5.13 to 5.16).

(u) Storage space now being provided will be fully utilised shortly after the Library is completed in 1996. To make best use of their resources the Library plan to use low cost storage elsewhere, to become more selective in the retention of material and to take into account relevant developments in information technology (paragraphs 5.17 to 5.20).

General conclusions

1. The decision to approve the project stage by stage was a departure from the usual method of approving construction timetables and firm cost estimates at the outset. The arrangements adopted enabled changes to be absorbed as the project progressed, but there was no yardstick for measuring their consequences for cost and efficiency. Uncertainties about the final design of the building, the constraints on funding until 1987–88, the arbitrary splitting of stage 1A and protracted discussions over funding extended the construction timescale. This delayed the improvement of service to users and the transfer of books to a controlled environment, and prevented the earlier release of some buildings in the Library’s London estate.

5. The successful management of a major construction project requires among other things a clear definition of the project’s requirements and of the roles and responsibilities of the parties concerned, specialist staff resources experienced in project sponsorship and management and regular and reliable management information. But until 1987 the management of the New British Library Project did not fully meet these requirements.

6. In the design and construction of the New British Library, the Office of Arts and Libraries, like many other Government bodies using the Property Services Agency for their major works projects, were not directly accountable for the project costs and therefore had in the early stages only limited involvement in the project’s management. They did not at that time have the specialised staff resources and were not provided with sufficient reliable management information to play a more effective role. These weaknesses were recognised after the 1986 Ministerial review and the 1987 project audit, and were dealt with in line with the changes introduced by the Treasury for all major works projects but this was some four years after work on the foundations had started.
7. The Office of Arts and Libraries equipped themselves to exercise control over the project's progress and expect to complete stage 1A within the agreed cash limit. The new arrangements and controls are soundly based, but have not operated long enough to prove fully their effectiveness. The National Audit Office nevertheless welcome these improvements and recommend that the Office of Arts and Libraries and PSA Services review the effectiveness of the new arrangements carefully so that any further problems will be quickly identified, lessons learned, and improvements introduced promptly.

8. The new building for the British Library is expected to cost £450 million. It will benefit users by uniting all the collections for the first time. The building will also provide a modest increase in the number of reader seats and the Library intend to operate flexible arrangements in using them.
Part 1: Background

1.1 The British Library was established by the British Library Act in 1972 and qualifies under the Copyright Act, 1911 to receive a copy of every United Kingdom publication. Its establishment followed a recommendation of the National Libraries' Committee, which had been appointed in 1967 to consider the functions and organisation of certain national libraries.

1.2 The Library consists of a comprehensive collection of books, manuscripts, periodicals, and other recorded matter. It was formed by amalgamating a number of existing institutions:

(a) The British Museum Library (which included the National Reference Library of Science and Invention);
(b) The National Central Library;
(c) The National Lending Library for Science and Technology;
(d) The British National Bibliography.

The India Office Library and Records and the National Sound Archive were added in 1982 and 1983.

1.3 The Library is controlled and managed by the British Library Board which has defined its central aim as:

"To preserve, develop, exploit and promote the combined resources of its collections and its facilities for reference, document supply, bibliographic research, and other services for the best benefit, both now and in the future, of scholarship, research, industry, commerce and other major categories of information users."

1.4 Apart from the National Lending Library for Science and Technology located at Boston Spa near York (now called the British Library Document Supply Centre), the institutions forming the British Library are housed in some 19 buildings in and around London.

Location of a new building

1.5 When the British Library was established in 1972 the Government announced plans to concentrate the lending activities at Boston Spa. The reference, research and bibliographic services would be united and rehoused in London in a new building to be constructed on a site in Bloomsbury which had previously been earmarked for a new building for the British Museum Library. The new building was expected to be completed by the mid 1980s.

1.6 In a review in 1973 to identify, among other things, cost savings, the possibility of building on other central London sites, or green field sites out of London, was considered but no specific sites were identified or costed. In 1975, following widespread opposition to the use of the Bloomsbury site, it was abandoned in favour of one alongside St Pancras railway station.

1.7 Ministers agreed in late 1977 design proposals for a new building on the St Pancras site, based on an updated version of the brief which had been prepared in 1971 for the British Museum site. To enable changes to be incorporated as the project developed the design envisaged construction in three phases, each phase being subdivided into stages. The first phase would be self sufficient, uniting stock and reader services. At this point Ministers made no commitment, nor gave any financial approval, for the construction of any stage of the building (paragraph 4.1). The British Library, Department of Education and Science and the Treasury considered it unlikely that, if approved, the third and final phase would be completed until well into the next century. Figure 1 shows the phases and stages of the construction then contemplated—an area of some 200,000 square metres. Subsequently, in March 1978 Ministers approved stage 1A (76,000 square metres) and in November 1988, a completion stage (32,000 square metres) which is expected to be finished by 1996 (see paragraphs 3.3 and 5.8).

1.8 Intense pressure on public spending in 1979–80 delayed the start of the project (paragraph 3.4). A theoretical location review in 1980 showed that over a twenty year period, the net present value cost for a building outside London would have been £76 million compared with £87 million for a building elsewhere in central London and £96 million for the St Pancras site, but since no alternative sites were identified the financial appraisals were of limited value. The British Library and the Department of Education and
Figure 1

New Building for the British Library: phasing of construction: 1977 proposals

Key

1A(A) Entrance Hall
   Rare Books Reading Room
   Exhibition Area
   Administration Offices
   Executive Offices

1B Catalogue Hall
   General Reading Room
   Restaurants (Staff and Public)
   Manuscripts Offices
   Photography

2A General Reading
   Manuscripts
   Oriental Manuscripts
   General Administration
   Bindery
   Exhibition Space

3A General Reading
   Manuscripts
   Oriental Printed Books
   Photography
   Bindery

1A(B) Science Reference and Information Service
   Meeting Rooms
   Conservation
   Open Access Stack

1C Oriental Reading Room
   Science Reference and Information Service
   Special Reference
   Patents
   Oriental Manuscripts and Printed Books Offices
   Other Offices

2B Science Reference and Information Service
   Special Reference
   Patents
   General Administration

3B Expansion of Other Departments

Notes: The completion stage will broadly occupy the area designated for stages 1B and 1C.

Stage 1A was split into sub-stages 1A(A) and 1A(B) in 1979-80.

