



INTERNAL AUDIT DIVISION

AUDIT REPORT

Safety provisions for United Nations staff and contractors, including asbestos removal, applied during the execution of the Capital Master Plan

The safety provisions for construction and asbestos abatement for the Capital Master Plan have generally been appropriately organized and applied

28 January 2011
Assignment No. AC2010/514/01

United Nations  Nations Unies

INTEROFFICE MEMORANDUM

MEMORANDUM INTERIEUR

OFFICE OF INTERNAL OVERSIGHT SERVICES · BUREAU DES SERVICES DE CONTRÔLE INTERNE
INTERNAL AUDIT DIVISION · DIVISION DE L'AUDIT INTERNE

TO: Mr. Gregory Starr, Under-Secretary-General
A: for Safety and Security

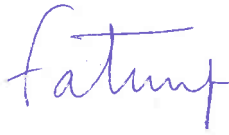
DATE: 28 January 2011

Ms. Angela Kane, Under-Secretary-General
for Management

Mr. Michael Adlerstein, Assistant Secretary-General and
Executive Director, Capital Master Plan

REFERENCE: IAD: 11- 00066

FROM: Fatoumata Ndiaye, Director
DE: Internal Audit Division, OIOS



SUBJECT: **Assignment No. AC2010/514/01 - Audit of safety provisions for United Nations staff and contractors, including asbestos removal, applied during the execution of the Capital Master Plan**
OBJET: **Assignment No. AC2010/514/01 - Audit of safety provisions for United Nations staff and contractors, including asbestos removal, applied during the execution of the Capital Master Plan**

1. I am pleased to present the report on the above-mentioned audit.
2. Based on your comments, we are pleased to inform you that we will close recommendation 1 in the OIOS recommendations database as indicated in Annex 1.
3. Please note that OIOS will report on the progress made to implement its recommendations in its annual report to the General Assembly and semi-annual report to the Secretary-General.

cc: Mr. Swatantra Goolsarran, Executive Secretary, UN Board of Auditors
Mr. Rohan Wijeratne, Board of Auditors
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INTERNAL AUDIT DIVISION

FUNCTION

“The Office shall, in accordance with the relevant provisions of the Financial Regulations and Rules of the United Nations examine, review and appraise the use of financial resources of the United Nations in order to guarantee the implementation of programmes and legislative mandates, ascertain compliance of programme managers with the financial and administrative regulations and rules, as well as with the approved recommendations of external oversight bodies, undertake management audits, reviews and surveys to improve the structure of the Organization and its responsiveness to the requirements of programmes and legislative mandates, and monitor the effectiveness of the systems of internal control of the Organization” (General Assembly Resolution 48/218 B).

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EXECUTIVE SUMMARY

Audit of safety provisions for United Nations staff and contractors, including asbestos removal, applied during the execution of the Capital Master Plan

The Office of Internal Oversight Services (OIOS) conducted an audit of safety provisions for United Nations staff and contractors, including asbestos removal, applied during the execution of the Capital Master Plan. The overall objective of the audit was to assess the arrangements made for safety during the execution of the CMP and to determine whether the parties involved complied with their obligations. The audit was conducted in accordance with the International Standards for the Professional Practice of Internal Auditing.

The audit concluded that safety provisions made for construction and asbestos abatement for the Capital Master Plan had generally been appropriately organized and applied.

The major results of the OIOS audit were as follows:

- (a) Procedures that were included in the project manual were found to be adequately recorded and understood by relevant personnel.
- (b) The contractual framework promotes an awareness of safety and safeguard the interests of the United Nations, construction manager, trade contractors and their employees.
- (c) The construction manager's safety organization and framework of meetings promote safe work practices. This is further supported by the DSS Safety Unit.
- (d) The construction manager's safety staff keep detailed management information of the occurrence of unsafe conditions and incidents that have occurred. A recommendation has been made that they should also retain original supporting documents detailing the circumstances and perpetrators of unsafe conditions rated as high severity or life-threatening. This would enable scrutiny and provide a record of attribution of fault and action taken.
- (e) As at 1 December 2010 there had been no fatalities or incidents involving hospital stays. At that time, CMP trade contractors had worked for approximately two million hours.
- (f) Suitable contractors were used for asbestos abatement and suitable methods employed. No results received from the independent air monitors exceeded the maximum allowed since abatement works began.

