

CHAPTER 3

Civil Aviation Department Architectural Services Department

New Civil Aviation Department Headquarters

**Audit Commission
Hong Kong
30 October 2014**

This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.

Report No. 63 of the Director of Audit contains 10 Chapters which are available on our website at <http://www.aud.gov.hk>

Audit Commission
26th floor, Immigration Tower
7 Gloucester Road
Wan Chai
Hong Kong

Tel : (852) 2829 4210
Fax : (852) 2824 2087
E-mail : enquiry@aud.gov.hk

NEW CIVIL AVIATION DEPARTMENT HEADQUARTERS

Contents

	Paragraph
EXECUTIVE SUMMARY	
PART 1: INTRODUCTION	1.1 – 1.9
Audit review	1.10
Acknowledgement	1.11
PART 2: PROVISION OF RESERVE SPACE FOR FUTURE EXPANSION	2.1
Authority for providing reserve space for expansion	2.2 – 2.14
Areas for improvement	2.15 – 2.18
Optimising the use of area reserved for future expansion	2.19 – 2.22
Areas for improvement	2.23 – 2.24
Audit recommendations	2.25 – 2.28
Response from the Administration	2.29 – 2.33

	Paragraph
PART 3: CONTROL OVER DEVIATIONS FROM APPROVED SCHEDULE OF ACCOMMODATION	3.1
Toilet/shower facilities in the Director-General of Civil Aviation's office	3.2 – 3.5
Recreational facilities in the multi-function room	3.6 – 3.8
Rest rooms for accident investigators	3.9 – 3.12
Areas for improvement	3.13 – 3.17
Audit recommendations	3.18 – 3.19
Response from the Administration	3.20 – 3.22
 PART 4: PROVISION OF FURNITURE AND EQUIPMENT	 4.1
Approval for purchase of furniture and equipment	4.2 – 4.3
Security and electronic systems purchased under the design-and-build contract	4.4
Video display equipment for electronic systems	4.5 – 4.17
Audit recommendations	4.18 – 4.20
Response from the Administration	4.21 – 4.25
 PART 5: PROVISION AND UTILISATION OF CAR PARKING SPACES	 5.1
Provision of parking spaces	5.2 – 5.5
Utilisation of parking spaces	5.6 – 5.9
Areas for improvement	5.10 – 5.13
Audit recommendations	5.14 – 5.16
Response from the Administration	5.17 – 5.19

Paragraph

PART 6: WAY FORWARD

6.1

The new CAD headquarters project

6.2 – 6.3

Major audit observations

6.4 – 6.8

Audit recommendations

6.9 – 6.11

Response from the Administration

6.12 – 6.14

Appendices

Page

A : Layout plans showing locations of reserve space
for future expansion

69 – 72

B : Acronyms and abbreviations

73

NEW CIVIL AVIATION DEPARTMENT HEADQUARTERS

Executive Summary

1. The development of a new Civil Aviation Department (CAD) headquarters on the Airport Island was an initiative in the 2006-07 Policy Agenda to house a new air traffic control (ATC) system to meet traffic growth up to 2025 and to accommodate under one roof the CAD's various operational divisions. In January 2008, the Finance Committee of the Legislative Council (LegCo) approved funding of \$1,997 million to construct the new headquarters with a construction floor area of about 65,000 square metres (m²) and net operational floor area (NOFA) of about 22,775 m². In May 2009, a design-and-build contract was awarded for the construction of the new headquarters.

2. To ensure the timely completion of the new CAD headquarters project, the CAD set up a dedicated project team to oversee its implementation. The new headquarters was commissioned on schedule (in December 2012) and the actual expenditure was also within the approved provision. The Audit Commission (Audit) has recently conducted a review of the provision of office accommodation and facilities in the new headquarters with a view to identifying room for improvement.

Provision of reserve space for future expansion

3. According to the Accommodation Regulations, schedules of accommodation must be vetted by the Government Property Agency (GPA) and approved by the Property Vetting Committee (PVC) for departmental specialist accommodation. In October 2007, the PVC approved a NOFA of 22,775 m² (including 3,240 m² reserved for future expansion) for the new headquarters. Earlier, in September 2007 when the GPA was vetting the draft schedule of accommodation for the new CAD headquarters (including reserve area for future expansion), the Transport and Housing Bureau (THB) had written to the PVC to express its support of the CAD's request for more reserve space to the extent of 1,500 m², which would be used for expansion beyond 2025. However, the THB only requested the PVC to consider the possibility of making provision in the

Executive Summary

building's foundation and design to cater for the construction of this reserve space in the future. While the CAD specified in the Employer's Requirements of the tender documents that provision should be made in the building's foundation and design to allow for a further expansion in NOFA of 1,500 m², it also specified that the 1,500 m² expansion area should form part of the established offices. In the event, the 1,500 m² expansion area, in addition to the NOFA of the 3,240 m² approved for future expansion, was built. With the exception of the Architectural Services Department (ArchSD), other PVC members (namely the GPA and Financial Services and the Treasury Bureau — FSTB) had not been informed of the change in user requirements. The incident highlights inadequacies in the control over change of user requirements and the decision making arrangements within the PVC. Moreover, the Panel on Economic Development, Public Works Subcommittee and Finance Committee of LegCo were not informed specifically of the construction of the 1,500 m² expansion area. While the 1,500 m² expansion area was not expected to be required for use by the CAD until some years later, no provision was made in the building design to facilitate its interim use by third parties (paras. 2.2, 2.5 to 2.7, 2.10, 2.15 to 2.17 and 2.23).

Control over deviations from approved schedule of accommodation

4. The laid-down procedures for vetting and approving schedules of accommodation for new government buildings are to ensure compliance with the established space standards by user departments, and that provision of accommodation is fair and adequate to meet user departments' operational needs. Three of the facilities in the new CAD headquarters were not built in accordance with the approved schedule of accommodation, and not conforming to the Accommodation Regulations. The discrepancies in the provision of toilet/shower facilities in the Director-General of Civil Aviation's office and the rest rooms for accident investigators could have been avoided if both the CAD and ArchSD had enhanced the checking mechanism to ensure that the user requirements to be included in the design-and-build contract were consistent with the approved schedule of accommodation. The CAD also had not sought the PVC's prior approval before it converted the space originally planned for use as a viewing gallery of the education path into a multi-function room for meeting and recreational purposes. There was no record to show how such converted use and the fixture requirements of the multi-function room were determined (paras. 3.7, 3.13, 3.14 and 3.17).

Executive Summary

Provision of furniture and equipment

5. Up to May 2014, the CAD had spent \$97.04 million on the purchase of furniture and equipment under the project. Financial Circular No. 9/90 sets out the arrangements for seeking approval for the purchase of furniture and equipment for public works projects. The CAD had not complied with the Circular's requirements in seeking the FSTB's prior approval for its purchase of the security and electronic systems at \$67.45 million under the design-and-build contract. The CAD also purchased more liquid crystal display (LCD) video display units than that mentioned in its application to the FSTB for approval. Some of the LCD video display units were installed in venues and individual officers' rooms which were not mentioned in the CAD's application. There also appears to be scope for reducing the LCD video display unit requirements as some venues were already provided with other equipment serving similar display functions. Additional expenditure of \$156,000 was incurred in purchasing seven LCD video display units to replace those not fully meeting user requirements (paras. 4.2 to 4.4, 4.7, 4.8 and 4.13).

Provision and utilisation of car parking spaces

6. The new CAD headquarters has a total of 209 parking spaces. The CAD had not compiled statistics on the utilisation of parking spaces until April 2014. From April to July 2014, the utilisation of these parking spaces only ranged from 21% to 23% for weekdays. While the utilisation of the parking spaces might improve after the relocation of the Air Traffic Management Division of the CAD to the new headquarters, there is a need to put the under-utilised parking spaces into gainful use during the interim and keep the utilisation rate under review after the relocation. Regarding the provision of parking spaces, there was room for improvement in the CAD's provision of usage information in the draft schedule of accommodation for the GPA's assessment. There was also room for improvement in the ArchSD's specification of the GPA's approved parking space provision in the tender documents (paras. 5.6 to 5.8, 5.10, 5.11 and 5.13).

Executive Summary

Audit recommendations

7. Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has *recommended* that the Director-General of Civil Aviation should:

- (a) take measures to ensure that:
 - (i) the tender specifications for new building projects adhere strictly to the PVC's approval (para. 2.26(a)(i));
 - (ii) for building projects with reserve areas to be built on day one for expansion in the distant future, allowance is made in the building design to facilitate interim use by third parties (para. 2.26(a)(iii)); and
 - (iii) full information on expansion area of building projects is included in the funding and Administration papers submitted to LegCo (para. 2.26(b));
- (b) step up the checking of user requirements to be included in the tender documents of building projects to ensure consistency with the approved schedules of accommodation and seek the PVC's approval before making any significant changes to the approved provision (para. 3.19(a) and (b));
- (c) critically review the operational needs for the LCD video display units purchased and seek covering approval from the FSTB, where appropriate (para. 4.18(a));
- (d) take measures to ensure that timely approval is sought from the FSTB for procuring equipment in accordance with the requirements laid down in Financial Circular No. 9/90 and that in seeking approval from the FSTB, details of the equipment to be purchased are provided (para. 4.18(b)); and
- (e) continue to monitor the utilisation of the parking spaces and take effective measures to put any under-utilised parking spaces into gainful use (para. 5.15(a) and (b)).

Executive Summary

8. Audit has *recommended* that the Director of Architectural Services should take measures to ensure that:

- (a) PVC meetings should be convened for members to exchange views and to clarify understanding on important matters which could be subject to different interpretation (para. 2.25(b)(i));
- (b) full information on expansion area of building projects is included in the funding and Administration papers submitted to LegCo (para. 2.25(b)(ii));
- (c) for building projects with reserve areas to be built on day one for expansion in the distant future, allowance is made in the building design to facilitate interim use by third parties (para. 2.25(b)(iii));
- (d) any discrepancies between room data sheets and approved schedules of accommodation are reconciled before tender invitations (para. 3.18); and
- (e) the exact number of parking space provisions according to the approved schedule of accommodation is specified in the tender documents (para. 5.14(a)).

9. Audit has also *recommended* that the Secretary for Financial Services and the Treasury and the Government Property Administrator should promulgate the lessons learnt from the new CAD headquarters project for reference of other bureaux/departments (para. 6.11).

Response from the Administration

10. The Administration agrees with the audit recommendations.

PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit objectives and scope.

Background

1.2 The Civil Aviation Department (CAD) is committed to a safe, efficient and sustainable air transport system. Its primary functions are three-fold:

- (a) ***Provision of air traffic control (ATC) services.*** It provides ATC services and flight information to flights arriving and departing the Hong Kong International Airport (HKIA — Note 1) and aircraft flying over the 276,000 square kilometres Hong Kong Flight Information Region;
- (b) ***Regulation of the civil aviation industry.*** As a regulator, it sets aviation safety and security standards, oversees the compliance by the Airport Authority, airlines and aircraft maintenance organisations with such standards, and maintains a licensing system for aviation professionals; and
- (c) ***Investigation of aircraft accidents or serious incidents.*** It conducts the investigation of civil aircraft accidents or serious incidents that occurred in Hong Kong with the objective of preventing recurrence.

Need for a new CAD headquarters

1.3 Since the opening of the HKIA at Chek Lap Kok in 1998, the number of aircraft movements in the HKIA had increased by 72% to reach 280,000 movements in 2006. Over the same period, over-flight traffic through the Hong Kong Flight Information Region had also grown by 95% to reach 140,000 movements. In 2006, the Chief Executive of the Hong Kong Special Administrative Region announced in

Note 1: *The responsibilities to develop and manage the HKIA rest with the Airport Authority which is a statutory body established under the Airport Authority Ordinance (Cap. 483).*

Introduction

the 2006-07 Policy Agenda an initiative to replace the ATC system and develop a new CAD headquarters on the Airport Island. The need for a new CAD headquarters arose because of the following:

- (a) *Need to house a new ATC system.* The existing ATC system was designed in early 1990s and was approaching its full design/handling capacity. A new ATC system to cope with traffic growth up to 2025 would require a space three times the size of the existing ATC centre on the air-side (i.e. the restricted area) of the HKIA. Expansion of the existing ATC centre was not viable because of the lack of adjoining land and the disruption that might be caused to the existing services; and
- (b) *Need to house all operational divisions under one roof.* The CAD's headquarters and five functional divisions were scattered among four different locations (Note 2). Scattered accommodation was undesirable from operational angle as it hindered efficient communication, duplicated support services, lengthened emergency response time and prevented the CAD from providing convenient one-stop service to the aviation industry.

Implementation of the new CAD headquarters project

1.4 With the consent of the Airport Authority, a site of 28,000 square metres (m²) at the southeastern part of the Airport Island was identified for the construction of the new CAD headquarters. In November 2006, the Architectural Services Department (ArchSD) completed a study confirming that the construction project at the selected site was technically feasible.

Note 2: *The Director-General of Civil Aviation's Office, the Administration Division, the Finance Division and the Air Services and Safety Management Division were located in Queensway Government Offices, the Air Traffic Management Division in the ATC centre, the Airport Standards Division in the rent-free premises provided by the Airport Authority in the Passenger Terminal Building, the Air Traffic Engineering Services Division and the Flight Standards and Airworthiness Division in leased accommodation in the Air Freight Forwarding Centre of the HKIA.*

1.5 **Approval of schedule of accommodation.** Provision of office space and ancillary facilities in government buildings (Note 3) is governed by the procedures and space standards laid down in the Accommodation Regulations (Note 4). The aim is to provide accommodation that leads to maximum efficiency and value for money taking into account the operational, spatial, locational and timing requirements of the departments and the resources available. In October 2007, the Property Vetting Committee (PVC — Note 5) approved the schedule of accommodation of the new CAD headquarters which set out the floor area and facilities to be constructed therein.

1.6 **Funding approval.** In January 2008, the Administration obtained the Legislative Council (LegCo) Finance Committee's approval of \$1,997 million to construct a new CAD headquarters with construction floor area (CFA — Note 6) of about 65,000 m² and NOFA (Note 7) of about 22,775 m². Of the 22,775 m² NOFA, about 3,240 m² was reserved for future expansion while about 19,535 m² was provided for:

Note 3: *For a departmental specialist building which is purpose-built for specialised operations (such as the ATC centre in the case of the new CAD headquarters), the user department is responsible for seeking the approval of its proposed space and facilities requirements (in the form of a draft schedule of accommodation) and the funding for construction works.*

Note 4: *The Accommodation Regulations, made with the authority of the Chief Executive, form an integral part of the Government Regulations which regulate matters relating to the conduct of Government business. The sole authority for the interpretation and application of the Accommodation Regulations has been delegated to the Secretary for Financial Services and the Treasury who has overall policy responsibilities on accommodation matters.*

Note 5: *The PVC is established under the Accommodation Regulations to vet and approve schedules of accommodation for departmental specialist buildings. It is chaired by an Assistant Director of the ArchSD and comprises representatives of the Financial Services and the Treasury Bureau (FSTB) and Government Property Agency (GPA) as members.*

Note 6: *CFA includes all areas within the building structure envelope. Besides net operational floor area (NOFA), it includes areas for facilities such as toilets, shower rooms, lift lobbies, stair halls, public corridors, escalators, flat roofs, plant rooms and carparks.*

Note 7: *NOFA refers to the floor area actually allocated to the users for carrying out the intended activities.*

Introduction

- (a) housing a new ATC centre and its supporting equipment, systems and facilities;
- (b) relocating the CAD's functional divisions under one roof; and
- (c) adding new facilities to meet operational requirements, including:
 - (i) dedicated facilities for aircraft accident investigation;
 - (ii) a multi-purpose auditorium and conference facilities for meetings and group briefings for industry partners and staff, as well as for international and regional aviation conferences and meetings; and
 - (iii) an ATC tour presentation room and an education path to promote understanding and cultivate interest in aviation among the general public.