Source: Property Services Agency.
Science considered, however, that factors other than cost should be taken into account. They concluded that, as recommended by the National Libraries' Committee, central London was the only suitable location for such a national establishment. At that time the St Pancras site had already been purchased and cleared and the Property Services Agency did not know of a suitable alternative site in central London.

1.9 No specific consideration was given during these reviews to the Committee's recommendation that significant savings could be made by storing some infrequently used stock in low cost accommodation out of London. The British Library told the National Audit Office that this was because a main objective of the new building was to bring readers and books closer together and they had recognised that when the storage capacity at the St Pancras building was full, they would continue to store low value and infrequently used material in other cheaper accommodation. They also expected that advances in technology would enable storage requirements for some material to be reduced. The British Library estimated in 1988 that the current cost of storing a book in central London was approximately £1 per year compared with £0.43 at Boston Spa. They told the National Audit Office in January 1990 that they were actively reviewing the allocation of stock between London and Boston Spa.

Scope of the National Audit Office examination

1.10 The National Audit Office examined the arrangements of the Office of Arts and Libraries (previously the Department of Education and Science) the Property Services Agency and the British Library, for the development, design, construction and project management of the new building.

The examination focused on three issues:

— how the project developed;
— whether the design and construction of the new building has been managed efficiently, economically and effectively;
— whether the British Library's requirements will be satisfied by the building under construction.

1.11 In considering the third issue the National Audit Office were assisted by a leading university librarian.
Part 2: Managing the project: roles and responsibilities

Division of Responsibility

2.1 The successful management of a major works project requires among other things a clear definition of the roles and responsibilities of the parties concerned, specialist staff experienced in project sponsorship and management and regular and reliable management information. The National Audit Office considered how far these requirements had been achieved.

2.2 In 1978, when Ministers agreed that the first stage of the project should go ahead (paragraph 3.3), three organisations were involved:

(a) The British Library — responsible for determining their detailed requirements in a project brief.

(b) The Department of Education and Science (later the Office of Arts and Libraries) — responsible for appraising and approving the brief and for providing funds through their Public Expenditure Programme.

(c) The Property Services Agency (PSA Services from April 1990 see Footnote) — responsible for managing the project and meeting the requirements within agreed cost limits. The Agency’s role included overseeing the design and construction work and providing professional advice to the Department of Education and Science.

Overall financial control lay with the Department of Education and Science but the annual provision of funds was to be included in the Property Services Agency’s Civil Accommodation Vote, with the Agency responsible for controlling and accounting for expenditure.

2.3 Before 1978, the project had been managed by the Directorate of Historic Buildings and Ancient Monuments, a Division of the Department of the Environment. The Property Services Agency told the National Audit Office that by 1978 many of the fundamental decisions regarding the project management had been taken; the design team had been appointed, and planning agreement for the phased scheme had been secured.

2.4 In addition to the three organisations (paragraph 2.2), the Treasury, in their normal role of controlling expenditure were responsible for approving Public Expenditure Programme and Annual Estimate provisions for the Department of Education and Science and the Property Services Agency.

2.5 A three tier management structure was set up on the recommendation of the Property Services Agency to control development of design and construction:

(a) A Steering Committee, chaired by the Property Services Agency, and including representatives of senior management from the British Library, the Department of Education and Science and the Treasury. The consultant architects for the project were also regularly represented. The Committee was to meet about twice a year to review progress and decide on major issues such as phasing, timetabling of the project, cost control and contract strategy.

(b) A lower level Administrative Management Group, also chaired by the Property Services Agency, containing representatives from the Agency’s administration and project management staff, the British Library and the Department of Education and Science. This group was to meet regularly to control and coordinate the briefing to the consultants during the development of the project brief.

(c) A Project Management Group, headed by the Property Services Agency’s Project Manager, to establish and maintain full professional and technical liaison with all the consultants through formal and informal meetings. It was to keep under constant review the programme of work, its costs and the contractual procedures being employed.

Footnote: From April 1990 the Agency was split into Property Holdings and PSA Services. The functions of the latter, which will be privatised, include project management services.
This agreed structure operated until 1983, when site activity had been limited to work on foundations, and the main construction programme had not started. The Steering Committee then agreed the appointment of a construction management contractor to control and co-ordinate the construction programme and the Committee went into abeyance until November 1986, after the start of the Ministerial review of the project's management (paragraph 2.8).

The Property Services Agency explained to the National Audit Office that the Steering Committee had not met because there had been a series of comprehensive reviews of the project and its future (paragraphs 3.6 and 3.7). The Agency considered that the Committee was ill suited for the detail, speed and volume of work required during this period. Committee members were, however, kept in touch with developments by their respective officials.

**Project review**

In September 1986, after the Property Services Agency had concluded that forecast costs had been significantly understated, the Chief Secretary to the Treasury and the Minister for the Arts expressed concern about the effectiveness of the project's management and commissioned a review (paragraphs 4.10 and 4.11). Although the review found that construction had proceeded well and to time it identified the following weaknesses:

(a) the Office of Arts and Libraries, as project sponsor, had overall responsibility for the project but little control or authority over its detailed implementation which was largely in the hands of the Property Services Agency;

(b) the Agency's national system for identifying price movements and their probable impact on future costs was incompatible with such a complex development in central London at that time;

(c) the Agency had not provided the Office of Arts and Libraries and the British Library with the information needed to monitor progress, anticipate problems and changes and take any necessary decisions in good time. The National Audit Office noted, however, that up to this time the parties themselves had not actively pursued or requested such information.

In early 1987 consultants commissioned by the Property Services Agency to carry out an independent project audit of the British Library project found weaknesses in the project's management organisation and methods of control similar to those identified by the Ministerial review. The project audit recommendations endorsed the measures already in hand as a result of the Ministerial review.

**Redefining responsibilities**

To overcome identified weaknesses, the organisations concerned redefined their roles and responsibilities. The Office of Arts and Libraries took over the Chair of the Steering Committee in 1987. They also appointed an experienced Project Director to provide overall strategic direction and control of the project, and to oversee the performance of their agent, the Property Services Agency.

From April 1988, Vote and Accounting Officer responsibility for the project was transferred from the Property Services Agency to the Office of Arts and Libraries who assumed direct responsibility for financial approval. The new structure was in line with changes introduced by the Treasury for the commissioning and financing of major capital works projects by Government departments. These procedures were designed to strengthen client involvement and accountability and provide improved value for money.