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I. INTRODUCTION

1. The Office of Internal Oversight Services (OIOS) conducted an audit of safety provisions for United Nations staff and contractors, including asbestos removal, applied during the execution of the Capital Master Plan (CMP). The audit was conducted in accordance with the International Standards for the Professional Practice of Internal Auditing.

2. The General Assembly has emphasized the need to ensure the safety and security of staff, delegations and visitors at the United Nations. In its Resolution 64/228 dated 5 February 2010:

“The General Assembly,

24. Reaffirms its commitment to the safety, security, health and well-being of staff, delegations, visitors and tourists at the United Nations, and requests the Secretary-General to ensure that concrete safeguards for the achievement of those objectives are in place and are part of the standard operating procedures throughout the implementation of the capital master plan;

25. Requests the Secretary-General to continue to ensure, in particular, strict compliance with the highest applicable standards for the handling of asbestos, and to continue to report to the General Assembly on measures taken in this regard in the context of the forthcoming annual reports and the regular briefings on the implementation of the capital master plan;”

3. Responsibilities for safety during the implementation of the CMP are divided between the construction manager and trade contractors, the Department of Safety and Security (DSS) and the Office of the CMP, as shown in Annex 2.

4. Comments made by the Office of the CMP are shown in *italics*.

II. AUDIT OBJECTIVES

5. The main objectives of the audit were to:

(a) Review and assess arrangements made for the safety of United Nations and construction personnel during the execution of the CMP.

(b) Check whether the parties involved in the execution of the CMP have been in compliance with their obligations regarding safety.

III. AUDIT SCOPE AND METHODOLOGY

6. OIOS reviewed and analyzed relevant records and management information produced by the Office of CMP, DSS and the construction manager. OIOS interviewed personnel of the Office of CMP, DSS, and the construction

manager. Site visits and observations were carried out at the Secretariat building. OIOS attended as an observer at meetings held to discuss safety.

IV. AUDIT FINDINGS AND RECOMMENDATIONS

A. The construction manager and trade contractors

The contractual framework

7. The construction manager has overall responsibility to ensure that safe practices are adopted in the construction area by his personnel, and operatives employed by trade contractors who carry out the actual construction. Under the terms of the Coordination Agreement (Article 14.2) between the United Nations and the construction manager, the construction manager indemnifies the United Nations and its staff from liability in the event of claims related to death or injury suffered by third parties as a result of a negligent act or omission by the construction manager and his employees, or by trade contractors.

8. The Construction Management Agreements between the construction manager and the United Nations for guaranteed maximum price contracts require the construction manager to take “all steps necessary to ensure that the trade contractors and all other personnel performing work ... comply with the safety program.” The Construction Management Agreements stipulate that trade contractors are not relieved of their respective responsibilities for safety and require the construction manager to “include in all trade contracts a provision requiring the trade contractor to acknowledge same.” The trade contracts comply in this respect. The Construction Management Agreements also require the construction manager to monitor safety compliance by trade contractors, report deficiencies and direct remedial action (Article 3.7 of the Construction Management Agreements refers).

9. The trade contracts between the construction manager and trade contractors for the undertaking of specified construction works include a four page ‘Exhibit J’ that cover ‘Standard trade contractor environmental health and safety requirements.’ These requirements are stipulated by the construction manager. The trade contracts are comprehensive with regard to safety and outline the trade contractors’ obligations with regard to, *inter alia*:

- (a) Provision of a safety representative, subject to the construction manager’s approval;
- (b) Development of a project specific Health and Safety Program;
- (c) Fall protection stipulations;
- (d) Compliance with the regulations and requirements of relevant city, state or federal agencies;
- (e) Attendance at safety orientation training (provided by the construction manager);
- (f) Designated personnel to attend all job safety meetings;

-
- (g) Monthly reports including safety, health and environment and a summary of incidents, if any;
 - (h) Trade specific requirements, for example, in the case of asbestos abatement;
 - (i) Minimum working apparel.