1.7 **Project team.** To ensure the timely completion of the new CAD headquarters project and a seamless transition to the new ATC system upon its targeted commissioning in December 2012, the CAD set up a dedicated project team to oversee the preparation and implementation of both projects. The project team headed by an Assistant Director-General of Civil Aviation was supported by a group of multi-disciplinary staff including Air Traffic Control Officers, Air Traffic Flight Services Officers, Aeronautical Communications Officers, Electronics Engineers, Senior Architect, Senior Electrical and Mechanical Engineer and non-civil service contract staff (Note 8). For the new CAD headquarters project, the project team was responsible for:

Note 8: *The team leader and 21 team members' civil service posts, including 19 Air Traffic Control Officers and 2 Electronics Engineers, were created on a time-limited basis for various periods between 2007 and 2015 at an annual staff cost of about \$29 million. Other team members were existing staff temporarily redeployed within the CAD or appointed on non-civil service contract terms. In addition, a Senior Architect and a Senior Electrical and Mechanical Engineer were temporarily seconded from the ArchSD and Electrical and Mechanical Services Department respectively to support the project team with their professional advice under the supervision of the CAD.*

- (a) providing input in its planning, tendering and design, taking into account the specialised accommodation requirements of the new ATC system; and
- (b) liaising with the works agents and monitoring the progress of the construction works.

1.8 **Construction works.** In May 2009 (Note 9), the ArchSD awarded a design-and-build contract for the construction of the new CAD headquarters with a contract sum of \$1,922 million. Contract works commencing in May 2009 were substantially completed in June 2012 (Note 10). Up to August 2014, the project account had not been finalised (Note 11).

1.9 **Commissioning of the new CAD headquarters.** In June 2012, the new CAD headquarters comprising a seven-storey Office and Training Block, a four-storey ATC Centre Block, a basement carpark, a four-storey Facilities Block and a two-storey Antenna Farm Block, was handed over to the CAD. Pictures of the new CAD headquarters and its layout plan are shown in Photographs 1 and 2, and Figure 1 respectively. With the exception of the Air Traffic Management Division (Note 12), all other functional divisions were relocated to the new CAD headquarters in phases in December 2012. In May 2013, the new CAD headquarters was officially opened.

Note 9: *Tenders for the design-and-build contract of the new headquarters were invited in February 2008. However, as none of the bids met the tender requirements, the contract was re-tendered in September 2008.*

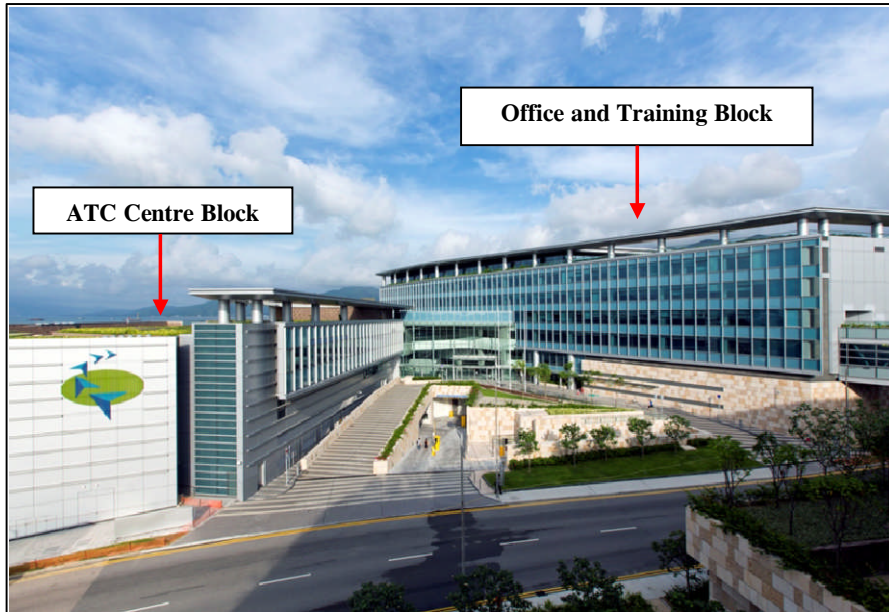
Note 10: *The original contract completion date was March 2012 which was extended to June 2012 due to inclement weather during the construction period and its subsequent effects.*

Note 11: *The contract payment made up to March 2014 was \$1,872 million which had included the net additional cost of \$3.5 million arising from 38 variation orders. Of the 38 variation orders issued, 18 involved additional works (costing \$29.6 million), 16 involved omitted works (saving of \$26.1 million) and four had no cost implications.*

Note 12: *Due to the delay in the new ATC system project, the new ATC centre had not been commissioned. Up to August 2014, three of the four sections of the Air Traffic Management Division were still operating in the old ATC centre on the air-side of the HKIA. The new ATC system project is covered in Chapter 4 of the Director of Audit's Report No. 63.*

Photograph 1

**Office and Training Block and ATC Centre Block
of the new CAD headquarters**



Source: ArchSD records

Photograph 2

Facilities Block of the new CAD headquarters



Source: ArchSD records

Figure 1

Layout plan of the new CAD headquarters



- Legend:
- A: Facilities Block (Low Block)
 - B: Facilities Block (High Block)
 - C: Office and Training Block
 - D: ATC Centre Block
 - E: Decked Connection
 - F: Antenna Farm Block

Source: ArchSD records

Audit review

1.10 The Audit Commission (Audit) has recently conducted a review of the provision of office accommodation and facilities in the new CAD headquarters with a view to identifying room for improvement. The review has focused on the following areas:

- (a) provision of reserve space for future expansion (PART 2);
- (b) control over deviations from approved schedule of accommodation (PART 3);
- (c) provision of furniture and equipment (PART 4);
- (d) provision and utilisation of car parking spaces (PART 5); and
- (e) way forward (PART 6).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

Acknowledgement

1.11 Audit would like to acknowledge with gratitude the full cooperation of the staff of the CAD and ArchSD during the course of the audit review.

PART 2: PROVISION OF RESERVE SPACE FOR FUTURE EXPANSION

2.1 This PART examines the following issues relating to the provision of reserve space for future expansion in the new CAD headquarters:

- (a) authority for providing reserve space for expansion (paras. 2.2 to 2.14);
- (b) areas for improvement (paras. 2.15 to 2.18);
- (c) optimising the use of area reserved for future expansion (paras. 2.19 to 2.22); and
- (d) areas for improvement (paras. 2.23 and 2.24).

Authority for providing reserve space for expansion

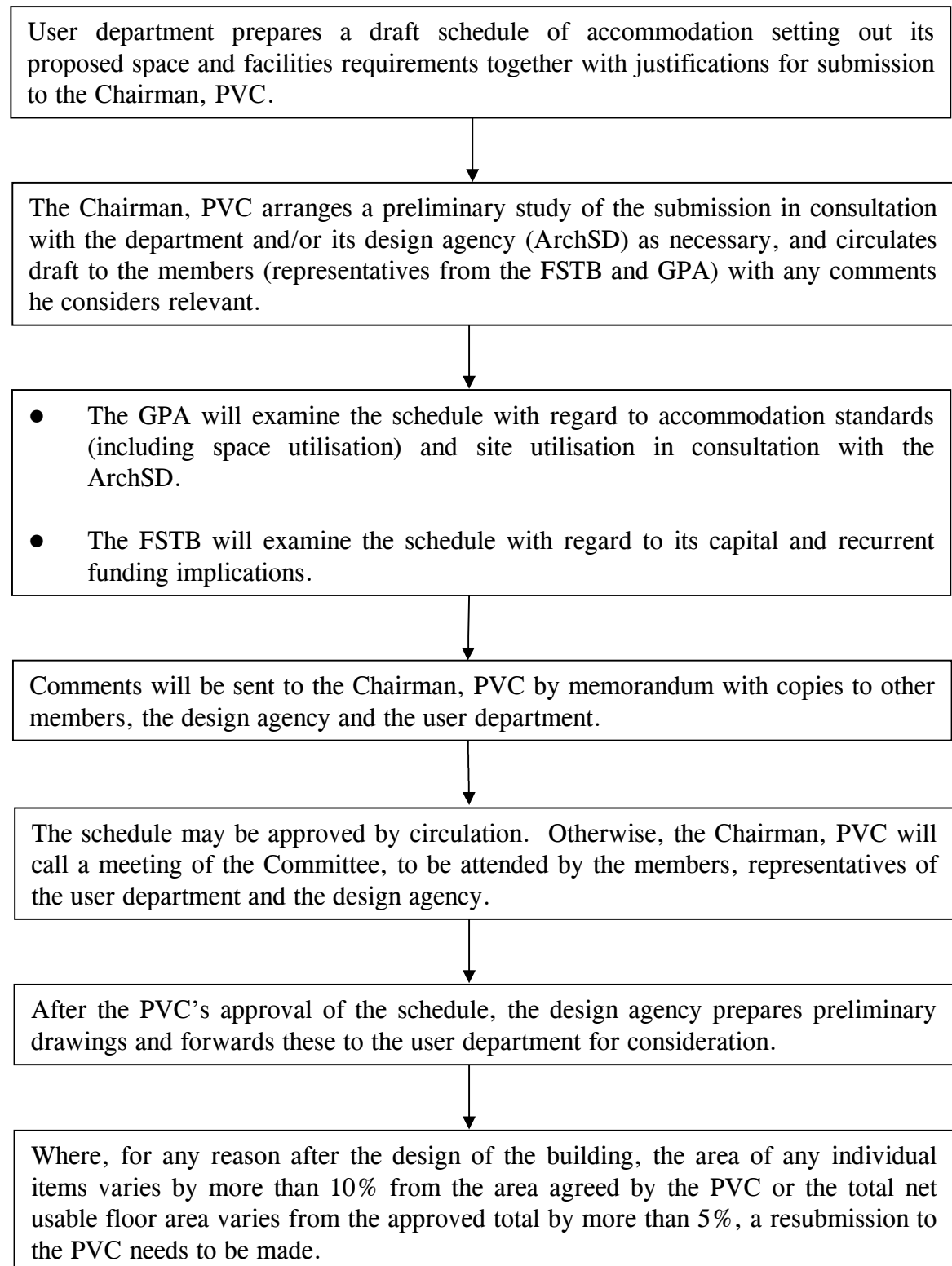
Procedures for approving schedule of accommodation

2.2 ***Accommodation Regulations.*** According to the Accommodation Regulations, schedules of accommodation must be approved by the PVC (see para. 1.5) for departmental specialist accommodation before funds are sought for any proposed additional accommodation. The laid-down procedures for processing schedule of accommodation through the PVC are shown in Chart 1.

Provision of reserve space for future expansion

Chart 1

Processing of schedule of accommodation



Source: *Accommodation Regulations*

Provision of reserve space for future expansion

2.3 ***GPA Manual.*** According to the GPA Manual:

- (a) the objectives of the GPA's vetting of schedules of accommodation are to ensure:
 - (i) compliance with the established space standards by user departments; and
 - (ii) that provision of government accommodation is fair and adequate to meet user departments' operational requirements; and
- (b) in vetting schedules of accommodation, the GPA will take into consideration factors including:
 - (i) current/proposed staffing/space provision, policy/funding support for proposed new posts/facilities/services, mode of operation, special/operational requirements, current/expected utilisation of proposed facilities/services; and
 - (ii) professional rules/guidelines/code of practice governing space provision of departmental specialist buildings.

Reserve area for future expansion in the new CAD headquarters

2.4 In April 2007, the CAD submitted a draft schedule of accommodation for its new headquarters proposing space requirements totalling 31,774 m² in terms of NOFA, comprising 26,318 m² for meeting the operational needs at the time of commissioning its new headquarters and 5,456 m² reserve area for future expansion.

2.5 When the vetting of the draft schedule of accommodation was in progress, the CAD made a further request to the GPA for an additional reserve area of 1,500 m² for expansion to cater for air traffic growth beyond 2025 (Note 13). On

Note 13: *As far as could be ascertained, there was no written documentation for the CAD's request.*

Provision of reserve space for future expansion

21 September 2007, the Transport and Housing Bureau (THB) wrote to the PVC offering its support to the CAD's request as follows:

"I (the THB) understand CAD and GPA will shortly finalise the proposed schedule of accommodation of the above project, and would like to offer our support to CAD's proposal to reserve sufficient space for future expansion to meet the demand of the aviation industry.

3..... When we briefed the Legislative Council Panel on Economic Services on the project in February 2007, Members expressed general support to the project and urged that sufficient space be provided in the new CAD building to cater for future expansion commensurate with the forecast air traffic growth.....

4..... Whilst CAD and GPA are finalising the details, I would appeal to the PVC to give the proposed schedule of accommodation favourable consideration, taking into account the strong demand of the aviation industry and the general support from LegCo.

5. Furthermore, I understand CAD is also exploring with GPA a possible further 6% (approximately 1,500 m²) reserve in expansion space to cater for air traffic growth beyond 2025. When considering this proposal, I should be grateful if the PVC will take into account the site's constraints and the expected continuing growth of the industry. Whilst the provision of this further reserve space at day one may not be justifiable, it should be possible, without significant increase in construction costs, to make provisions in the building's foundation and design to provide flexibility for this in future. In doing so, we should be able to maximise the use of the allocated land and achieve economy of scale, subject to maintaining the originally planned CFA of 65,000 m². "

2.6 On 3 October 2007, the GPA completed its vetting of the draft schedule of accommodation and informed the CAD and the PVC by a memorandum that:

- (a) the supported NOFA requirement was 22,775 m² (see Table 1 for a summary); and

Provision of reserve space for future expansion

- (b) the GPA noted that Members of the LegCo Panel on Economic Development (Note 14) had urged the provision of sufficient space to cater for future expansion and that the THB supported the CAD's proposal in this regard. The GPA therefore had no objection to include in the schedule of accommodation the expansion requirements based on the CAD's operational plan for this project.

On the same day, the CAD provided the ArchSD with the Employer's Requirements for inclusion in the tender documents (see para. 2.15(a)).

Table 1

NOFA supported by the GPA

Existing area used by the CAD in 2007-08 (a)	Area requirement supported by the GPA			Percentage of increase in area (e) = $\frac{(d) - (a)}{(a)} \times 100\%$
	For meeting operational needs upon commissioning of the new CAD headquarters (b)	For future expansion (c)	Total (d) = (b) + (c)	
9,192 m ²	19,535 m ²	3,240 m ²	22,775 m ²	148 %

Source: CAD records

Note 14: *In October 2007, the Panel on Economic Services was renamed as the Panel on Economic Development.*

Provision of reserve space for future expansion

2.7 On 22 October 2007, the PVC informed the CAD (with copies of the memorandum sent to the GPA, FSTB, THB and ArchSD) that the schedule of accommodation for the new CAD headquarters was approved subject to comments in the GPA's memorandum of 3 October 2007 (see para. 2.6) among others (Note 15).

Funding approval

2.8 After briefing the Panel on Economic Development in November 2007 about the public works project to design and construct a new CAD headquarters, the Administration invited the Public Works Subcommittee in December 2007 to recommend to the Finance Committee the upgrading of the project to Category A (Note 16). In both the Administration's papers for the Panel and the Public Works Subcommittee, Members were informed that the proposed funding of \$1,997 million was for the construction of 65,000 m² CFA, which included 22,775 m² NOFA (i.e. the area supported by the GPA and approved by the PVC).

2.9 Upon the request of Members of the Public Works Subcommittee, the Administration provided the Finance Committee in January 2008 with supplementary information on the new CAD headquarters including a comparison between the NOFA of the then existing accommodation for the CAD's functional divisions and that of the new CAD headquarters, and justifications for the additional areas required, including but not limited to information on the area required to cope with future expansion arising from the growth in air traffic (see Table 2). As shown in Table 2, the Finance Committee was informed that the area provided for future expansion was about 3,240 m². The provision of another 1,500 m² expansion area (see para. 2.5) had not been specifically mentioned.