**Management information**

From November 1986, the Property Services Agency presented the Steering Committee with regular progress reports consisting of monthly financial returns and quarterly reports of achievement against forecast. From January 1988 the reports were combined, improved and produced monthly. The Office of Arts and Libraries established procedures for analysing reports, co-ordinating the flow of information and highlighting issues which required attention and decision.

The monthly Agency reports, together with subsequent review meetings, have become the main formal means by which the Office of Arts and Libraries' Project Director is kept informed about the planned and actual progress of the project.
Part 3: Design, development and construction of stage 1A

Design

3.1 The partnership of architects commissioned in 1971 to design the new building for the British Library on the Bloomsbury site were retained to produce a new design for the St Pancras site. They were required to direct and co-ordinate the work of the design team—comprising the architects, consultant civil engineers, mechanical and electrical engineers and quantity surveyors, and to ensure that the detailed design information required for tender action and construction was ready by the due dates. Oversight of their work was the responsibility of the Property Services Agency.

3.2 Because of the complexity and size of the project the work could not be fully pre-planned and the architects agreed to produce design and working drawings and production information in parallel with construction. This method demanded a high degree of co-ordination. Despite some initial concern both the Department of Education and Science and the Property Services Agency were satisfied, in 1978, that the architects had the capability to meet these demands.

3.3 The design proposals envisaged the building being constructed in three phases (see paragraph 1.7 and Figure 1). Phase 1 was subdivided into three stages—1A, 1B and 1C and in March 1978 Ministers gave approval for a 1979-80 start for work on stage 1A. It included closed access storage in four levels of basement, with a superstructure accommodating the main entrance hall, open access storage, reading rooms, exhibition galleries, conference facilities and work stations for staff. This stage was expected to be occupied towards the end of the 1980s and Ministers expected substantial savings from the vacation of much of the Library’s existing scattered accommodation.

Development of stage 1A

3.4 In 1979, following intense pressure on public spending, total funds for the project over the next four years were reduced from £22.5 million to £9.5 million. As a result, Ministers agreed to split stage 1A into two sub-stages so that work could proceed on the first, while the public expenditure consequences of the second were being considered. Sub-stage 1AA consisted of all the basements (but with only a third fitted out and useable), some reading rooms and an entrance hall. It excluded open access provision for Science Reference and Information Service readers. The entrance hall, as designed for the scale of the original project, would have been unnecessarily large and out of proportion with the rest of the building. On its own 1AA would have been of limited operational value to the Library except as a storage facility. Work commenced on the foundations for the whole of stage 1A in April 1982 and on construction of the basements and sub-stage 1AA in July 1984. It was envisaged that the sub-stage would be completed by the end of 1990.

3.5 The British Library and the Property Services Agency considered that from both operational and construction aspects the physical division into 1AA and 1AB was arbitrary and without building logic. But work was authorised on 1AA as described in paragraph 3.4 and decisions on the second sub-stage were deferred for three to five years. The Office of Arts and Libraries were not in a position to quantify the effects of these changes on the cost and efficiency of the project.

3.6 In 1984 the Minister for the Arts and the Secretary of State for the Environment commissioned a review of the project. The Property Services Agency considered that as stage 1A had been designed as an integrated whole it would not be practicable or economical to proceed only with sub-stage 1AA. Moreover, a substantial gap between the completion of sub-stage 1AA and a start on sub-stage 1AB, would cost up to £9 million for temporary works. Completion and fitting out the remainder of the basement would cost some £32 million—over half the estimated cost of completing the whole of sub-stage 1AB. Cancellation would have been equally expensive. The review therefore concluded that stopping at sub-stage 1AA was not a sensible option.
3.7 After alternative timescales for construction had been rejected the Minister for the Arts authorised a start on sub-stage 1AB in December 1985. Construction work would begin in July 1987 and the building would be completed in 1993 with some basement storage facilities available from June 1991. The Treasury approved partial financial commitment in October 1986 and gave full financial approval in April 1987. The Property Services Agency told the National Audit Office that, in their view, this process resulted in a loss of momentum and some abortive costs. These costs and the effects on the timescale have not been quantified by the Agency.

3.8 The Property Services Agency decided in 1986 to amalgamate the work on the two sub-stages (1AA and 1AB) to provide the most effective programme for construction of the building and for the occupation of storage space. While this would allow the whole stage to be completed by 1993 it delayed public access to sub-stage 1AA by two years.

Delays in design work

3.9 In 1982 the architects agreed with the Property Services Agency a target date of June 1985 for completion of working drawings for stage 1A, as subdivided into sub-stages 1AA and 1AB. The design team's progress reports in January 1984—a few months before the superstructure (sub-stage 1AA) was due to start, revealed delays in producing full and final design information for the early work packages. They claimed that the adoption of a construction management contract (paragraphs 3.17 and 3.18) had caused the period for the production of drawings and related documentation for the whole of stage 1A to be extended to the end of 1986. The Agency questioned the effectiveness of the architects' monitoring arrangements and by April 1984 the design team assured them that they were reasonably optimistic of completing the design programme to time.

3.10 Delays in design work continued, however, and in March 1985 the architects and the Property Services Agency estimated that the design programmes for sub-stages 1AA and 1AB were only three-quarters complete, partly as a result of design modifications and reviews of the project's future. The design scheduling was out of date and needed to be revised to reflect the construction management strategy.

3.11 By the time the Steering Committee met in November 1986 (paragraph 2.6), construction managers were reporting further delays. A Property Services Agency review identified 43 parcels of work where design information was late. A new monitoring system was therefore introduced in mid 1987.

3.12 In 1987 the independent project audit commissioned by the Property Services Agency (paragraph 2.9) highlighted the considerable volume of outstanding working drawings, and confirmed the lack of an overall control programme and the difficulties the architects and the design team were experiencing in co-ordinating and monitoring the design programme.

3.13 To overcome the risks to the construction programme and improve the management of the design function and overall project control, the Property Services Agency required the architects to prepare a revised programme integrating the activities of all members of the design team. This new programme was then integrated with the procurement and construction programmes already held on computer on the site, to provide an overall project control programme. The architect also recruited additional staff, appointed a design co-ordinator and introduced formal design progress meetings as a vehicle for resolving problems.

3.14 In April 1989 the architects told the National Audit Office that their design work for stage 1A was 95 per cent complete and that final sketch designs for the completion stage would be prepared by April 1990. The Property Services Agency told the National Audit Office that overall, stage 1A designs, including the work of all the design team and consultants, were some 75 per cent complete at the end of 1989.

Contractual arrangements

3.15 The Property Services Agency and their consultants considered that the Agency's usual preference for a single lump sum contract for the main construction phase was unsuitable for such a large and complex project with a long timescale. The project would have to be fully designed before the contract could be let, and thereby delay the start of construction by a number of years, with a risk of obsolescence in the period between design and construction of service areas. Experience showed the relationship between client and contractor would almost certainly fail to last any period over five years without major disagreement; and that contractors would place a heavy premium on their tender prices to cover unforeseen risks of such a long timescale.
3.16 Other contractual methods were rejected in favour of a management contract, a relatively new concept being increasingly used in the private sector. Under these arrangements the selected contractor would formulate the construction programme, obtain tenders for individual packets of work and control on-site work. The major benefit of a management contract is its flexibility in organising the construction programme to meet changing circumstances. Other benefits include: design work to run in parallel with construction; smaller contract packages leading to less risk of disruption; more realistic tender prices; and better site control. The costs of the management contractor's fee and additional design work arising from the large number of individual work package contracts were expected to be less than 'risk premiums' or disruption costs likely to be experienced by more traditional forms of contract.

3.17 In January 1984 the Property Services Agency concluded a construction management contract—a variation of the management contract. The Agency considered that this would give them greater control and reduce the risks to public funds because work package contractors would be contracted to the Agency rather than to the management contractor.

3.18 The duties of the construction management contractor comprise:

(a) planning in the most efficient way, the procurement, construction and commissioning process;
(b) procurement of work parcel contractors;
(c) overseeing the quality and timeliness of contractors' work.

As a result of difficulties in planning and procurement the potential benefits of the construction management arrangements have not been fully obtained (paragraphs 3.20 to 3.22). The Property Services Agency told the National Audit Office, however, that in their view the main benefit, flexibility, had successfully reduced the worst effects of: delays in the production of design information; changes to requirements to reflect decisions on funding; and minor problems in planning and procurement.

Procurement

3.20 The construction management contractor is responsible for identifying contractors, tendering, and awarding contracts in the name of the Property Services Agency (paragraph 3.17). In 1987 the contractor told the Agency that the arrangements were not working as effectively as they might. Vetting of tendering by the Agency resulted in duplicated effort, delays and loss of commercial advantage. The Agency acted to improve the turnaround of vetting and consider that there was no evidence to indicate that this short term problem had added materially to the timescale for procurement.

3.21 During pre-tender vetting of potential contractors, some 6 per cent were eliminated because they were not on the Property Services Agency's approved list and the Agency did not therefore have sufficient evidence that they were financially sound. Such firms have, however, been employed as subcontractors by larger firms contracted to the Agency under traditional works contracts. The risks under these arrangements are carried by the main contractor.

3.22 In January 1987 the Property Services Agency commissioned the project's consultant quantity surveyors to assess the financial implications of the contractual arrangements. The consultants considered that using traditional main contractors to execute specialist sub-contract works could increase costs by 5 per cent to 10 per cent. They recognised however that it was difficult to quantify with precision the additional costs. The Agency told the National Audit Office that in their opinion there was no evidence that this practice had resulted in higher costs overall. They also explained that while they could not directly contract with firms which they regarded as financially risky, the position had been eased following negotiations in 1987 with the construction management contractor. Under revised vetting arrangements firms not on the Agency's approved list would be considered if the construction management contractor provided assurances about their financial and technical stability. This provided a wider choice of firms at the pre-tender stage. The Agency said that they were satisfied with the operation of these arrangements.

Planning

3.19 Under the construction management approach there were expected to be some 200 work package contracts. The construction management contractor told the National Audit Office in April 1989 that there was sufficient allowance in the programme to absorb delays caused by the failure to supply design information on time and handover dates had not been affected. He considered, however, that the ceilings on annual expenditure, which had lasted up to 1987-88 (paragraphs 4.2 and 4.5), had added a year to the construction timescale of stage 1A and had prevented the most efficient rate of build.
3.23 Under the construction management contract a large number of individual but interrelated work package contracts proceed on site at the same time. In these circumstances the contractors' financial risk for non-performance is not set in advance — as in the case of traditional Government works contracts — and a damages at large clause is included in the contracts.

3.24 The Property Services Agency told the National Audit Office that under the construction management arrangement the Agency is at risk for the consequences of delays by one contractor on other contractors and therefore a realistic assessment of the potential liability could not be determined. Settlement of any claims would be subject to arbitration. Some 16 potential tenderers for earlier work packages indicated that they would not accept the damages at large clause and the lowest tenders for two packages relating to the basement work were invalidated.

3.25 The review by the quantity surveyors (paragraph 3.22) considered that the restriction of the tender list due to the damages at large clause could have increased costs by 5 per cent on structural packages. The project audit (paragraph 2.9) supported this view but without quantifying the increases or recommending changes. The Property Services Agency told the National Audit Office that despite the clause they have generally secured sufficient tenders and were satisfied with the quality of companies they attracted. Out of 87 works packages so far let, in only two instances had they had to agree a revised clause which placed a limit on any damage claims. They also said in January 1990 that there had been no grounds for invoking the damages at large clause.

Progress on construction

3.26 The Property Services Agency's March 1989 progress report indicated that work on stage 1A had slipped by about 22 weeks in relation to the master programme. The slippage was primarily caused by the late award in 1987–88 of several major contracts, while problems with the brickwork contracts were a contributory factor. Further slippage since March 1989 means that the Agency do not expect full recovery until late 1990, but they consider that this will not affect the phased handover dates between 1991 and 1993 which were established in 1986 (paragraphs 3.7 and 3.8).
Part 4: Costs

4.1 Although Ministers approved outline design proposals in 1977 they made no firm commitment nor gave financial approval at that time for the construction of any stage of the building. The Office of Arts and Libraries told the National Audit Office that phasing was introduced to enable Ministers to agree the project phase by phase, or to terminate it at any point. But under these arrangements detailed cost estimates or timescales for construction of the whole project could not be prepared at the outset—thus there were no initial yardsticks for measuring accurately the cost and efficiency implications of changes and delays. However, at each stage when Ministers were considering new or altered commitments to the project, cost estimates of the implications of the options before them were available.