Note 15: *On 15 October 2007, the FSTB submitted its comments to the PVC on the schedule of accommodation with regard to the recurrent funding implications. On 18 October 2007, the GPA also submitted its comments to the PVC on the utilisation of space that would be vacated by the CAD after its relocation to the new headquarters.*

Note 16: *Directors of Bureaux may schedule to seek the endorsement of the Public Works Subcommittee and the approval of the Finance Committee to upgrade a project to Category A when all necessary pre-construction preparation has been completed or substantially completed.*

Provision of reserve space for future expansion

Table 2

Comparison between NOFA of existing accommodation for the CAD's functional divisions and NOFA of its new headquarters

Offices/facilities	NOFA of existing accommodation	NOFA of new CAD headquarters		
	Existing area (m ²)	Area required (m ²)	Area provided for future expansion (m ²)	Total area (m ²)
(A) Offices (for staff)	3,068.1	3,428.1	–	3,428.1
(B) ATC facilities				
(i) ATC Centre	545.0	900.0	540.0	
(ii) Supporting equipment, systems and facilities of the ATC Centre	2,162.0	7,207.5	1,200.0	
(iii) Aeronautical Information Centre	400.0	315.0	–	
(iv) Aircraft Search and Rescue Coordination Centre	200.0	300.0	100.0	
(v) Aeronautical Network Centre	115.0	200.0	160.0	
Sub-total	3,422.0	8,922.5	2,000.0	10,922.5
(C) Other facilities				
(i) Aircraft accident investigation facilities	–	700.5	–	
(ii) Training and examination facilities	665.0	1,827.2	464.0	
(iii) Operational evaluation, research and development facilities	100.0	350.0	400.0	
(iv) Multi-purpose auditorium	–	675.0	–	
(v) Conference facilities	335.0	564.0	–	
(vi) Library cum resource centre	100.0	338.0	–	
(vii) ATC tour presentation room and education path	–	368.0	–	
(viii) Ancillary facilities	1,501.5	2,361.8	375.3	
Sub-total	2,701.5	7,184.5	1,239.3	8,423.8
Total	9,191.6	19,535.1	3,239.3	22,774.4

Source: CAD records

Provision of reserve space for future expansion

GPA's queries about extra future expansion area built

2.10 In October 2013 (after the official opening of the CAD new headquarters), the CAD sought the PVC's covering approval for the conversion of a part of the education path's circulation area into a multi-function room (see para. 3.7). In examining the CAD's request, the GPA noted that 1,500 m² reserve area for future expansion had been built in the new CAD headquarters in addition to the 3,240 m² stated in the approved schedule of accommodation (see Table 1 in para. 2.6). The GPA raised queries about the authority of building the extra 1,500 m² for future expansion as follows:

- (a) the total NOFA approved by the PVC for the new CAD headquarters on 22 October 2007 was 22,775 m² which had taken into consideration the THB's policy support for inclusion of future expansion capabilities in the design and foundation of the new headquarters buildings; and
- (b) the approved funding by the Finance Committee was for the construction of 22,775 m² which had included 3,240 m² for designated expansion purposes supported by the PVC. The 1,500 m² area built for future expansion was extra accommodation not approved by the PVC.

2.11 In response to the GPA's queries, the CAD said that:

- (a) drawing on the experience of the relocation from Kai Tak Airport to the HKIA when sufficient space was not reserved for the rapid expansion of the CAD's operations, the CAD included proposed expansion areas in the draft schedule of accommodation. In fact, in a number of LegCo Panel and Committee meetings, Members had urged the Government to ensure sufficient space be reserved for the CAD's long-term development in the new CAD headquarters project; and
- (b) in September 2007, the THB expressed its support for provision to be made in the building's foundation and design to provide flexibility for the construction of an additional space of 1,500 m² (i.e. in addition to the proposed space requirements in the CAD's draft schedule of accommodation then being vetted by the GPA) when needed in future. The THB's support was acknowledged by the GPA which did not raise any objection. It was therefore the understanding of both the CAD and ArchSD that the new building should have the provision of an additional area of 1,500 m² that could be converted for future expansion.

Audit enquiry with the ArchSD

2.12 Between May and October 2014, Audit sought clarification from the ArchSD (with an Assistant Director chairing the PVC and as works agent of the CAD) on the authority for building the extra 1,500 m² area for future expansion. In response, the ArchSD said that:

- (a) the 1,500 m² future expansion area was supported as evident in the following documents:
 - (i) the THB's memorandum of 21 September 2007 to the PVC registering support for the inclusion of further 1,500 m² reserve in expansion space (see para. 2.5);
 - (ii) the GPA's memorandum of 3 October 2007 to the CAD noting that the THB supported the proposal and that Members of the LegCo Panel on Economic Development urged that sufficient space be provided to cater for future expansion, based on which the GPA therefore expressed no objection to include in the schedule of accommodation the expansion requirements based on the CAD's operational plan for this project (see para. 2.6); and
 - (iii) the PVC's memorandum of 22 October 2007 to the CAD for the approval of the schedule of accommodation subject to the GPA's memorandum of 3 October 2007 (see para. 2.7 and (ii) above);
- (b) it was the ArchSD's understanding that the 1,500 m² undesignated future expansion area was not explicitly stated in the approved schedule of accommodation because it could not correlate to any approved future manpower provision at the time;
- (c) the feasibility of providing the additional 1,500 m² future expansion area on day one or by making provision in the building foundation and structure and the design to provide flexibility were explored from the technical and operational points of view, as follows:

Provision of reserve space for future expansion

- (i) according to the CAD's requirements, it would be necessary to maintain the connectivity and serviceability of the future expansion area in relation to the individual divisions of the CAD. The CAD specified in the Employer's Requirements that the future expansion area should be allocated to individual divisions of the CAD as parts or sub-division parts of the established office in the form of common pocket spaces that could be easily converted into offices or operational areas. Making provision in the building foundation and not building the additional 1,500 m² on day one would impede the future addition of adjacent space required for the expansion of individual functional divisions of the CAD. That is the reason why the future expansion area was provided as unenclosed (open-plan) pocket spaces at various locations in the building and included in the tender documents as part of the CFA of 65,000 m²;
- (ii) other considerations included the site constraints and unavailability of usable land in the adjacent area that would limit the potential for future extension to the building; the airport height restrictions which limited the height of the building as well as the temporary construction plants and hoisting equipment and would constrain the buildability, especially for additional structure and major alteration works;
- (iii) the specialist nature of the ATC services required continuous and uninterrupted operation. This limited the feasibility of constructing additional structure as the construction works would cause excessive vibration and noise nuisance that would affect the ATC facilities and disrupt the operation; and
- (iv) construction-wise, if only provision was made in the foundation system and the structure, the foundation system design would need to allow extra loading for the uncertain locations of the additional areas, which would result in ineffective design of the foundation system and the structure, hence higher cost. Additional structure and major alteration for the additional areas required after completion of the construction works would also result in double handling and abortive works for modification of the already constructed structure, which would lead to higher cost and disruption to the continuous and uninterrupted operation of the CAD;

Provision of reserve space for future expansion

- (d) based on the above technical considerations and the understanding that support from the GPA and PVC had been given, the 1,500 m² future expansion area was included in the tender documents as unenclosed pocket spaces at various locations in the building that could be easily converted and partitioned into offices or operational areas for future use according to the Employer's Requirements while maintaining the CFA at about 65,000 m²; and
- (e) the cost of building the 1,500 m² expansion area was included in the project estimates of the funding application submitted to the Public Works Subcommittee/Finance Committee but could not be separately identified.

Audit enquiry with the CAD

2.13 Audit also sought clarification from the CAD regarding the issue of 1,500 m² expansion area in July 2014. The CAD informed Audit that:

- (a) having considered the views of the LegCo Members expressed during the Panel on Economic Development meeting held in February 2007 and based on the GPA's support and the PVC's approval as well as technical advice from the ArchSD, the CAD had proposed to include the 1,500 m² future expansion area in the contract (see para. 2.15(a)) and the arrangement was agreed by the ArchSD; and
- (b) the provision of 1,500 m² further expansion area had not been specifically mentioned in the papers submitted to the Finance Committee because it was an undesignated expansion area not correlated to any approved future manpower provision for carrying out intended activities at the time (see Note 7 to para. 1.6).

Audit enquiry with the THB

2.14 Regarding the issue of 1,500 m² reserve space, in September 2014, the THB informed Audit that:

- (a) its memorandum of 21 September 2007 (see para. 2.5) should not be construed as the basis for the construction of additional area beyond the PVC's approval; and

Provision of reserve space for future expansion

- (b) the THB only requested consideration of flexibility in the foundation and design to allow for future expansion when warranted. The PVC is the authority in approving the schedule of accommodation for the new CAD headquarters, and its approval should be strictly observed by the CAD and ArchSD. The construction of the 1,500 m² on day one was in contradiction to the THB's policy support vide its memorandum of 21 September 2007.

Areas for improvement

Approval of schedule of accommodation

2.15 In late 2013 (over one year after the new CAD headquarters was built), it transpired that there were fundamental differences in the understanding between the ArchSD/CAD and the GPA on whether the extra 1,500 m² area built for future expansion had been approved by the PVC. The situation was unsatisfactory as according to the Accommodation Regulations, any proposed new accommodation should have been approved by the PVC before funding was sought in January 2008. In this connection, Audit noted that:

- (a) the THB acknowledged in its memorandum of 21 September 2007 that the provision of further reserve space of 1,500 m² for expansion beyond 2025 on day one might not be justifiable. It only requested the PVC to consider the possibility of making provisions in the building's foundation and design without significant increase in construction costs to provide flexibility for this in future. Although the CAD had specified in the Employer's Requirements of the tender documents on 3 October 2007 that provision should be made in the building foundation and design to allow a further expansion in NOFA of up to 1,500 m², it also specified that the expansion area of 1,500 m² should either form a detachable part of established offices or part of common areas (see para. 2.19). The requirement was subsequently included in the contract by the ArchSD (see para. 2.12(d)) which in effect required the area to be built as part of the construction project on day one;
- (b) there was no record to show that PVC members (the GPA and FSTB) had been informed of the change in requirement from making provision in the foundation and design as requested by the THB to building the 1,500 m² expansion area as day-one facilities. In fact, the GPA stated in its queries

Provision of reserve space for future expansion

to the CAD of October 2013 that it had no knowledge of the 1,500 m² expansion area built. In Audit's view, as the additional 1,500 m² constituted close to 50% of the space approved for future expansion, there is a need to draw PVC members' attention to significant change in user requirements so that they can make an informed decision on whether to support such change in the schedule of accommodation; and

- (c) the schedule of accommodation of the new CAD headquarters was approved by circulation of papers. The different understanding between the ArchSD/CAD and the GPA on whether the 1,500 m² area for expansion had been approved by the PVC highlighted the risk that the circulated papers could be subject to different interpretation. In Audit's view, the PVC needs to convene meetings for members to exchange views and seek clarifications on matters that could be subject to misunderstanding.

Information to LegCo for funding application

2.16 In October 2007 when preparing an Administration paper for briefing the Panel on Economic Development on the new CAD headquarters project, the THB consulted the CAD on whether the paper should mention that provision would be made in the building's foundation and design to allow a further expansion in NOFA up to 1,500 m² if needed in future. On 8 October 2007, the CAD advised the THB that it would suffice to inform Members that adequate provision for future expansion had been made as the cost for such provision would not be significant. In the event, the Panel on Economic Development was informed that the proposed funding of \$1,997 million was for the construction of 22,775 m² NOFA, and additional space had been earmarked to cater for the replacement of the new ATC system in the future and further expansion requirements arising from the growth in air traffic. There was no specific mentioning of the 1,500 m² expansion area which would also be built as specified in the Employer's Requirements in the tender documents (see para. 2.15(a)).

2.17 Similarly, the Public Works Subcommittee and the Finance Committee were also not informed specifically of the provision of 1,500 m² expansion area in the funding application (see paras. 2.8 and 2.9). It is unsatisfactory that such information was not included when preparing the Administration's papers on all three occasions. This was particularly so in respect of the Information Note for the

Provision of reserve space for future expansion

Finance Committee as Members had specifically requested the Administration to provide justifications for the additional areas required, including but not limited to information on the area required to cope with future expansion. The Finance Committee was informed that the area provided for expansion was 3,240 m² (see Table 2 in para. 2.9) when in fact a total of 4,740 m² (3,240 plus 1,500) would be built for future expansion.

2.18 According to Financial Circular No. 2/2006 (Note 17), the CAD and ArchSD were responsible for drafting the funding papers of the new CAD headquarters project for the Public Works Subcommittee/Finance Committee and the THB had responsibility for finalising these draft papers. The CAD and ArchSD need to draw lessons from this case and provide complete and accurate information to facilitate the THB in finalising the submissions to the LegCo Committees/Panels.

Optimising the use of area reserved for future expansion

Layout of the reserve area for expansion

2.19 Unlike the reserve area of 3,240 m² included in the approved schedule of accommodation, the additional 1,500 m² was not designated for specific expansion purposes until 2025. In October 2007, the GPA reminded the CAD that any reserve area not in active use should be made available to other users with a view to maximising the utilisation of resources. It follows that the reserve area should as far as possible be centrally located to facilitate their use by other users in the run up to 2025. However, the Employer's Requirements in the tender documents specified that:

- (a) of the 1,500 m² additional reserve area, 650 m² should form part of the established offices in the form of common spaces that could be easily converted into offices. These spaces should preferably be positioned in between divisions and sections; and
- (b) the remaining 850 m² should be connected to circulation spaces with at least 20% of the area distributed to each of the floors with offices as pocket spaces for informal gathering or meeting.

Note 17: *Financial Circular No. 2/2006 has been superseded and the requirements therein are now contained in Financial Circular No. 4/2010.*

Provision of reserve space for future expansion

2.20 In the event, the 1,500 m² additional reserve area was built as 22 pockets of space scattered over eight different floors of the Office and Training Block, and the Facilities Block. A summary of the pocket spaces and their positions are shown in Table 3 and Appendix A respectively. Photograph 3 is a picture of the largest pocket space (278 m²) on the fourth floor of the Office and Training Block.

Table 3

Summary of reserve areas for future expansion at CAD headquarters

Area no.	Location	Area (m ²)
<i>Office and Training Block</i>		
1	2/F	72.7
2		53.0
3		151.6
4		40.0
5	3/F	72.5
6		70.0
7		42.0
8	4/F	278.0
9		56.0
10		96.0
11	5/F	46.5
12		62.0
13		39.0
14		42.0
15	6/F	41.5
16		95.7
17		22.5
18		20.0
19		40.0
Sub-total		1,341.0
<i>Facilities Block</i>		
20	1/F	66.0
21	2/F	57.0
22	3/F	36.0
Sub-total		159.0
Total		1,500.0

Source: CAD records

Provision of reserve space for future expansion

Photograph 3

Area reserved for future expansion on the fourth floor of the Office and Training Block



Source: Photograph taken by Audit on 11 July 2014

Recent developments

2.21 According to Accommodation Circular No. 3/2008, the CAD as owner of the new headquarters (a departmental specialist building) has primary responsibility and is accountable for its optimal utilisation. In May and June 2014, the CAD proposed to the GPA some possible options for using the 1,500 m² additional reserve area, i.e. about 1,000 m² for 131 additional staff (Note 18), 300 m² for storing inactive records pending disposal and 200 m² for surplus furniture and equipment identified after relocation to the new CAD headquarters. In July 2014, the GPA provided the following comments on the CAD's proposal:

Note 18: *The 131 additional staff comprised 41 CAD posts created since 2008, 15 staff appointed on non-civil service contract terms, 36 additional maintenance staff of the Electrical and Mechanical Services Department and a technical services contractor, 21 agency workers and 18 proposed staff for the third runway project.*

- (a) the GPA had reminded the CAD in October 2012 not to replace furniture items unless they were of the former style or completely worn out. The furniture listed in the CAD's proposal should be accommodated within the approved area and should not constitute a reason for additional spaces; and
- (b) store rooms had been included in the approved schedule of accommodation. The CAD should consider off-site storage of the records pending disposal.