4.2 The British Library Board were told by the Department of Education and Science in November 1978 that the annual funding limits would be the principal factor governing the planning and scheduling of construction. Any unforeseen cost increases would have to be resolved within this limit, balancing as necessary one requirement against another. Meeting the timescale would also be constrained by the overriding need to keep within the annual cost limits.

4.3 It is not possible to quantify what effects the arrangements at paragraphs 4.1 and 4.2 may have had on cost and efficiency. But the National Audit Office noted, for example, that in January 1987 Ministers decided against an accelerated construction programme suggested by the Property Services Agency which had the aim of making the whole of the basement storage space available in 1991 (two years earlier for two-thirds of the space). In the Agency’s view this would have been more efficient and without any overall cost increase, but it would have brought expenditure forward to earlier years.

4.4 The National Audit Office also noted that the extended construction programme (paragraphs 3.3, 3.7 and 3.19) had delayed the introduction of the improved service to users and the transfer of books to a controlled environment. It had also prevented the earlier release of some of the Library's London estate. These buildings which the Library intend to vacate eventually, cost in 1988-89 over £3 million a year in rent and rates. The Office of Arts and Libraries pointed out that any savings in rent and rates would be offset by the running costs of the new building which the British Library are now in the process of refining.

4.5 The Office of Arts and Libraries told the National Audit Office that the constraint of annual expenditure ceilings was lifted after 1987-88, when the system of cash targets was introduced (see paragraph 4.13). The provisions in 1987-88 (£24 million) and in 1988-89 (£33 million) were, however, underspent by £3 million and £10 million respectively. The Office of Arts and Libraries told the National Audit Office that this was caused by late award of contracts in 1987, delays in completing brickwork—which also deferred the start of mechanical and electrical work, and reprogramming in connection with the completion stage. The provision for 1989-90 of £43 million was underspent by £2 million.

4.6 The total cost of stage 1A of the project was estimated by the Property Services Agency in 1979 at £115.8 million (in 1979 prices). When the government decided that the stage should be divided into two sub-stages (paragraph 3.4) the estimate was apportioned between them. The Steering Committee approved a cost limit for the installation of the foundations for the whole stage and the construction of sub-stage 1AA of £72 million. The balance of £43.8 million formed the base cost of sub-stage 1AB. These figures were updated in 1980 to £85.7 million and £53.7 million respectively to reflect current prices. The Department of Education and Science approved construction of sub-stage 1AA on the basis of this cost limit. In December 1985, they authorised sub-stage 1AB, with Treasury approval, at an estimated cost of £61 million at 1985 prices. Although the Property Services Agency had warned that their method for revising costs was flawed and that the forecast might be too low, it was not until May 1986 that they were able to provide revised forecasts (paragraphs 4.8, 4.10 and 4.11).

4.7 The estimated cost for sub-stage 1AB of £61 million included £6.6 million (£8.8 million at 1979 prices) to correct an error in the apportionment of the stage 1A estimate. This had resulted in too large a share of the estimate being allocated to the first
sub-stage. As a result sub-stage 1AA had absorbed additional costs, such as the employment of the construction management contractor and a tender substantially above estimate, without any apparent increases to basic cost.

Revision of cost forecasts

4.8 To revise cost forecasts the Property Services Agency maintain national indices reflecting the average tender price movements on different types of work. A range of these indices covering building and civil engineering, mechanical, electrical and general engineering was regularly used to revise project cost forecasts until 1984. Because constraints on resources prevented a full scale revision of estimates the Agency used the Treasury's Expenditure Survey Inflation Factor to produce the estimate on which sub-stage 1AB was approved in December 1985.

4.9 In 1982 some members of the design team expressed doubts about whether the then current indices, which reflected a dramatic fall in tender prices, were a true reflection of the market as a whole. Taking into consideration the complexity, magnitude and timescale of the Library project they doubted the reliability of the forecasts based on the indices.

4.10 However, it was not until late in 1985 that the Property Services Agency concluded that some of the national indices were inappropriate for the type of work being undertaken, the unusually long

Table 1
The New Building for the British Library
Stage 1A — cost estimates

<table>
<thead>
<tr>
<th>Price basis</th>
<th>£ million</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sub-stages</td>
<td>Total</td>
<td>stage 1A</td>
</tr>
<tr>
<td></td>
<td>1AA</td>
<td>1AB</td>
<td></td>
</tr>
<tr>
<td>3rd quarter 1979</td>
<td>72.0</td>
<td>43.8</td>
<td>115.8</td>
</tr>
<tr>
<td>Inflation based on PSA indices</td>
<td>13.7</td>
<td>9.9</td>
<td>23.6</td>
</tr>
<tr>
<td>3rd quarter 1980</td>
<td>85.7</td>
<td>53.7</td>
<td>139.4</td>
</tr>
<tr>
<td>Inflation based on PSA indices</td>
<td>6.4</td>
<td>-1.7</td>
<td>4.7</td>
</tr>
<tr>
<td>Correction for error in apportionment</td>
<td></td>
<td>6.6</td>
<td>6.6</td>
</tr>
<tr>
<td>(paragraph 4.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd quarter 1983</td>
<td>92.1</td>
<td>58.6</td>
<td>150.7</td>
</tr>
<tr>
<td>1984 Review</td>
<td>3.9</td>
<td>2.4</td>
<td>6.3</td>
</tr>
<tr>
<td>Inflation based on Expenditure Survey</td>
<td></td>
<td>96.0</td>
<td>61.0</td>
</tr>
<tr>
<td>Revised inflation based on Project Index</td>
<td>17.3</td>
<td>14.3</td>
<td>31.6</td>
</tr>
<tr>
<td>Increases (see Note below)</td>
<td>8.2</td>
<td>17.0</td>
<td>25.2*</td>
</tr>
<tr>
<td>3rd quarter 1985</td>
<td>117.6</td>
<td>89.9</td>
<td>207.5</td>
</tr>
<tr>
<td>Conversion to Cash Target</td>
<td></td>
<td></td>
<td>92.5</td>
</tr>
</tbody>
</table>

Note

Increases due to: £ million
Increased contingency allowance 9.6
Changes in value added tax regulations 5.9
Cost of design development 3.7
Supplies and development of mechanical book handling system 2.3
Extra resource costs 2.1
Changes to codes of building practice 0.9
Provision for phased occupation of library 0.7

25.2*
timescales involved, and the high level of inflation in central London. As a result, the cost estimates for future work had been significantly understated.

4.11 The Property Services Agency developed new indices for the project. During 1986 they prepared revised costings which included an extra £25.3 million for inflation (£21.6 million — £0.3 million) and £25.2 million for other cost increases (Table 1). These increases raised the estimate in 1985 prices for the whole of stage 1A to £207.5 million (sub-stage 1AA £117.6 million and 1AB £89.9 million). The disclosure of the inflation forecasting weaknesses led to the 1986 management review (paragraph 2.8).

4.12 The adjustments referred to in paragraphs 4.7 and 4.11 have increased the basic cost of stage 1A by 20 per cent in real terms (Table 1 and Figure 2).

4.13 The management review identified the need for a system of cost control that not only gave early warning and accurate measurement of cost increases, but also imposed financial discipline and encouraged managers to adopt cost effective solutions to problems. This was to include cost targets in cash terms for several years ahead. In November 1988 Ministers agreed a cash target of £300 million for the construction of stage 1A. This target incorporated a realistic provision for building cost inflation and the forecast at the end of November 1989 showed that stage 1A could be completed within the £300 million. (Table 1 and Figure 2 show the estimated cost escalation from 1979 to 1993 for stage 1A.)

4.14 In July 1990 Ministers agreed a cash target of £150 million for the completion stage. The total cost of the project is therefore expected to be £450 million.

Figure 2

The New Building for the British Library: stage 1A

![Figure 2](image_url)

Cost estimates at current year prices

- Basic cost at 1979 prices
- Inflation

Notes: 1. The basic cost increased by £6.6 million in 1983 and £25.2 million in 1985 (Table 1). These increases are shown in the figure above at 1979 prices (£5.8 million and £17.7 million).

2. Inflation estimated using PSA national indices.


4. Inflation estimated using Project Index.

Source: The Property Services Agency.

The basic cost of stage 1A has increased by 20 per cent since 1979.
**Surplus land**

4.15 The site of approximately 12.5 acres near St Pancras was purchased in 1976 for £6 million. Only 9.8 acres were required for the proposed three phase building but the vendor was unwilling to sell only part of the site. The Property Services Agency considered that the extra 2.7 acres would be used for site establishment purposes while phases 2 and 3 were being constructed. In the meantime this extra land has mostly been let on short term leases or, more recently, been used by the Agency and contractors for site offices and compounds.

4.16 The Office of Arts and Libraries told the National Audit Office that the land required for the completed building will be between 7 and 8 acres. At the same time as they approved the completion stage, Ministers decided that any surplus land should be sold. In February 1990 the British Library Steering Committee were considering the timing, method and financial consequences of its disposal, taking into account the Property Services Agency's project management strategy which assumes that the land will be available for most of the construction period.
Part 5: Requirements of the British Library and the extent to which they will be satisfied

The brief for the new building

5.1 The reference collections of the British Library are of national importance to scholars, research workers and information specialists from all sections of society. Their contents, which range widely in value and age and include some irreplaceable items, are constantly being added to; Figure 3 shows the projected growth in the London based reference collections between 1984 and 2000. The London collections are classified under two main headings—Humanities and Social Sciences, and the Science Reference and Information Services. For many years these collections have been spread over several London locations (paragraph 1.4 and Appendix 1). The Library’s aim for the new building was to bring together stock, readers and staff in a single efficient building with a controlled environment, which would serve for an indefinite period.

5.2 The British Library Board re-stated these aims in their first strategic plan which was prepared in 1985. The new building would have three main functions:

(a) **Preservation**—to provide a safe, controlled atmospheric environment for the preservation of the collections, which had been damaged or put at risk by the environment in existing buildings.

(b) **Collection Management**—to restore and maintain the unity of the growing collections.

Figure 3

The British Library
Projected Growth of London Based Reference Collections 1984–2000

![Projected Growth of London Based Reference Collections 1984–2000](image)

**Source:** British Library

The projection shows that the library buildings at St Pancras and Micawber St will be completely full in 1999 (paragraph 5.17).
providing for quick and easy access to them in the long term.

(c) Services— to provide accommodation suited to the various needs of readers and staff, having due regard to traditional needs, to changing methods of consulting publications and catalogues, and to new working methods. It would also provide more space for exhibitions and a bookshop, to enable the treasures of the Library’s collections to be more widely appreciated.

5.3 In the early 1970s the Library produced a brief defining their ideal requirements. The intention was to locate in the new building all London based collections, services, and staff, with the exception of the Newspaper Library which was in purpose-built accommodation at Colindale. At that time the Library had not assumed responsibility for the National Sound Archive or the India Office Library and Records. This brief remained unchanged although plans for achieving it were modified when the St Pancras site was adopted in 1976. Since then the brief has been re-examined regularly and revised to take account of technological advances and changes in need. For example, the transfer of catalogues to a computer record rendered the large catalogue hall obsolete but the reading rooms would need to house access terminals, and from 1982 there was a need to consider the accommodation requirements of the India Office Library and Records and the National Sound Archive.

Need for the entire phase 1

5.4 The 76,000 square metres being provided by stage 1A, would enable much of the existing stock to be housed, but a substantial amount of planned reader and staff accommodation could not be provided unless additional building was undertaken. The Treasury were therefore informed in 1985 that to obtain the full benefit of the investment in stage 1A, some further major construction would be required. Moreover, to have stopped work at the end of stage 1A would have resulted in some aspects of the service to readers being poorer than that then available. It would also have prevented the British Library from vacating fully the British Museum building at Bloomsbury.

5.5 In 1987 the Steering Committee commissioned a review of radical options for stages 1B and 1C. This was undertaken by the Office of Arts and Libraries and the British Library and included a critical examination of the Library’s objectives and revised requirements for phase 1. The review produced a range of options based on varying levels of the Library’s priorities. This culminated in the Minister for the Arts commissioning in December 1987 a study to consider the feasibility of completing the building to meet the key requirements of the Library, within an additional cost of not more than £80 million (at 1987 prices).