2.22 In August 2014, the CAD informed the GPA that the proposed use of the area for storing surplus furniture and inactive records was temporary in nature. The CAD also requested more office space as the number of additional staff had increased from 131 to 133. The GPA sought further clarifications from the CAD on the additional posts and received the CAD's response on 8 and 17 October 2014 confirming that the number of staff requiring additional accommodation should be 119. On 24 October 2014, the PVC approved the CAD's request to use 926 m² of the 1,500 m² reserve area for accommodating 119 additional staff. Thereafter, the GPA has reminded the CAD to carry out an overall review of the space utilisation of the new CAD headquarters with a view to identifying any other vacant space that should be put into optimal use in addition to the remaining reserve area of 574 m² (1,500 minus 926).

Areas for improvement

Need to consider interim use of reserve area built for future expansion

2.23 The PVC approved in 2007 an area of 3,240 m² for the CAD's future expansion. This expansion space together with the area of 19,535 m² planned for meeting operational needs upon commissioning of the new CAD headquarters, represented a 148% increase in area over the area used by the CAD in 2007-08. Planned for meeting air traffic growth beyond 2025, the 1,500 m² reserve area was not expected to be required by the CAD for some years after the commissioning of its new headquarters in 2013. This reserve area was built as 22 pockets of space scattered over eight different floors of the CAD headquarters on the basis that they would allow for future expansion of different divisions while keeping the necessary replanning and renovation works to a minimum. However,

Provision of reserve space for future expansion

such arrangement is not conducive to gainful interim use by other users. The incident highlights the need to give due consideration to interim use of reserve areas built for expansion in the distant future to ensure optimal utilisation of accommodation.

Need for a review of space utilisation in the CAD premises

2.24 In 2014, the CAD proposed to the GPA various options for using the 1,500 m² additional reserve area (see paras. 2.21 and 2.22). However, the CAD had not provided a full account of how the reserve space of 3,240 m² included in the approved schedule of accommodation for expansion had been utilised. Audit's field visits in July 2014 revealed that some of the 3,240 m² reserve space had not been fully utilised. Examples included the expansion areas of 200 m² for "trial equipment room" and 305 m² for "operational evaluation and human machine interface development" on the ground and second floors of the Office and Training Block (see Photographs 4 and 5). Audit also noted that the relocation of the entire Air Traffic Management Division to the new ATC centre might take place in 2015 (see para. 1.9). After the relocation, some 1,960 m² NOFA would be vacated in the old ATC centre on the air-side of the HKIA (Note 19). In Audit's view, there is a need for an overall review of the space utilisation of the CAD premises taking into account the timing and operational requirements in its latest expansion plan with a view to identifying any surplus space that should be made available to other users.

Note 19: *According to the CAD, in response to a request from the GPA in 2007, the CAD had approached potential users of the space to be vacated but received no request at that time. In 2013, the CAD received a request from the Hong Kong Observatory for some office spaces.*

Provision of reserve space for future expansion

Photograph 4

Trial equipment room



Source: Photograph taken by Audit on 11 July 2014

Photograph 5

Area designated for operational evaluation and human machine interface development



Source: Photograph taken by Audit on 23 July 2014

Audit recommendations

2.25 Audit has *recommended* that the Director of Architectural Services should:

- (a) remind client departments to timely inform the PVC of significant changes in user's accommodation requirements so that the PVC can make an informed decision on whether to support such changes in the schedule of accommodation; and**
- (b) take measures to ensure that:**
 - (i) PVC meetings should be convened for members to exchange views and to clarify understanding on important matters which could be subject to different interpretation;**
 - (ii) full information on expansion area of building projects is included in the Public Works Subcommittee/Finance Committee submissions and in the Administration papers for prior consultation with the relevant LegCo Panels; and**
 - (iii) for building projects with reserve areas to be built on day one for expansion in the distant future, allowance is made in the building design, after consultation with the user departments, to facilitate interim use of the areas by third parties.**

2.26 Audit has *recommended* that the Director-General of Civil Aviation should:

- (a) take measures to ensure that:**
 - (i) the tender specifications for new building projects adhere strictly to the approval given by the PVC;**
 - (ii) in case of subsequent significant changes in user requirements, a resubmission is made to the PVC; and**

- (iii) for building projects with reserve areas to be built on day one for expansion in the distant future, allowance is made in the building design to facilitate interim use of the areas by third parties;
- (b) take steps to ensure that full information on expansion area of building projects is included in the Public Works Subcommittee/Finance Committee submissions and in the Administration papers for prior consultation with the relevant LegCo Panels; and
- (c) in consultation with the Government Property Administrator, conduct an overall review of the space utilisation of the CAD premises taking into account the timing and operational requirements in the CAD's latest expansion plan with a view to identifying any surplus space that should be made available to other users.

2.27 Audit has *recommended* that the Secretary for Transport and Housing should regularly remind departments under his purview to take steps to ensure that full information on expansion area of building projects is provided in the Public Works Subcommittee/Finance Committee submissions and in the Administration papers for prior consultation with the relevant LegCo Panels.

2.28 Audit has also *recommended* that the Secretary for Financial Services and the Treasury and the Government Property Administrator should remind user departments and works agents of building projects with reserve areas to be built on day one for expansion in the distant future to make allowance in the building design to facilitate interim use of the areas by third parties.

Response from the Administration

2.29 The Director of Architectural Services agrees with the audit recommendations in paragraph 2.25. He has said that the Chairman, PVC has reminded Heads of Department the importance of timely submission of schedules of accommodation to the PVC for approval. The ArchSD will also remind officers of the lessons learnt and the audit recommendations.

Provision of reserve space for future expansion

2.30 The Director-General of Civil Aviation agrees with the audit recommendations in paragraph 2.26.

2.31 The Secretary for Transport and Housing accepts the audit recommendation in paragraph 2.27.

2.32 The Secretary for Financial Services and the Treasury accepts the audit recommendation in paragraph 2.28. He has said that:

- (a) under the Government's accommodation policy, the provision of office accommodation should achieve maximum efficiency and value for money, and take into account the resources available and the operational, spatial, locational and timing requirements of the departments concerned. As an established practice, requests for areas for future expansion are considered on a case-by-case basis by the GPA for general office accommodation and the PVC for departmental specialist accommodation. The GPA and PVC will support a request only if it is fully justified on policy or practical grounds; and
- (b) to ensure optimal use of limited land and accommodation resources, departments are required, and regularly reminded, to take expeditious action to put to use any surplus accommodation, including accommodation which is surplus in the short term. The FSTB will accordingly ask the GPA and PVC to include a note in the approval memorandum to remind the user departments and the works agents to make allowance in the building design to facilitate interim use of any areas for future expansion by third parties. The design flexibility to facilitate interim use should be practicable and driven by cost-effectiveness considerations, with due regard to the relocation costs for both the user department(s) and the interim user(s), and the interim period envisaged.

2.33 The Government Property Administrator accepts the audit recommendation in paragraph 2.28. He has said that requests for areas for future expansion are considered on a case-by-case basis subject to justifications. For general office accommodation, a note will be included in the approval memorandum to remind the user departments and the works agents to make allowance in the building design to facilitate interim use of the areas concerned by third parties.

PART 3: CONTROL OVER DEVIATIONS FROM APPROVED SCHEDULE OF ACCOMMODATION

3.1 This PART examines the provision of the following three facilities in the new CAD headquarters which were not approved items in the schedule of accommodation and suggests areas for improvement in the control over such deviations:

- (a) toilet/shower facilities in the Director-General of Civil Aviation's office (paras. 3.2 to 3.5);
- (b) recreational facilities in the multi-function room (paras. 3.6 to 3.8);
- (c) rest rooms for accident investigators (paras. 3.9 to 3.12); and
- (d) areas for improvement (paras. 3.13 to 3.17).

Toilet/shower facilities in the Director-General of Civil Aviation's office

3.2 According to the Government's laid-down guidelines, the provision of shower facility for staff requires the approval of the GPA/PVC whereas toilet facility to be designed by the project architect is exempted. In the draft schedule of accommodation (see Chart 1 in para. 2.2) of April 2007, the CAD proposed the provision of toilet/shower facilities in the Director-General of Civil Aviation's office (Note 20). In June 2007, pending the result of the GPA's vetting of the draft

Note 20: *In justifying its proposal, the CAD said that as the Chief Inspector of Accidents who would take charge of the Accident Investigation Division in the event of aircraft accident, the Director-General of Civil Aviation would be in the office at small hours or overnight. The shower facility was also necessary when he was required to attend official functions or meet the media from time to time and sometimes within short notice.*

Control over deviations from approved schedule of accommodation

schedule of accommodation, the CAD submitted room data sheets (Note 21) to the ArchSD for preparing tender documents in order to meet the programme of the new CAD headquarters project. The room data sheet for the Director-General's office which was prepared based on the draft schedule of accommodation included the proposed toilet/shower facilities. However, in August and September 2007, the GPA informed the CAD that it did not support the proposed shower facility having regard to the provision for other Heads of Department with similar roles and ranks. As a result, the schedule of accommodation approved by the PVC in October 2007 did not include a shower facility in the Director-General's office.

3.3 Upon receipt of the approved schedule of accommodation, the CAD forwarded the same to the ArchSD together with the unrevised room data sheet for the Director-General's office (i.e. still incorporating the toilet/shower facilities) which were included as part of the Employer's Requirements in the tender documents. Upon award of the design-and-build contract for the new CAD headquarters in May 2009, the Employer's Requirements became part of the contract requirements. From 2009 to 2012, the design drawings for the Director-General's office with toilet/shower facilities submitted by the contractor were approved by the ArchSD after consulting the CAD. In the event, the Director-General's office was built with the toilet/shower facilities.

3.4 In August 2013, there were media reports on the provision of the toilet/shower facilities in the Director-General's office. Noting that the toilet/shower facilities were not included in the approved schedule of accommodation, the FSTB requested the CAD to clarify the situation. In September and December 2013, the CAD informed the FSTB and THB that:

- (a) while it was understood that the shower facility was not supported by the PVC, it was retained in the room data sheet in order to make a reserve in the contract on the assumption that the CAD would further pursue the request with the GPA;

Note 21: *The room data sheet is a standard template designed by the ArchSD for the user department to specify its requirements such as finishes, fixtures and furniture, lighting provision and other special needs. The room data sheet facilitates the ArchSD in the collection, checking, alignment and control of room requirements.*

Control over deviations from approved schedule of accommodation

- (b) while the CAD project team had not further pursued the request with the GPA, they assumed that queries about the discrepancies between the approved schedule of accommodation and the room data sheet would be raised during the tender preparation. Notwithstanding the discrepancies, tender preparation continued on the understanding that request for the GPA's support of the toilet/shower facilities would be pursued further;
- (c) the detail design and construction stage proceeded according to the information included in the contract as it was believed that the works carried forward in the previous stages were in order; and
- (d) the failure to amend the room data sheet to reflect the provision allowed in the approved schedule of accommodation had led to the provision of the toilet/shower facilities. After consulting the ArchSD and GPA, it was suggested to convert the toilet/shower facilities into a store room (Note 22).

Audit enquiry with the ArchSD

3.5 In July 2014, Audit sought the ArchSD's clarification on the reasons for including in the tender documents and contract the toilet/shower facilities which were not approved by the PVC. In response, the ArchSD said that:

- (a) the provision was made on the understanding that the CAD would further pursue the GPA's acceptance of the shower facility and would align the room data sheet and the approved schedule of accommodation afterwards. Including such requirement in the tender documents would avoid subsequent claims from the contractor for variation works should the shower facility be accepted by the GPA; and
- (b) during the contract stage, detail design and construction also proceeded on the understanding that the CAD would continue to pursue the provision with the GPA for approval. It would be judicious and technically sound to reserve the space and the provision in the design, especially for this

Note 22: *In December 2013, works for converting the toilet/shower facilities into a store room were completed at a cost of \$4,200.*

Control over deviations from approved schedule of accommodation

project with a tight programme, for purposes such as locating the toilet/shower facilities away from the water sensitive accommodation and making provision for water carrying services. Otherwise, rework of complicated building services (hence abortive works) would be resulted if the GPA's approval was obtained after commencement of works based on a design without such facilities. From late 2009 to 2011, the CAD was consulted on several occasions about the layout plans of the Director-General's office with the toilet/shower facilities prepared by the contractor.

Recreational facilities in the multi-function room

3.6 In accordance with the space standards laid down in the Accommodation Regulations, a recreation room totalling 77.6 m² was included in the approved schedule of accommodation. For the purpose of holding meetings, 11 conference rooms and a multi-purpose auditorium totalling 1,164 m² were also provided. However, in addition to the aforesaid recreation room and conference facilities, a multi-function room of 70 m² (for recreational and meeting purposes) not included in the approved schedule of accommodation was also built. In August 2013, there were media reports questioning the recreational facilities installed in the multi-function room, i.e. mirrors with handrails and timber floor resembling those of a dance room.

3.7 According to CAD records, the multi-function room was built at a space which had originally been a part of the education path (Note 23) as follows:

- (a) in the approved schedule of accommodation of October 2007, two areas totalling 350 m² were endorsed for education purposes, i.e. a visitor lounge to receive visitors on arrival and an ATC tour presentation room

Note 23: *The education path in the new CAD headquarters is configured into three different sections, each with a particular theme illustrated by the related exhibits. The first section provides the visitors with a general view of Hong Kong's aviation history and principal functions of the CAD. The second section focuses on aviation safety and the third section provides basic information on air traffic management and accident investigation. The education path involves a total area of 735 m². The numbers of visitors were 5,163 in 2013 and 6,370 in 2014 (up to June).*

Control over deviations from approved schedule of accommodation

to brief them before they tour around various facilities along the education path. In the course of discussion of the draft schedule of accommodation, the CAD informed the GPA (which did not raise any objection) that some circulation areas linking up the visitor lounge and facilities along the education path would be determined by the project architect (of the contractor) to satisfy the design requirements, i.e. their capacity must be adequate to handle the tour and group movements;

- (b) in 2010, the project architect in consultation with the ArchSD determined that a control tower simulator viewing gallery (on the third floor of the Office and Training Block) would be provided to enable visitors to view the ATC training in progress inside the new control tower simulator (which would be housed in a double-storey room spanning the second and third floors). The arrangement was based on the design of the then control tower simulator. However, in late 2010 during the detail design of the new control tower simulator, it was noted that due to a different technology adopted for the new simulator, visitors would not be able to view the training sessions in the originally planned viewing gallery; and
- (c) in January 2011, the CAD requested the ArchSD to convert the viewing gallery into a multi-function room. However, there was no record to show how the recreational facilities in the multi-function room and their intended usages were determined, and why the GPA's approval for the conversion was not sought at that time.

3.8 In its reports on the multi-function room submitted to the FSTB and THB in September and December 2013, the CAD said that:

- (a) the multi-function room was equipped with a basic multi-media presentation unit to play back recorded videos of the ATC training inside the control tower simulator. When not in use by visitors, the room could be used for meetings and staff recreation to maximise utilisation. To accommodate staff recreational activities which included lunchtime yoga and other de-stress exercises, mirrors and timber floor were adopted;

Control over deviations from approved schedule of accommodation

- (b) since the change was only intended to achieve a more flexible use of available resources, the GPA's approval was not sought at that time. In hindsight, the CAD should have exercised a higher degree of prudence with any variation in the use of the approved area and sought the GPA's approval in advance; and
- (c) to allay the public's concern about the usage of the room, it was suggested to remove the handrails and permanently cover the mirrors.

With the PVC's agreement in November 2013 to convert the multi-function room into a meeting room, the conversion works were completed at a cost of \$1,800 in December 2013.