5.6 The aims for the completion stage as determined by the British Library, were to:

- unite London-based reading rooms and stock and staff directly associated with them, which would still be separated after the move of part of the Library into stage 1A;
- increase open access reading facilities for the Science Reference and Information Service;
- provide essential services for staff and public omitted from stage 1A.

The cost limit of £80 million (at 1987 prices) meant that, as the Outline Design Report indicated, significant compromises were required. Careful planning was needed to enable essential elements to be included. The Library decided that to meet their aims the key requirements shown in Table 2 should be included in the completion stage. In June 1988 the design team reported that these key requirements could be met within the cost target.

Table 2

Key requirements for the completion stage of the project

<table>
<thead>
<tr>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two general printed book reading rooms with 500 reader seats;</td>
</tr>
<tr>
<td>A maps reading room with 45 seats;</td>
</tr>
<tr>
<td>The King's Library;</td>
</tr>
<tr>
<td>An extended Science Reference and Information Service reading room with 60</td>
</tr>
<tr>
<td>reader seats and 6 kilometres open access shelving;</td>
</tr>
<tr>
<td>Offices for 600 Humanities and Social Science staff;</td>
</tr>
<tr>
<td>Photographic services and workshops;</td>
</tr>
<tr>
<td>Storage for the India Office Library and Records and maps;</td>
</tr>
<tr>
<td>Restaurants for public and staff.</td>
</tr>
</tbody>
</table>

Source: British Library
5.7 As a result of a ruling by the European Court of Justice in June 1988, additional Value Added Tax of about £9 million became payable on construction work, bringing the total VAT liability to £12 million. The additional amount had to be accommodated within the previously agreed financial limit.

5.8 In November 1988 the Minister for the Arts announced that the government had agreed to an immediate start on additional work, which would complete the project by 1996, at a cost of £90 million at 1988 prices (equivalent to £80 million at 1987 prices). The study team considered that 1996 was the earliest completion date that could reasonably be assumed for a building of this type and complexity.

5.9 In March 1989 the study team prepared an outline sketch design for the completion stage, comprising some 32,000 square metres of space, which could be built within the funds made available by the government. This design showed some reductions in scale and technical services over their earlier proposals. The study team considered that this would lose flexibility in a building which had a life expectancy of over 150 years.

5.10 The completion stage will be built behind stage 1A and will broadly occupy the area originally designated for stages 1B and 1C. When stage 1A and the completion stage are integrated the present temporary rear wall of stage 1A will be demolished.

Provision for readers

5.11 No charge is made to users for admission and no tickets are required to use the Science Reference and Information Services. However, admission to the Humanities and Social Science collections is strictly controlled by reader tickets which are issued on the basis of need.

5.12 The Library's brief was prepared on the broad assumption that most of Humanities and Social Science researchers would need to spend long periods studying a range of books in detail. Therefore closed access storage would be suitable, with books ordered from catalogues and studied in the reading rooms. Open access was better for Science Reference and Information Service material where the user would need to scan quickly a wide number of references. Reader seats would be placed near the shelves.

5.13 The increasing cross disciplinary needs of users have been recognised by the Library and they intend to organise the internal services flexibly to provide for them. In view of this and other operational changes they have not since 1976 made any detailed assessment of likely future demand.

5.14 The British Library undertake selective surveys of usage in the main reading rooms. These surveys are conducted regularly in Humanities and Social Science sections and on an ad hoc basis in the Science Reference and Information Service. The surveys concentrate on gathering information on the numbers and needs of visitors and the frequency and type of stock requested. The Library have not checked the occupancy of reader seats, but they consider the head counts of readers in the rooms provide a good indication of seat usage. These show that numbers of readers vary considerably but on occasions the reading rooms are almost full. Provision of seats in the new building is intended to provide a modest increase over current levels of use. The Library told the National Audit Office in February 1990 that they intend to undertake additional work in the Science Reference and Information Service reading rooms to obtain more accurate and up to date head counts and average times of usage in different parts of the collection.

5.15 A user survey in April 1988 showed that patent agents and researchers regarded the Science Reference and Information Service as the best source of patent material in the world. But many agents were using alternative sources because material was not readily available on open access, and United Kingdom and international patents were stored in different buildings.

5.16 Patent Agents and other users will have a much better service when all the collections are united in the new building and this could generate increased demand. Moreover, the Library have decided to adopt a more open admissions policy than they currently operate on the Humanities side. The new building will provide a modest increase in the number of seats compared with the present. The original plan for 3,440 reader seats, based on user surveys in the 1960s, has now been reduced to 1,176, which compares with 1,103 provided under current arrangements (see Table 3). The Library told the National Audit Office in July 1990 that they propose to operate flexible arrangements such as allowing Science Reference and Information Service readers to use seating in the Humanities and Social Science areas where over 80 per cent of the seats will be located.
Table 3
Numbers of reader seats in the British Library

<table>
<thead>
<tr>
<th></th>
<th>Humanities and Social Science</th>
<th>Science Reference and Information Service</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Building:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original Brief</td>
<td>2,450</td>
<td>990</td>
<td>3,440</td>
</tr>
<tr>
<td>Revised Provision</td>
<td>934</td>
<td>242</td>
<td>1,176(a)</td>
</tr>
<tr>
<td>Existing Buildings:</td>
<td>926</td>
<td>177</td>
<td>1,103(b)</td>
</tr>
</tbody>
</table>

Notes:
(a) Excludes seats for accessing catalogues and microfilms, typing and in study carrells.
(b) Excludes stools, and seats without reader tables used for accessing microfilms.

Source: British Library.

Storage facilities

5.17 The British Library's original plan would have met their storage needs until about the year 2030. Based on the current pattern of acquisition, which requires eight kilometres of shelving each year, the building now being provided and the additional off-site storage being retained at Micawber Street are expected to be full to capacity by the end of this century (see Figure 3). It is, however, likely to be operationally full—at a level (usually 85 per cent) which allows for the movement of stock, by the time the new building is completed in 1996. The Library told the National Audit Office in January 1990 that they plan to store material used less frequently in cheaper locations, especially at their freehold site in Boston Spa. To avoid delay in satisfying reader requirements the Library intend to monitor closely the use patterns of material selected for off-site storage.

5.18 The bulk of the closed access storage will be in air conditioned basements providing the optimum conditions for preservation. Using mobile high book stacks where possible will maximise storage space, and mechanical handling systems will deliver books to the reading rooms.

5.19 In an attempt to make better use of resources relating to acquisitions the Library introduced in 1986 a 'common stock' policy for a limited range of materials. Under these arrangements only one copy is kept of low-demand publications and used for both reference and lending, this helps to limit the rate of growth of stock. In July 1987, in a more radical move, a review team undertook an examination of the acquisition and retention of material and one of their key recommendations in 1989 was that the Library should be more selective in the material it collects and retains. The Library Board have accepted this recommendation and initiated a programme to implement this and other key parts of the report from the review team. But the substantial growth in worldwide publishing output will mean little change in the growth in size of the Library's collections.

5.20 The Library told the National Audit Office that in considering their future storage requirements they would take into account developments in technology for the storage and transmission of text and images.

Extent to which the brief will be satisfied

5.21 The new building will meet the Library's key requirements as formulated in 1987, but on a less ambitious scale than they had originally envisaged (see paragraphs 1.7, 5.5 and 5.6). There will be a modest increase in the number of reader seats compared with the present provision (paragraphs 5.13 to 5.16). The controlled storage environment will quickly become full (paragraph 5.17). The new building will include exhibition galleries, a 260 seat auditorium, a publications shop and a restaurant, all open to the general public. Provision for about 1,200 library staff will be made; 300 other staff providing support functions which can be carried out more cost-effectively away from London will move to Boston Spa. The new building will not however include the book bindery (part of the conservation service), the photographic processing facilities and the National Sound Archive.
Appendix

The British Library’s existing London estate: contents, capacity and cost of buildings and target vacation dates

<table>
<thead>
<tr>
<th>Building</th>
<th>Function</th>
<th>Floor area (square metres)</th>
<th>Storage capacity (linear metres of shelving)</th>
<th>Rent &amp; rates payable by British Library (1988-89 estimate)</th>
<th>Target vacation date</th>
</tr>
</thead>
</table>
| Humanities & Social Sciences  
British Museum Main Building | Storage of general printed books, rare books, music, manuscripts, philatelic items and 786 reader seats | 32,856 | 122 | £78(a,b) | about 1996 |
| Ministry of Defence, Woolwich Buildings 45, 47 and 48 | Storage of general printed books | 13,980 | 94 | £49(b) | 1994 |
| Newspaper Library, Colindale Avenue, Colindale | Newspaper Library storage and 102 reader seats | 14,713 | 27 | £48(a) | To be retained |
| Newspaper Library Annex | Newspaper Library storage | 2,072 | 8 | £94 | To be retained |
| Orbit House, 197 Blackfriars Road | Storage for European books and oriental books and manuscripts of the India Office Library and Records and 74 reader seats | 8,559 | 25 | £369 | Not decided (lease expires 2008) |
| 14 Store Street | Storage for oriental collections and 32 reader seats | 4,643 | 20 | £136(a) | Not later than 1996. Disposal of freehold being considered (hinges on planning consent and Treasury agreement to use of sale proceeds) |
| 29 Exhibition Road | Storage for National Sound Archive. Sound recordings and related materials and 27 seats for readers and listeners | 919 | 1 | £8(a) | To be retained |
| 47 Princes Gate | Storage for National Sound Archive | 532 | 2 | £64 | To be retained |
| Tube tunnel, Belgrave Park | Storage for National Sound Archive | 200 | 2 | £24 | To be retained |
| 29-55 Gee Street | Storage of printed books | 452 | 3 | £12 | Lease expired 1989 and was not renewed |
| 7 Ridgmount Street | Storage for British Library Information Sciences Service and 34 reader seats | 464 | 2 | £55 | Not decided |
| British Library, Montague Place | Reprographic Studios | 362 | NIL | £37 | To be reviewed 1993 |
| 41 Russell Square | Office Accommodation for Humanities and Social Sciences | 4,788 | NIL | £45 | To be reviewed 1993 |
| Science Reference & Information Service  
Southampton Buildings, Holborn | Open and closed access storage of English patents, trade literature, abstracts, serials and monographs and 264 reader seats | 6,553 | 14 | £462 | 1993 |
The British Library’s existing London estate: contents, capacity and cost of buildings and target vacation dates—continued

<table>
<thead>
<tr>
<th>Building</th>
<th>Location</th>
<th>Function</th>
<th>Floor area (square metres)</th>
<th>Storage capacity</th>
<th>Rent &amp; rates payable by British Library (1988-89 estimate 2000)</th>
<th>Target vacation dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>9–13 Kean Street</td>
<td>Storage of periodicals, abstracts, reference books, monographs and 50 reader seats</td>
<td>2,794</td>
<td>×</td>
<td>199</td>
<td>Lease expires 2009 but may be vacated sooner</td>
<td></td>
</tr>
<tr>
<td>Chancery House</td>
<td>Open access storage of foreign patents and 33 reader seats</td>
<td>1,888</td>
<td>7</td>
<td>214</td>
<td>1903</td>
<td></td>
</tr>
<tr>
<td>22 Micawber Street</td>
<td>Storage of printed books</td>
<td>2,477</td>
<td>61</td>
<td>296</td>
<td>To be retained</td>
<td></td>
</tr>
</tbody>
</table>

Central Administration, Bibliographic Services & Research & Development Department

Sheraton House, Sheraton Street

Office accommodation for central administration, bibliographic services, research and development department

<table>
<thead>
<tr>
<th></th>
<th>Functio</th>
<th>Floor area (square metres)</th>
<th>Storage capacity</th>
<th>Rent &amp; rates payable by British Library (1988-89 estimate 2000)</th>
<th>Target vacation dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td></td>
<td>1,954</td>
<td>NIL</td>
<td>413</td>
<td>Lease expires 1999 but earlier vacation is possible—subject to findings of a current consultancy on relocation of certain Library services</td>
</tr>
<tr>
<td>Novello House, Sheraton Street</td>
<td></td>
<td>9,218</td>
<td>NIL</td>
<td>484</td>
<td>Lease expires 2004 but earlier vacation is possible as for Sheraton House</td>
</tr>
</tbody>
</table>

Total

| | | 115,555 | 396 | 3,555 |

Note: (a) Freehold building—no rent paid by British Library
(b) Contributions in lieu of rates