Rest rooms for accident investigators

3.9 After the media reports of August 2013 on the toilet/shower facilities and the multi-function room, the CAD reviewed other room data sheets and the approved schedule of accommodation. The review revealed a further case of deviation from the approved schedule of accommodation in relation to the provision of rest rooms for accident investigators.

3.10 According to CAD records, the sequence of events leading to the deviation was as follows:

- (a) in the draft schedule of accommodation of April 2007, the CAD proposed the provision of 20 rest rooms (totalling 360 m²) for overseas accident investigators (Note 24). In early June 2007, the GPA requested the CAD to provide cost-and-benefit analysis for its proposal having regard to the fact that the need for accident investigation was not frequent and that there were alternative options like hotels;
- (b) in mid-June 2007, the CAD provided further justifications to the GPA and submitted the room data sheets for the entire new headquarters to the ArchSD for processing. The room data sheet for the accident investigators' rest rooms required the provision of shower and toilet facilities but without specifying the number of rooms;

Note 24: *According to the CAD, the investigators might not be able to return to their hotels to take rest during the first two days of an accident when the collection of evidence was time critical.*

Control over deviations from approved schedule of accommodation

- (c) after further discussions, the GPA and CAD finally agreed in September 2007 on the provision of a common rest area of 123 m² (accommodating a total of 22 investigators) which was approved by the PVC. In October 2007, the CAD submitted the approved schedule of accommodation and updated room data sheets to the ArchSD for preparing tender documents. In the front cover of the room data sheet for the investigators' rest rooms, the number of room was specified to be one;
- (d) in November 2007, the CAD amended the number of rooms in the front cover of the room data sheet from one to seven and added in the inner page a requirement that this schedule of accommodation item consisted of six rest rooms each with individual toilet and one common room with a toilet. However, the reason for the amendment was not documented; and
- (e) in May 2008, the front cover of the room data sheet was amended from seven rooms to one room by the CAD. However, the inner page was not amended, i.e. the requirement of six rest rooms and one common room each with a toilet was not removed. Upon award of the design-and-build contract for the new CAD headquarters in May 2009, the room data sheet became part of the Employer's Requirements in the contract. In the event, six rest rooms and one common room (totalling 131 m²) were built instead of the common rest area (of 123 m²) approved by the PVC.

Audit enquiry with the ArchSD

3.11 In July 2014, Audit sought the ArchSD's clarification on the discrepancy in building the rest rooms for accident investigators. In response, the ArchSD said that:

- (a) during the tender preparation, it was understood that individual rest rooms for the investigators were not supported. However, the room data sheet provided by the CAD specified six rest rooms. Based on the understanding that the CAD would further pursue the GPA's acceptance of the rest rooms and would align the room data sheet and the approved schedule of accommodation afterwards, the requirement for six rest rooms was retained in order to make a reserve in the contract. Including such requirement in the tender documents would avoid subsequent claims from

Control over deviations from approved schedule of accommodation

the contractor for variation should the individual rest rooms be accepted by the GPA; and

- (b) during the contract stage, detail design and construction also proceeded on the understanding that the CAD would continue to pursue the provision with the GPA for approval. It would be judicious and technically sound to make a reserve in the design, especially for this project with a tight programme. Otherwise, abortive works would be resulted if the GPA's approval was obtained after commencement of works based on a design without such facilities. From late 2009 to 2010, the CAD was also consulted on several occasions about the layout plans of the investigators' rest rooms prepared by the contractor.

Recent developments

3.12 Up to August 2014, the CAD had not informed the GPA or FSTB about the deviation from the approved schedule of accommodation in relation to the provision of rest rooms for accident investigators. According to the CAD, it had been discussing with the ArchSD on ways to rectify the deviation, and would provide a written report to the GPA and FSTB as soon as the corrective action plan was finalised with the ArchSD.

Areas for improvement

3.13 The laid-down procedures for vetting and approving schedules of accommodation for new government buildings are to ensure compliance with the established space standards by user departments, and that provision of accommodation is fair and adequate to meet user departments' operational needs. It is unsatisfactory that three of the facilities in the new CAD headquarters were not built in accordance with the approved schedule of accommodation, not conforming to the Accommodation Regulations.

Need to tighten the control over room data sheet

3.14 In design-and-build contracts, user departments are required to prepare room data sheets to specify their detailed fixture and finishing requirements for individual rooms. For both the provision of toilet/shower facilities in the

Control over deviations from approved schedule of accommodation

Director-General of Civil Aviation's office and the rest rooms for accident investigators, the room data sheets prepared by the CAD were at variance with the approved schedule of accommodation. However, the ArchSD incorporated these room data sheets as part of the Employer's Requirements in the contract based on the understanding that the CAD would seek the GPA's acceptance. In response to Audit's enquiry, the ArchSD said that there could be contractual claim and/or abortive works if provision was not made in the contract and the GPA's approval was eventually obtained. However, it should be noted that there was also a risk of contractual claim and/or abortive works if the CAD failed to obtain the necessary approval for the contracted works and additional works had to be done to revert to the approved condition. In Audit's view, the ArchSD needs to draw lessons from these two cases and tighten the control over room data sheets to ensure that any discrepancies with the approved schedule of accommodation are reconciled before tender invitation.

3.15 In this connection, the ArchSD has informed Audit that it has developed and implemented an electronic-room data sheet information system since May 2014 to facilitate the collection and alignment of room requirements for a project through the use of the electronic room data sheet. The system has a built-in automated checking mechanism to compare the accommodation requirements in the approved schedule of accommodation with the room data sheet. The checking mechanism can highlight discrepancies between the approved schedule of accommodation and room data sheet in respect of incorrect room sizes, accommodation without schedule of accommodation approval and incorrect form of accommodation (cellular office versus open plan). In using the system, the discrepancies can be clarified before completion of the tender documents. In addition, the Chairman, PVC has also reminded Heads of Department the importance of timely submission of schedules of accommodation to the PVC for approval.

Need for PVC's approval for deviations from the approved schedule of accommodation

3.16 According to the CAD and ArchSD, the provision of toilet/shower facilities in the Director-General of Civil Aviation's office and the rest rooms for accident investigators was made on the understanding that the CAD would seek the GPA's acceptance of the deviations from the approved schedule of accommodation. However, it turned out that the CAD did not follow up on the matters and there was no record to show why it had not done so.

Control over deviations from approved schedule of accommodation

3.17 In the case of the multi-function room which was built on the space originally planned for a viewing gallery, there was no record on how its converted use (for recreation and meetings) and fixture requirements were determined. Given that areas for recreation and meeting purposes had already been provided for in the approved schedule of accommodation (see para. 3.6), change in the use of the viewing gallery area for these purposes constituted an increase in the approved provision. The CAD should have obtained the PVC's prior approval in this regard.

Audit recommendations

3.18 **Audit has *recommended* that the Director of Architectural Services should keep under review the implementation and effectiveness of the electronic-room data sheet information system to ensure that any discrepancies between room data sheets and approved schedules of accommodation are reconciled before tender invitations.**

3.19 **Audit has *recommended* that the Director-General of Civil Aviation should:**

- (a) **step up the checking of user requirements to be included in the tender documents of building projects to ensure consistency with the approved schedules of accommodation;**
- (b) **seek the PVC's approval before making any significant changes to the allowed facilities/provision in the approved schedules of accommodation when handling similar building projects in future;**
- (c) **take measures to ensure that important decisions made in building projects are properly documented; and**
- (d) **consult the GPA and FSTB on the way forward in dealing with the discrepancy in the provision of rest rooms for accident investigators.**

Response from the Administration

3.20 The Director of Architectural Services agrees with the audit recommendation in paragraph 3.18. He has said that the Chairman, PVC has reminded Heads of Department the importance of timely submission of schedules of accommodation to the PVC for approval. The ArchSD will continue to review the electronic-room data sheet information system to ensure that client departments will reconcile the discrepancies between room data sheets and approved schedules of accommodation before tendering.

3.21 The Director-General of Civil Aviation agrees with the audit recommendations in paragraph 3.19.

3.22 The Government Property Administrator has said that the discrepancy in the area of the rest rooms for accident investigators is about 8 m² (see para. 3.10(e)). It may not be cost-effective to reinstate the rest rooms back to one common room. The GPA will ask the CAD to ensure that the area would be able to accommodate a minimum of 22 investigators (i.e. the purpose of the provision of a common rest area as approved by the PVC) at any one time.

PART 4: PROVISION OF FURNITURE AND EQUIPMENT

4.1 This PART examines the provision of furniture and equipment for the new CAD headquarters and suggests areas for improvement.

Approval for purchase of furniture and equipment

4.2 Financial Circular No. 9/90 sets out the arrangements for seeking approval for the purchase of furniture and equipment for projects in the Public Works Programme as follows:

- (a) Controlling Officers for Capital Works Reserve Fund heads may not allocate funds to user departments or commit funds themselves for the purchase of furniture and equipment without the prior approval from the following authorities:
 - (i) in the case of standard office furniture and appliances including telephone systems, the Controlling Officer/user department should seek approval from the GPA by providing details of the items required, their estimated cost and the justification for the requirement; and
 - (ii) in the case of other furniture requirements (i.e. non-standard furniture) and all equipment items, the Controlling Officer/user department should seek approval from the FSTB; and
- (b) where, as a result of increases in prices, under-estimation or changes in requirements, the amount approved becomes insufficient, the Controlling Officer/user department must seek approval of the FSTB/GPA for the allocation of additional funds, giving full justification for the increase sought.

4.3 Of the \$1,997 million approved by the Finance Committee in January 2008 for the construction of the new CAD headquarters (see para. 1.6), \$140 million was earmarked for the purchase of furniture and equipment. From

Provision of furniture and equipment

2010 to 2012, the CAD obtained approvals from the FSTB and GPA to deploy funds from the project vote for the purchase of furniture and equipment at an estimated cost of \$106.2 million. Up to May 2014, the expenditure in this regard totalled \$97.04 million. Table 4 is a breakdown of the approved items and the related expenditure.

Table 4

Approved purchase of furniture and equipment and amount spent (as at 31 May 2014)

Item	Approval date	Approved item	Approved amount (\$ million)	Actual expenditure (\$ million)
<i>Non-standard furniture and equipment items approved by the FSTB</i>				
1	3.9.2010	Four electronic systems	23.96	21.77
2	31.5.2012	Security and electronic systems to be provided by the design-and-build contractor, including integrated security management systems, public address and intercommunication systems, and miscellaneous furniture and equipment items for the ATC tour presentation room and education path	67.45	64.54
3	31.5.2012	Specialised furniture and equipment for examination rooms	1.14	1.12
4	19.7.2012	Non-standard furniture for conference facilities, general offices and canteen	4.64	2.70
5	13.8.2012	Specialised furniture and equipment for accident investigation facilities and training facilities	7.66	5.58
<i>Standard furniture items approved by the GPA</i>				
6	31.10.2012	Standard furniture items	1.35	1.33
Total			106.20	97.04

Source: CAD records

Remarks: Pursuant to the requirements set out in Financial Circular No. 9/90, the CAD was authorised by the ArchSD (i.e. Controlling Officer of the new CAD headquarters project vote) to purchase items 1 and 3 to 6 through allocation warrants. The provision of the security and electronic systems (item 2 above) was included in the design-and-build contract.

Security and electronic systems purchased under the design-and-build contract

4.4 The security and electronic systems to be provided by the design-and-build contractor (see item 2 of Table 4 in para. 4.3) were specified in the Employer's Requirements in the tender documents. In May 2009 when the new CAD headquarters contract was awarded to the design-and-build contractor, the Government was contractually bound to acquire the specified systems at the tendered price of \$67.45 million. However, the CAD did not seek the FSTB's approval for the purchase of such systems until February 2011 (21 months later), which did not conform to the requirements of Financial Circular No. 9/90 that funds should not be committed for the purchase of equipment without the prior approval of the FSTB. Both the CAD (the user department) and the ArchSD (the Controlling Officer) should draw lessons from this case.

Video display equipment for electronic systems

4.5 In November 2009, the CAD sought approval from the FSTB for the procurement of four electronic systems (see item 1 of Table 4 in para. 4.3). In justifying the proposed purchase, the CAD informed the FSTB of the following:

- (a) ***Multi-media presentation system.*** The system (estimated to cost \$16.99 million) would be provided at various venues (20 locations) including the auditorium, conference rooms, lecture rooms, workshops and ATC tour presentation room to facilitate high quality presentation, interactive training, holding of meetings and conferences with representatives from overseas authorities, international organisations and airline operators. Depending on the functional need of each venue, the system would include a combination of different equipment such as video projector and screen, video and tele-conferencing system, and audio/video playback and recording system;
- (b) ***Simultaneous interpretation system.*** The system (estimated to cost \$3.98 million) would facilitate holding international conferences in the auditorium;

- (c) ***Integrated information display system.*** The system (estimated to cost \$1.99 million) would include the provision of 50 liquid crystal display (LCD) video display units in common areas such as main entrance, lift lobbies, canteen, conference rooms, training and examination rooms. The sizes of the LCD video display units would mainly be 22-inch, with some of 26-inch for large lobbies and main entrance. The system would disseminate departmental announcements/news to staff, serve as a web-based room booking system and display meeting/event details for visitors not familiar with the CAD venues; and
- (d) ***Radio frequency identification library management system.*** The system (estimated to cost \$1 million) would provide self-service library management system for registration, tracking and inventory control of library items.

4.6 Regarding the integrated information display system, in January 2010, the FSTB questioned whether it was more cost-effective if meeting details were displayed in lift lobbies on a floor basis instead of outside each conference/meeting room, and requested the CAD to consider reducing its requirement for 50 LCD video display units. In response, the CAD said that as the office layout was longitudinal in shape, it would be difficult for visitors to walk back a long distance to view information in lift lobby. The CAD maintained the view that 50 LCD video display units were the minimum requirement for effective information dissemination.

4.7 After obtaining the FSTB's approval for the purchase of the four electronic systems in September 2010, the CAD engaged the Electrical and Mechanical Services Trading Fund (Note 25) as its procurement agent. Through the Electrical and Mechanical Services Trading Fund and its Supplies Section, the CAD purchased a total of 143 LCD video display units, i.e. 93 units more than the 50 mentioned in the CAD's applications to the FSTB for approval (see Table 5). In other words, the justifications for these extra units had not been vetted by the FSTB. Audit's findings and the CAD's explanations on these purchases are detailed in paragraphs 4.8 to 4.13 below.

Note 25: *The Electrical and Mechanical Services Trading Fund is the trading arm of the Electrical and Mechanical Services Department, providing electrical and mechanical services to other government departments.*

Provision of furniture and equipment

Table 5

LCD video display units purchased and the FSTB approved quantities

Date of purchase	Procurement through	Number of LCD video display units purchased		FSTB's approved quantities
November 2011	Electrical and Mechanical Services Trading Fund	(a) for multi-media presentation system	79	0 (see para. 4.8(a))
		(b) for integrated information display system	57	50
November and December 2012	CAD Supplies Section	(c) for upgrading	7	0
Total			143	50

Source: Audit analysis of CAD records

Video display equipment for multi-media presentation system

4.8 Of the 143 LCD video display units purchased, 79 (Note 26) with a total cost of \$1.4 million were used for the multi-media presentation system. Audit found that:

- (a) LCD video display unit was not specifically mentioned in the CAD's equipment list for the multi-media presentation system which was approved by the FSTB in September 2010 (see para. 4.5(a) and the CAD's explanations in para. 4.9(a) and (b));

Note 26: *The sizes of the 79 LCD video display units vary, i.e. 5 units are of 22-inch, 27 units of 42-inch, 10 units of 46-inch, 17 units of 52-inch, 4 units of 55-inch and 16 units of 65-inch.*

- (b) in January 2011, the Electrical and Mechanical Services Trading Fund advised the CAD that some of the venues for installing multi-media presentation system (such as the auditorium and conference rooms) would be provided with other equipment (such as video projector/screen set) serving the same display function. The Electrical and Mechanical Services Trading Fund suggested the CAD to review the operational need for LCD video display units in these venues to see if there was scope for cost saving. However, Audit noted that 14 venues were equipped with both video projector/screen sets and LCD video display units (see Table 6 and the CAD's explanation in para. 4.9(c)); and

- (c) according to the CAD's funding application to the FSTB, the multi-media presentation system would be provided at various locations (such as the multi-purpose auditorium, conference rooms, lecture rooms and other special purpose common facilities) to facilitate high quality presentation, interactive training and holding of meetings. However, Audit noted that only 41 of the 79 LCD video display units were provided in dedicated meeting/training facilities. The remaining 38 display units were provided in the following locations:
 - (i) 28 display units were installed in individual offices of 22 senior staff (Note 27) and 6 accident investigator rest rooms (which are not approved items on the schedule of accommodation — see para. 3.9). Of these 22 senior staff, 9 were accommodated on the sixth floor of the Office and Training Block where there were two meeting rooms equipped with LCD video display units (see the CAD's explanation in para. 4.9(b)); and

 - (ii) 10 display units were installed in the following four venues that were not used for training and meeting: four units (three units of 65-inch and one unit of 46-inch) in the canteen, three units (42-inch) in the common room of the ATC Centre Block; two units (65-inch) in the recreation room, and one unit (52-inch) in the library/aviation resources centre (see the CAD's explanation in para. 4.9(d)).

Note 27: *They were installed inside the offices of the Director-General of Civil Aviation, Deputy Director-General of Civil Aviation, 5 Assistant Directors-General, 6 Chief Operations Officers, 5 Chief Air Traffic Control Officers, 2 Chief Electronics Engineers, the Chief Treasury Accountant and the Departmental Secretary.*

Provision of furniture and equipment

Table 6

**Venues equipped with both video projector/screen sets and
LCD video display units**

Building	Venue	Number of video projector/ screen sets	Number of LCD video display units (size in inch)
Facilities Block	Accident Investigation Command Centre (Note 1)	2	4 (55-inch)
Office and Training Block	Auditorium	3	5 (22-inch) (Note 2)
	Conference Room A	2	2 (52-inch)
	Conference Room 1A	1	1 (52-inch)
	Conference Room 1B	1	1 (52-inch)
	Conference Room 1C	1	1 (52-inch)
	Conference Room 1D	1	1 (52-inch)
	Lecture Room 1	1	1 (52-inch)
	Lecture Room 2	1	1 (52-inch)
	Lecture Room 3	1	1 (52-inch)
	Debriefing Room	1	1 (52-inch)
	Strategic Flow Management Centre	1	1 (65-inch)
	Communication System Simulator	1	1 (65-inch)
ATC Centre Block	Rescue Coordination Centre (Briefing Room)	1	3 (52-inch)
Total		18	24

Source: Audit analysis of CAD records

Note 1: A video-wall was also installed in the Centre. The item was approved by the FSTB in August 2012 (see item 5 of Table 4 in para. 4.3).

Note 2: Four additional LCD video display units would also be deployed for use during meetings in the auditorium (see paras. 4.12 and 4.13).

4.9 In response to Audit's findings in paragraphs 4.6 to 4.8, the CAD informed Audit during August and October 2014 that:

- (a) the LCD video display units were connected with the audio/video playback and recording systems for playback purposes, as well as with the projection systems for display of information, and were in line with the funding application to the FSTB (see para. 4.5(a)). As LCD video display units were an essential and integral part of the multi-media presentation system, the CAD considered that the information provided in the funding application to the FSTB was sufficient and it had complied with Financial Circular No. 9/90 by providing details of items required, the estimated costs and justification for the requirements to its best knowledge when making the application to the FSTB;
- (b) installing the LCD video display units in the Directorate-grade officers' offices would enable them to receive the latest news and real-time information on aircraft movements within the Hong Kong Flight Information Region and at the airport/runways to facilitate prompt decision-making especially during the disruption of airport and ATC operations, and adverse weather situation. Besides, these LCD video display units could also facilitate viewing of real time LegCo meetings, holding ad hoc small group meetings, joint preparation of urgent situation reports and common viewing of PowerPoint presentations. Since LCD video display units installed at the directorate offices were used for small group meetings within the scope of the multi-media presentation system, the CAD did not consider it necessary to specifically highlight this requirement in the funding application to the FSTB;
- (c) upon receipt of the Electrical and Mechanical Services Trading Fund's advice, the CAD reviewed the scope and considered that both video projector/screen sets and LCD video display units at some venues were required to cater for different seating plans to ensure that the viewing of presentation would not be blocked, and to cater for operational needs where both video projector/screen sets and LCD video display units would be used at the same time; and

Provision of furniture and equipment

- (d) the LCD video display units installed in the canteen, common room of the ATC Centre Block and the library were used to disseminate information to CAD staff in common areas within the CAD headquarters, whereas the LCD video display units in the recreation room were used to display information to participants during luncheon meetings and/or departmental activities under the scope of the multi-media presentation system. If needed, they could also be used to broadcast meetings and/or activities held inside the CAD headquarters.

4.10 According to Financial Circular No. 9/90, Controlling Officers/user departments should seek the FSTB's prior approval for the purchase of equipment by providing details of items required, their estimated costs and the justification for the requirements. Regarding the purchase of the 79 LCD video display units for the multi-media presentation system, Audit noted the CAD's explanations in paragraph 4.9. In September 2014, the FSTB informed Audit that approval had not been given for procuring these units. It is unsatisfactory that the requirements for these LCD video display units and justifications were not specifically mentioned in the CAD's application to the FSTB for vetting and approval. The CAD needs to take measures to ensure that details of equipment to be purchased are provided when seeking the FSTB's approval.

Video display equipment for integrated information display system

4.11 While the FSTB approved the purchase of 50 LCD video display units for the integrated information display system, a total of 57 units were purchased. Of the 57 units, 30 were of larger size than the approved 22-inch and 26-inch (i.e. 23 units of 37-inch, 5 units of 42-inch, 1 unit of 52-inch and 1 unit of 65-inch). According to the CAD, these changes in requirements had not resulted in the allocated funds being exceeded (see para. 4.2(b)).

Purchase of video display equipment for upgrading

4.12 In November and December 2012, the CAD purchased seven more LCD video display units for upgrading purpose. According to the CAD, these LCD video display units equipped with video conferencing and Internet access functions were used to replace those originally installed inside the senior management's offices (including the Director-General of Civil Aviation, the Deputy

Director-General of Civil Aviation and five Assistant Directors-General) under the multi-media presentation system to facilitate the conduct of meetings between the CAD's senior management and their teams, and external parties. The seven displaced LCD video display units (2 of 52-inch and 5 of 46-inch) were redeployed as follows:

- (a) one 52-inch unit and two 46-inch units were used to upgrade the three 42-inch units in the common room of the ATC Centre Block. One of the three displaced 42-inch units was installed in the waiting area outside the Director-General and Deputy Director-General of Civil Aviation's offices, another one in the driver's room and the third one was deployed for use during meetings in the auditorium; and
- (b) one 52-inch unit was treated as a spare item, and three 46-inch units were deployed for use during meetings in the auditorium.

4.13 Audit is concerned that the user requirements were not well defined before making purchase of LCD video display units resulting in additional expenditure in purchasing seven replacement units (\$156,000). In September 2014, the FSTB informed Audit that approval had not been given for procuring these replacement units. Regarding the redeployment of the surplus LCD video display units, Audit noted that four units were deployed for use in the auditorium notwithstanding that the auditorium had been provided with three video projector/screen sets and five (22-inch) LCD video display units (see Table 6 in para. 4.8). To optimise use of resources and minimise the risk of obsolescence for electronic equipment, the CAD needs to consult the Government Logistics Department on proper disposal of any surplus LCD video display units.

Video-wall

4.14 The video-wall costing \$5.03 million was installed on the first floor of the Office and Training Block (see Photograph 6). According to the procurement contract, the video-wall was for dissemination of multi-media messages to staff and visitors (similar to the integrated information display system — see para. 4.5(c)), but its cost was charged to the project commitment for the replacement of the ATC system (for which the CAD was the Controlling Officer) instead of the project vote for the new CAD headquarters (for which the ArchSD was the Controlling Officer).

Photograph 6

**Video-wall installed on the
first floor of the Office and Training Block**



Source: Photograph taken by Audit on 8 August 2014

4.15 The project vote for the new CAD headquarters was funded under Head 703 (Buildings) of the Capital Works Reserve Fund and any purchase of equipment and furniture is subject to the approval of the FSTB in accordance with Financial Circular No. 9/90. The project commitment for the replacement of the ATC system was funded under Head 708 (Capital Subventions and Major Systems and Equipment) of the Capital Works Reserve Fund for which the Financial Secretary has delegated to the Controlling Officers of the relevant procuring departments (the CAD in this case) the power to authorise expenditure for major systems and equipment projects (i.e. not requiring the FSTB's approval).

4.16 In response to Audit's enquiry, the CAD informed Audit in August and September 2014 that:

- (a) both funding papers for the new CAD headquarters and replacement of the ATC system had not specifically mentioned the video-wall which served multiple functions; and
- (b) the CAD considered that it was appropriate to charge the expenditure for the video-wall under the ATC project commitment because it was connected to safety-critical ATC systems via relevant networking equipment and was mainly for display of ATC and related information (Note 28).

4.17 However, there was an element of ambiguity in this case because:

- (a) according to the Finance Committee paper of May 2007, the ambit of the ATC project commitment was to procure equipment/systems necessary for the provision of ATC services to aircraft using the HKIA or overflying Hong Kong airspace. Neither video-wall nor audio-visual equipment was mentioned in the list of equipment/systems of the paper; and
- (b) according to the Public Works Subcommittee paper for the new CAD headquarters project of December 2007, audio-visual systems for the ATC tour presentation room and education path were included in the indicative list of equipment required. The video-wall is not just used for dissemination of ATC information but also information related to meetings held in the auditorium and other information for the education path which is similar to other display units purchased under the furniture and equipment item of the new CAD headquarters project vote.

In Audit's view, the CAD should have sought the FSTB's advice on the appropriate financial arrangement for charging the expenditure for the video-wall.

Note 28: *According to the CAD, ATC information includes aircraft movements inside the Hong Kong Flight Information Region, real-time closed-circuit television images of aircraft movements on runways and airfield, information downloaded from the Airport Collaborative Decision Making System, airport security alert status and relevant meteorological information. The video-wall can also display information related to meetings being held in the auditorium and support the education path by displaying information such as future development roadmap of the HKIA, airframe design/construction and Hong Kong ATC operation to arouse interest of visitors in aviation.*

Audit recommendations

4.18 Audit has *recommended* that the Director-General of Civil Aviation should:

- (a) critically review the operational needs for the LCD video display units purchased under the multi-media presentation system and seek covering approval from the FSTB, where appropriate;**
- (b) take measures to ensure that timely approval is sought from the FSTB for procuring equipment in accordance with the requirements laid down in Financial Circular No. 9/90 and that in seeking approval from the FSTB, details of the equipment to be purchased are provided;**
- (c) seek the FSTB's advice in case of doubt on the ambit of approved commitment items and subheads of expenditure under his charge;**
- (d) clearly define user requirements before procuring furniture and equipment;**
- (e) exercise strict economy in purchasing equipment with due regard to actual operational need; and**
- (f) consult the Government Logistics Department on ways to dispose of any surplus LCD video display units.**

4.19 Audit has *recommended* that the Director of Architectural Services should tighten control over the compliance with Financial Circular No. 9/90 requirements by user departments.

4.20 Audit has also *recommended* that the Secretary for Financial Services and the Treasury should step up control to ensure that the furniture and equipment purchased by bureaux/departments (B/Ds) have been approved by the FSTB/GPA. Consideration may be given to requiring the B/Ds to submit to the FSTB/GPA a return listing the details of items purchased after a project is completed.

Response from the Administration

4.21 The Director-General of Civil Aviation agrees with the audit recommendations in paragraph 4.18.

4.22 The Director of Architectural Services agrees with the audit recommendation in paragraph 4.19. He has said that the ArchSD will tighten control over the compliance with Financial Circular No. 9/90 requirements by user departments and if funding approval is not available by the time of tender, the furniture and equipment items will only be included as provisional sums (Note 29) to avoid premature funding commitment.

4.23 The Secretary for Financial Services and the Treasury accepts the audit recommendation in paragraph 4.20. He has said that:

- (a) the Administration has been making the best endeavour to ensure that the furniture and equipment items purchased represent value for money and public funds are well spent. B/Ds concerned should ensure that the furniture and equipment requirements are reasonable and necessary to meet their operational needs. In the event that additional funding is required after the FSTB's or GPA's approval, B/Ds should seek to increase the approval ceiling with full justification in accordance with Financial Circular No. 9/90. The FSTB will consider issuing a full and final approved furniture and equipment list for each project to facilitate post-implementation checking by the user departments. Resource permitting, the FSTB may consider conducting random checks on the furniture and equipment position upon project completion; and

Note 29: *Provisional sum is a sum provided in the contract for work or expenditure which shall only be used upon the written instruction of the Architect/Supervising Officer of the contract.*

Provision of furniture and equipment

- (b) regarding the audit recommendation in paragraph 4.18(c), Controlling Officers are responsible and accountable for all expenditure from any heads or subheads under their purview, and for all public moneys and government properties in respect of the departments or services for which they are responsible. From the value for money perspective, the FSTB would expect Controlling Officers to justify the need for and cost of the procurement in the first place. From the regularity and accounting perspective, the FSTB agrees with Audit that if an item may be charged to more than one subhead of expenditure and Controlling Officers require clarification on the ambit of the approved expenditure commitment and subheads, the advice of the FSTB should be sought. In this regard, the typical factors for consideration are the exact scope, nature or function of the item, accounting rules and established practice.

4.24 The Government Property Administrator has said that regarding paragraph 4.20, the Controlling Officer of a project vote has the authority to control and approve spending under the project vote. The GPA proposed to ask the user B/Ds to prepare and submit a return to the Controlling Officer on office furniture and appliances purchased under the project vote and to confirm that the items purchased correspond to those approved by the GPA or FSTB.

4.25 The Director of Government Logistics has said that regarding the LCD video display units (see para. 4.18(f)), the disposal of store items that have become surplus to requirements should be dealt with according to the procedures set out in the Stores and Procurement Regulations. The Government Logistics Department will offer advice/assistance to the CAD, if required.

PART 5: PROVISION AND UTILISATION OF CAR PARKING SPACES

5.1 This PART examines the provision and utilisation of car parking spaces for the new CAD headquarters and suggests areas for improvement.

Provision of parking spaces

5.2 The allocation of parking spaces in government buildings is governed by the Accommodation Regulations as follows:

- (a) priority is given to government vehicles, followed by essential users and directorate staff in that order. Essential users are defined as officers who need to use their cars on official business more than 13 days on average in one month. Disabled officers who have been certified by a medical officer as having problem in using public transport are regarded as essential users. Adequate spaces should also be reserved as necessary for loading/unloading and guest parking; and
- (b) provision of parking facilities for all users is free of charge.

5.3 In April 2007, the CAD proposed in the draft schedule of accommodation the provision of 178 parking spaces (comprising 18 for government vehicles, 33 for essential users and directorate staff, 15 for contractors' vehicles, 20 for visitors' vehicles and 92 for non-essential users). In justifying its proposal, the CAD informed the GPA that:

- (a) there was in fact operational need for the non-essential users (mostly ATC staff) who had to drive to work on shift duties, in inclement weather and in emergency; and

Provision and utilisation of car parking spaces

- (b) the requested 125 parking spaces for staff (33 essential users and 92 non-essential users) were a reduction from the 155 parking permits (Note 30) then held by CAD staff after taking into account the estimated effect of shared use of parking spaces by staff of different shifts and the reduction in travelling among CAD offices after the co-location of all functional divisions in the new CAD headquarters.

In October 2007, with the support of the GPA, the PVC approved the provision of 178 parking spaces in the new CAD headquarters.

5.4 Regarding the provision of parking spaces, the Employer's Requirements in the tender documents included the following provisions:

- (a) a minimum of 178 covered car parking spaces and at least two lorry parking spaces for loading/unloading area shall be provided;
- (b) car parking spaces in addition to the 178 numbers requirement should be designed for saloon and would be a merit of design (Note 31); and
- (c) in addition to the contract requirements, the design shall comply with the requirements of the Hong Kong Planning Standards and Guidelines issued by the Government.

Note 30: *Of these permits, 147 were for using the Government Carpark provided by the Airport Authority near the Passenger Terminal Building of the HKIA.*

Note 31: *According to the ArchSD, in anticipation of the future expansion, where possible, the contractor may provide additional car parking spaces in its design proposal.*

5.5 Subsequently, the ArchSD approved the contractor's proposals to provide 29 additional parking spaces comprising 5 for private cars, 16 for motorcycles and 8 for lorries (Note 32). The standards of provision of parking spaces for motorcycles and lorries in new development are laid down in the Hong Kong Planning Standards and Guidelines. As a result, a total of 209 (180 plus 29) parking spaces were provided in the new CAD headquarters.

Utilisation of parking spaces

5.6 The CAD had not compiled statistics on the utilisation of the parking spaces in the new CAD headquarters soon after the office relocation in December 2012. According to the CAD:

- (a) although there was an electronic access system for controlling vehicle entry, the system was not originally designed to cater for compilation of utilisation statistics. The access records could not be readily used for statistical purpose because of duplicate entries resulting from some users placing their access cards at the card reader more than once when the gate did not respond. Moreover, the system could not capture usage by visitor cars for which access cards were not used; and
- (b) to monitor the utilisation in a more effective manner, the CAD subsequently arranged its building management contractor to collect utilisation data manually twice a day (at 10:00 am and 3:00 pm) with effect from April 2014.

Note 32: *According to the ArchSD, the provision of additional parking spaces was to maximise the use of floor area of the car parking floor. Even if the additional parking spaces were not provided, the size of the car parking floor could not be reduced as it would not be justified nor cost-effective to change the design and the structural design of the whole building. The additional provision of the motorcycle and lorry parking spaces was to comply with the requirements of the Hong Kong Planning Standards and Guidelines issued by the Government. The parking spaces for motorcycles are delineated by line markings on floor within a small recessed area on the car parking floor. The spaces are small (each measuring 2.4 metres × 1 metre) and cannot be used for other useful purpose. Some of the lorry parking spaces for loading and unloading purposes are located on the ground floor open area.*

Provision and utilisation of car parking spaces

5.7 Based on the data collected by the building management contractor, the average monthly utilisation of the 209 parking spaces from April to July 2014 ranged from 21% to 23% for weekdays and from 6% to 7% for weekends and public holidays (Note 33). The utilisation of the parking spaces in August 2014 remained at a low level (see an example in Photograph 7).

Photograph 7

Utilisation of parking spaces in the Office and Training Block



Source: Photograph taken by Audit on 6 August 2014

Note 33: *Of the 209 parking spaces, 151 are designated for use by private cars and the remaining spaces are for motorcycles, lorries and light buses. Although the data collected by the building management contractor did not have a breakdown by vehicle type, the CAD considered that the data mainly reflected the utilisation of parking spaces by private cars. According to the CAD, lorries and light buses only used the parking spaces for short durations and such utilisation might not be captured during the time of data collection. Therefore, in terms of the 151 private car parking spaces, the CAD calculated that the utilisation rates from April to July 2014 would range from 29% to 32% for weekdays and from 9% to 10% for weekends and public holidays.*

Provision and utilisation of car parking spaces

5.8 Audit understands that the utilisation data collected by the CAD's contractor from April to July 2014 might not have taken into full account the staff parking need of the Air Traffic Management Division and the maintenance contractors due to the delayed commissioning of the new ATC centre (see Note 12 to para. 1.9). According to the CAD:

- (a) the Air Traffic Management Division and the maintenance contractors comprised over 60% of the working population in the CAD headquarters;
- (b) while some of these staff had been issued with parking permits in the new CAD headquarters, they preferred to keep their permits for using the Government Carpark near the Passenger Terminal Building to facilitate their discharge of duties inside the airport restricted area. As the number of CAD staff working inside the airport restricted area would reduce significantly after the full operation of the new ATC centre in the CAD headquarters, a review on the need of the parking permits for the Government Carpark would be conducted in due course; and
- (c) it expected that the utilisation of the parking spaces in the new CAD headquarters would increase substantially after the full operation of the new ATC centre.

5.9 Audit notes that the Government Carpark near the Passenger Terminal Building has 200 parking spaces for shared-use by 12 government departments (including the CAD). For 2014, a total of 740 parking permits have been issued, including 117 for staff of the Air Traffic Management Division. On average, each parking space is share-used by 3.7 permit holders (Note 34). In Audit's view, there is a need to keep under review the utilisation of the parking spaces at the new CAD headquarters after the relocation of the Air Traffic Management Division to the new ATC centre.

Note 34: *According to the minutes of meeting of user departments of the Government Carpark held in July 2013, the allocation of parking permits was sufficient to meet all departments' parking demand.*

Areas for improvement

Provision of parking spaces

5.10 *Existing usage information.* In 2007 when vetting the CAD's proposed parking space requirements, the GPA requested information on the actual number of parking spaces that were made available to the 147 CAD staff then holding parking permits at the Government Carpark of the HKIA. In response, the CAD informed the GPA that the 230 parking spaces then available in the Government Carpark were share-used by permit holders of different departments. However, the GPA was not informed of the total number of parking permits issued for the Government Carpark to determine the average number of permit holders served by each parking space thereat. The lack of sufficient information on the parking arrangement at the Government Carpark might render it difficult for the GPA to accurately assess the required provision at the new CAD headquarters to meet the parking need of the 147 CAD staff to be diverted from the Government Carpark. In Audit's view, there is a need for the GPA to remind user departments of new building projects to provide detailed information on their existing parking space usage to support their proposed requirement in the new projects.

5.11 *Deviation from approved provision.* The 178 approved parking spaces in the schedule of accommodation were determined after the GPA's vetting of the CAD's proposed requirement and should be taken as the exact provision. However, the Employer's Requirements in the tender documents specified that a minimum of 180 parking spaces should be provided (see para. 5.4). In the event, five more private car parking spaces were provided (see para. 5.5). While the ArchSD confirmed that in this case, the provision of additional parking spaces was to maximise the use of the car parking floor without purposely enlarging the floor plate of the carpark, there is a need for the ArchSD to specify the exact number of parking space provisions according to the approved schedule of accommodation in the Employer's Requirements in future.

5.12 *Provision of parking spaces for motorcycle.* According to the Hong Kong Planning Standards and Guidelines, the parking space provision for motorcycles in new development is 5% to 10% of that for private cars. The Employer's Requirements in the tender documents for the new CAD headquarters did not specify the required percentage of motorcycle parking spaces (but stipulated

that the contractor should comply with statutory requirements, standards and guidelines). In the event, 16 parking spaces were provided (i.e. 10.6% of the 151 private car parking spaces provided — Note 35). However, for 2014, only four parking permits were issued for motorcycles indicating that the demand was low. In Audit's view, there is a need for the ArchSD to consult user departments of new building projects about their actual demand for motorcycle parking spaces and include the appropriate requirement in the tender documents.

Utilisation of parking spaces

5.13 The consistently low utilisation of the parking spaces in the new CAD headquarters from April to July 2014 (see para. 5.7) indicated a need for the CAD to take effective measures to ensure the gainful use of the spare capacity before the relocation of the Air Traffic Management Division to the new ATC centre. There is also a need to keep under review the utilisation of the parking spaces after the relocation.

Audit recommendations

5.14 **Audit has *recommended* that the Director of Architectural Services should:**

- (a) **take measures to ensure that the exact number of parking space provisions according to the approved schedule of accommodation is specified in the Employer's Requirements of the tender documents; and**
- (b) **consult user departments of new building projects about their actual demand for motorcycle parking spaces and include the appropriate requirement in the tender documents.**

Note 35: *The 151 private car parking spaces comprised 146 numbers specified in the Employer's Requirements of the tender documents and five spaces subsequently added (see para. 5.11).*

Provision and utilisation of car parking spaces

5.15 **Audit has *recommended* that the Director-General of Civil Aviation should:**

- (a) continue to monitor the utilisation of the parking spaces; and**
- (b) take effective measures to put any under-utilised parking spaces into gainful use.**

5.16 **Audit has also *recommended* that the Government Property Administrator should remind user departments of new building projects to provide detailed information on their existing parking space usage to support their proposed requirement in the new projects.**

Response from the Administration

5.17 **The Director of Architectural Services agrees with the audit recommendations in paragraph 5.14.**

5.18 **The Director-General of Civil Aviation agrees with the audit recommendations in paragraph 5.15.**

5.19 **The Government Property Administrator accepts the audit recommendation in paragraph 5.16. He has said that the GPA has been asking user B/Ds to provide justifications for parking spaces requested (including their existing space usage) to support their proposed requirement in the new projects.**

PART 6: WAY FORWARD

6.1 This PART summarises the major audit observations identified in earlier PARTs and examines the way forward.

The new CAD headquarters project

6.2 The new CAD headquarters project was both a complex and time-critical project. On one hand, it had to cater for the specialised requirements of a modern ATC system and to reserve sufficient spaces to cater for future expansion of services. On the other hand, it had to be completed under a tight schedule in order to ensure a seamless transition to the new ATC system upon its targeted commissioning in December 2012.

6.3 Without the experience and expertise in the handling of a complex building project, the CAD set up a dedicated project team to oversee the implementation of the new CAD headquarters project. Arrangement was also made with the ArchSD and Electrical and Mechanical Services Department for the secondment of a Senior Architect and a Senior Electrical and Mechanical Engineer respectively to support the project team (see Note 8 to para. 1.7). The new CAD headquarters was commissioned on schedule (in December 2012). The actual expenditure was also within the approved provision of \$1,997 million. However, this audit review has identified lessons that should be learnt for better managing similar departmental specialist building projects in future.

Major audit observations

6.4 In PART 2, Audit found that while the THB only supported the making of provision in the new CAD headquarters building's foundation and design for a reserve space of 1,500 m² for expansion beyond 2025, the reserve space was built as day-one facilities. With the exception of the ArchSD, other PVC members (namely the GPA and FSTB) had not been informed of such change in user requirements. There were fundamental differences in the understanding between the CAD/ArchSD and the GPA on whether the construction of the reserve space of 1,500 m² had been approved by the PVC (see para. 2.15). The incident highlights inadequacies in the control over change of user requirements and decision making arrangements within

Way forward

the PVC. Moreover, the Public Works Subcommittee and the Finance Committee were not informed specifically of the construction of 1,500 m² expansion area in the funding application (see para. 2.17). While the reserve space was not expected to be required for use by the CAD until some years later, no provision was made in the building design to facilitate its interim use by third parties (see para. 2.23).

6.5 In PART 3, Audit noted that three of the facilities in the new headquarters were not built in accordance with the approved schedule of accommodation, not conforming to the Accommodation Regulations. The discrepancies in the provision of toilet/shower facilities in the Director-General of Civil Aviation's office and the rest rooms for accident investigators could have been avoided if both the CAD and ArchSD had enhanced the checking mechanism to ensure that the user requirements to be included in the design-and-build contract were consistent with the approved schedule of accommodation (see para. 3.14). The CAD also had not sought the PVC's prior approval before it converted the space originally planned for use as a viewing gallery of the education path into a multi-function room for meeting and recreational purposes despite the fact that conference and recreational facilities had already been provided for in the approved schedule of accommodation (see para. 3.17).

6.6 In PART 4, Audit found that the CAD had not complied with Financial Circular No. 9/90 requirements in seeking the FSTB's prior approval for the purchase of the security and electronic systems at \$67.45 million under the design-and-build contract (see para. 4.4). As regards the equipment for two electronic systems, the CAD purchased more LCD video display units than that mentioned in the CAD's application to the FSTB for approval (see para. 4.7). Some of the LCD video display units were installed in venues and individual officers' rooms also not mentioned in the CAD's application (see para. 4.8(c)). There also appears to be scope for reducing the LCD video display unit requirements as some venues were already provided with other equipment serving similar display functions (see paras. 4.8(b) and 4.9). Additional expenditure was incurred in purchasing seven LCD video display units to replace those not fully meeting user requirements (see para. 4.12). Audit also found that the cost of a video-wall (\$5.03 million) was charged to the project commitment for the ATC system instead of the project vote for the new CAD headquarters (see paras. 4.14 and 4.16). The FSTB's advice should have been sought on the appropriate financial arrangement for charging the expenditure for the video-wall.

6.7 In PART 5, Audit noted that from April to July 2014, the utilisation of the 209 parking spaces in the new headquarters only ranged from 21 % to 23 % (see para. 5.7). While the utilisation rate might improve after the relocation of the Air Traffic Management Division to the new CAD headquarters, there is a need to put the under-utilised parking spaces into gainful use during the interim and keep the utilisation rate under review after the relocation. Regarding the provision of parking spaces, there was room for improvement in the CAD's provision of usage information in the draft schedule of accommodation for the GPA's assessment. There was also room for improvement in the ArchSD's specification of the GPA's approved parking space provision in the tender documents (see paras. 5.10 to 5.13).

6.8 The observations in various parts of this Audit Report indicate a number of incidents of non-compliance with various government regulations and circulars in the implementation of the new CAD headquarters project. There is a need for the CAD to strengthen internal controls to prevent recurrence of similar problems in future building projects and to raise awareness of its staff on the need to comply with government regulations in managing accommodation matters and public funds. There is also a need for the ArchSD to tighten control on compliance with the approved schedule of accommodation and requirements in relevant government circulars by user departments in future.

Audit recommendations

6.9 **Audit has *recommended* that the Director-General of Civil Aviation, in managing building works projects, should:**

- (a) **strengthen internal controls over compliance with government regulations and guidelines; and**
- (b) **take measures to raise the awareness of CAD staff on the need to comply with government regulations and procedures in managing accommodation matters and public funds.**

6.10 **Audit has *recommended* that the Director of Architectural Services should tighten control on compliance with the approved schedule of accommodation and requirements in relevant government circulars by user departments in future.**

Way forward

6.11 The lessons learnt from the new CAD headquarters project would be of benefit to other B/Ds in managing similar departmental specialist building projects in the future. Audit has also *recommended* that the Secretary for Financial Services and the Treasury and the Government Property Administrator should promulgate these lessons for their reference.

Response from the Administration

6.12 The Director-General of Civil Aviation agrees with the audit recommendations in paragraph 6.9.

6.13 The Director of Architectural Services agrees with the audit recommendation in paragraph 6.10.

6.14 The Secretary for Financial Services and the Treasury, and the Government Property Administrator accept the audit recommendation in paragraph 6.11. They have said that the FSTB/GPA have recently completed a review on the Accommodation Regulations which will take effect on 1 December 2014. The updated Accommodation Regulations will facilitate a better and clearer understanding of the rules and regulations related to government accommodation, so that B/Ds can better manage new building or refurbishment projects in future. The Government Property Administrator has also said that briefings were held in mid-October to explain to B/Ds the proposed amendments and to impress on them the need to strictly observe the various rules and regulations set out in the Accommodation Regulations.

[illegible]

The floor plan shows a large, irregularly shaped building with a complex layout of rooms and corridors. Key areas include:

- Top Left:** COM SYS RM, LECTURE RM, LECTURE RM, STORAGE (FILE & GENERAL) - ATMD 1.
- Top Right:** CHARTING ROOM, SIMULATION ROOM, EU, ATMD 1, ATCO1.
- Center:** MULTI FUNCTION ROOM, AHU (3-2), Meeting Rm (Workshop), AHU (3-1), STORAGE (FILE & GENERAL) - ATMD 2.
- Bottom Left:** AHU (3-3), VOD, INSTRUCTOR ROOM, (ATCO 1), ATCO, ATCO.
- Bottom Center:** SPMC & SIM DEVELOPMENT (FAST TIME SIMULATOR) 2, STATISTIC OFFICE, TRAFFIC RECORD ROOM, GENERAL OFFICE FILE.
- Bottom Right:** ATMD Office - CO #2, SCO.

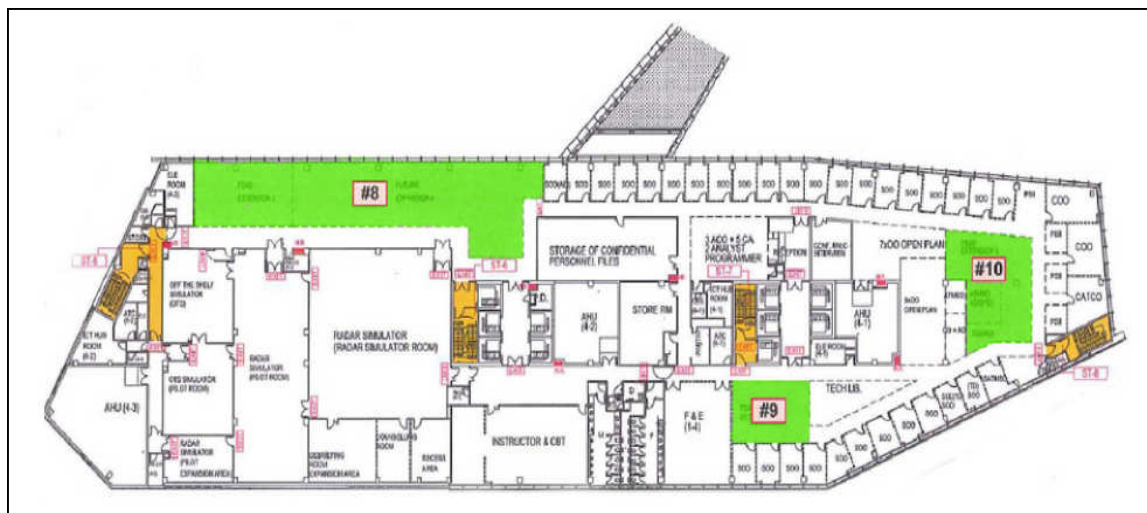
Three green boxes are labeled with red numbers:

- #5:** Located in the top left area, near the COM SYS RM and LECTURE RM.
- #6:** Located in the top center area, near the STORAGE (FILE & GENERAL) - ATMD 1.
- #7:** Located in the center area, near the STORAGE (FILE & GENERAL) - ATMD 2.

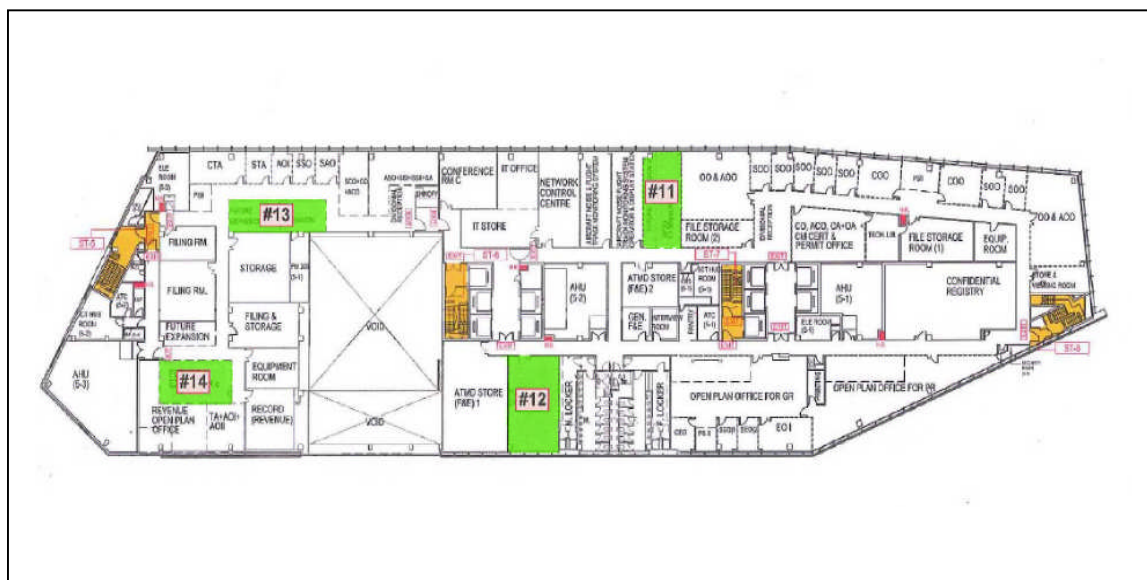
Red labels are scattered throughout the plan, including ST-4, ST-3, ST-2, and ST-1, often accompanied by small red arrows or symbols.

Appendix A
(Cont'd)
(para. 2.20 refers)

Fourth floor of the Office and Training Block

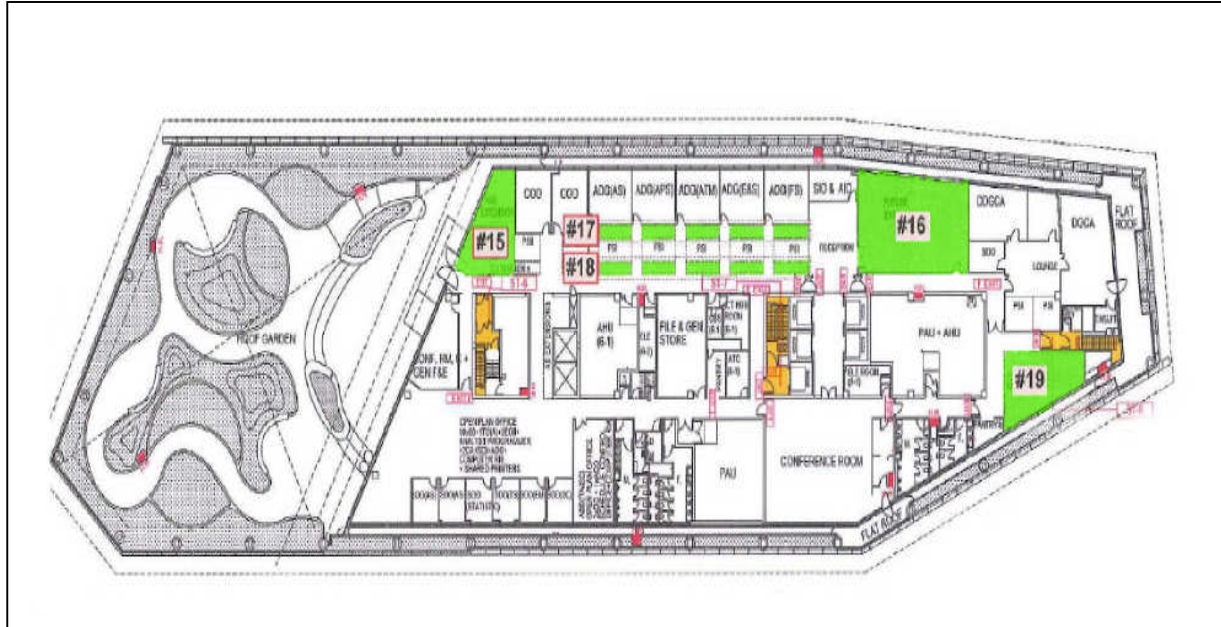


Fifth floor of the Office and Training Block

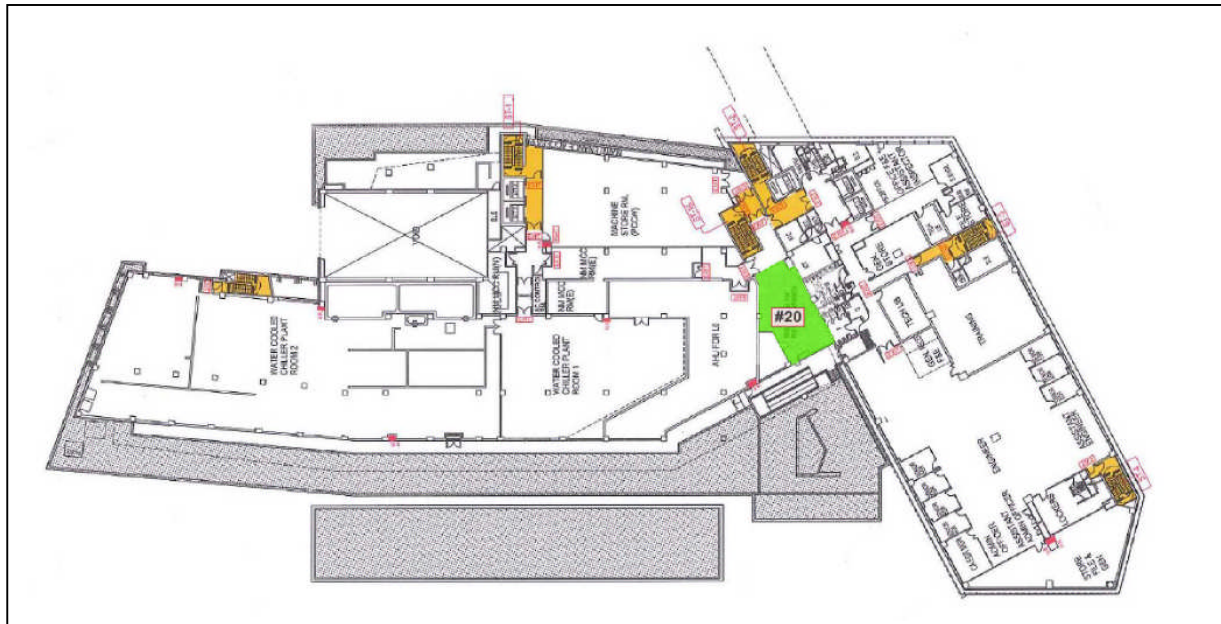


Appendix A
(Cont'd)
(para. 2.20 refers)

Sixth floor of the Office and Training Block

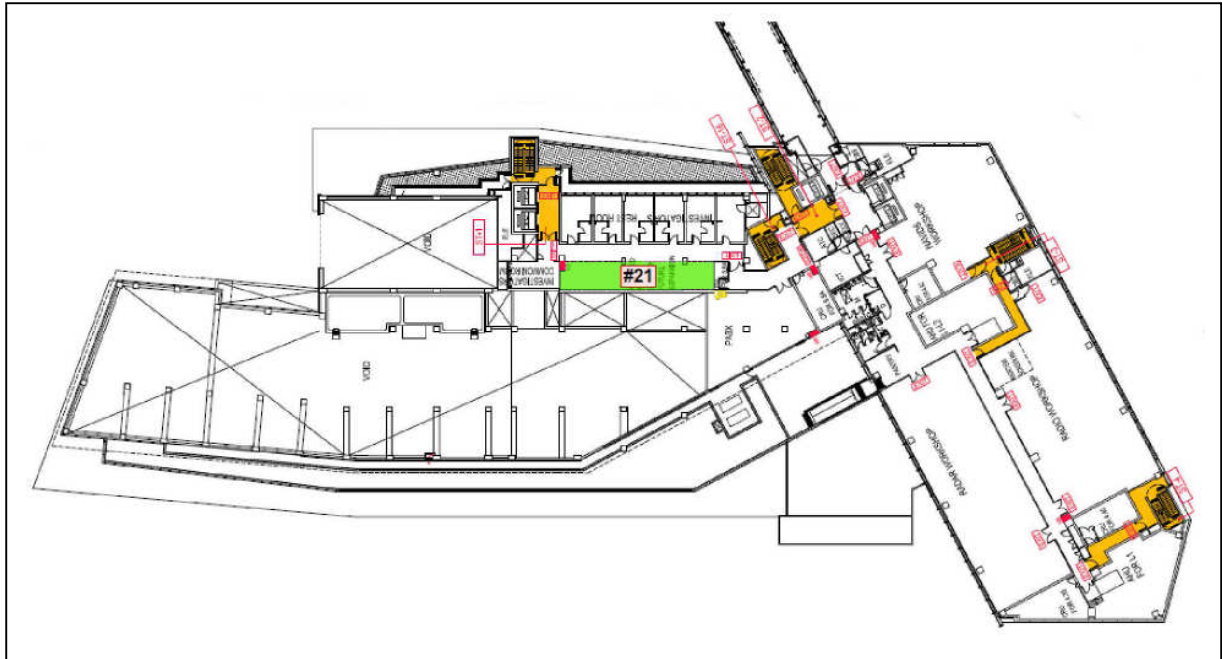


First floor of the Facilities Block

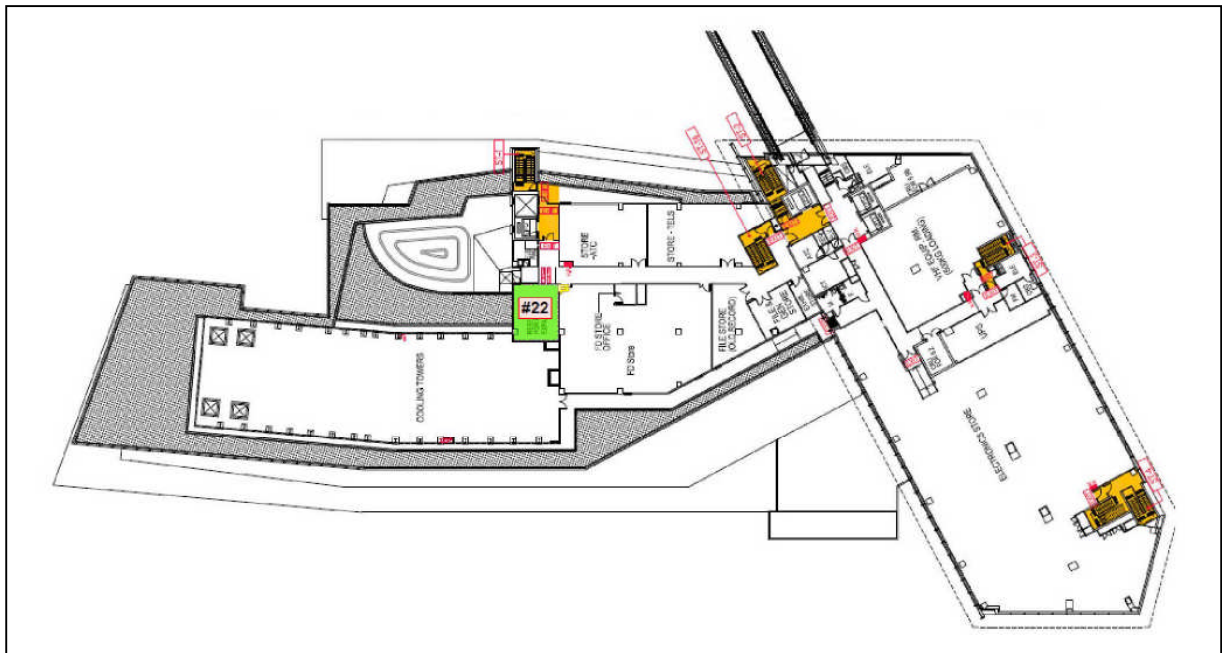



Appendix A
(Cont'd)
(para. 2.20 refers)

Second floor of the Facilities Block



Third floor of the Facilities Block



Legend:  Pocket spaces for future expansion

Source: CAD records

Acronyms and abbreviations

ArchSD	Architectural Services Department
ATC	Air traffic control
Audit	Audit Commission
B/Ds	Bureaux/departments
CAD	Civil Aviation Department
CFA	Construction floor area
FSTB	Financial Services and the Treasury Bureau
GPA	Government Property Agency
HKIA	Hong Kong International Airport
LCD	Liquid crystal display
LegCo	Legislative Council
m ²	Square metres
NOFA	Net operational floor area
PVC	Property Vetting Committee
THB	Transport and Housing Bureau