10. The trade contracts and also the construction manager's safety orientation booklet make it clear that any trade contractor's personnel that do not comply with safety policies will be removed from the project. At the time of the audit, this had occurred around 17 times. Other sanctions that may be applied to enforce the contracts include:

- (a) The construction manager is contractually supported in recharging the trade contractor for any safety work he is forced to perform due to the trade contractor's failure to keep its work areas safe and protected (Exhibits A and J of trade contract).
- (b) The construction manager may deny permission for the trade contractor to undertake potentially hazardous works (Exhibit A of trade contract).
- (c) The construction manager may require the trade contractor to replace its project safety representative (Exhibit J of trade contract).
- (d) The construction manager will issue a written notice in the event of violations of safety regulations. Personnel who receive 3 written violations within a one year period may be removed from the project. In the event of serious violations personnel may be removed after one violation (Exhibit J of trade contract).
- (e) The construction manager may stop any part of the work it deems unsafe until corrective measures are taken (Exhibit J of trade contract).
- (f) Persons abusing intoxicants or being uncooperative in submitting for testing will be immediately removed from the project (Exhibit J of trade contract).

11. OIOS has examined the contract documents and considers that the contractual framework promotes an awareness of safety and safeguards the interests of the United Nations, construction manager, trade contractors and their employees.

Project manual

12. The Coordination Agreement (Article 4.3) between the United Nations and the construction manager requires the construction manager's services to conform to the project manual, which may be amended from time to time during the development of the CMP with the United Nations' approval. As at November 2010 an exercise was being undertaken to update the project manual for a planned reissue date of late 2010 or early 2011. The project manual is included on the construction manager's CMP TeamSite web page, where the current version will be replaced by the revised version when it is issued. The Office of CMP also plans to disseminate hard-copy manuals to key members of the CMP project team. Also, trade contractors who successfully bid for work are

sent a hard-copy. Section 13 is entitled “Health and Safety Management Programme” and is 97 pages long including appendices. It is broken down into sub-sections as follows:

- 13.1 Project description
 - 13.2 Key project safety challenges
 - 13.3 Health and safety policy
 - 13.4 Safety and health management programme
 - 13.5 Safety planning
 - 13.6 Subcontractor (Trade contractor) requirements
 - 13.7 General safe work practices
 - 13.8 Emergency action and evacuation procedures
 - 13.9 Project hazard communication programme
 - 13.10 Project-specific safe work requirements (30 pages)
 - 13.11 Quality of life requirements
 - 13.12 Hazardous materials
 - 13.13 Permit matrix
- Appendices. 19 health and safety forms

13. OIOS examined the above sub-sections of the project manual and they were found to be adequate.

Construction manager’s safety organization

14. The construction manager employs a team of four full-time safety staff headed by a Senior Safety Manager. The guaranteed maximum price (GMP) contracts are carried out by trade contractors, and those with more than 49 workers on site are required to employ one full-time on-site safety professional for every 50 workers. At the time of the audit (August 2010) the only trade with sufficient workers to require a full-time safety professional were the electricians. The trade contractors’ foremen undertook safety related duties for trades with less than 50 workers on site.

15. The construction manager’s safety personnel had formal safety qualifications. The Senior Safety Manager and his staff are committed to achieving an Injury-Free Environment (IFE) in accordance with the construction manager’s corporate philosophy and policy. They deliver safety orientation sessions and distribute an associated “Safety Orientation Booklet” to all new personnel employed on the CMP construction site. This orientation session was attended by OIOS audit personnel and appeared to be satisfactory.

16. The Senior Safety Manager and his staff had a daily presence on the construction site and carried out checks to ensure compliance with laid down safety practice. The Senior Safety Manager kept a daily log of his activities and entered his observations in a computerized “SafetyNet” management information system. These checks included the use of personal protective equipment, and any key project safety challenges such as scaffolding, asbestos abatement safety, fall protection, excavations, and security and badging. In the event of non compliance, the operative is required to undergo a safety reorientation. For serious non-compliance or repeated occurrences, the grounds pass is cancelled

and the operative is excluded from the United Nations premises. This has occurred on about seventeen separate occasions.

Safety meetings

17. At the beginning of each work day, trade contractor supervisors organized orientations and held safety meetings using themed Safety Training briefing sheets that were produced by the construction manager. These were signed by the attendees. In addition the construction manager held weekly meetings with trade contractors' supervisors early on Monday mornings to discuss safety issues. OIOS attended one of these meetings on 16 August 2010 along with 20 others. Items discussed included fire evacuation practices and procedures, reminders regarding compliance issues such as the requirement to obtain hot work permits, and other issues raised by persons attending. OIOS also examined the minutes of ten recent meetings and noted that they recorded items discussed and kept the most important agenda items open so that they could be reinforced at future meetings.

18. The requirement and procedure for pre-task safety plans were detailed in the project manual. These plans identified possible safety hazards and alerted and informed operatives of best working methods prior to tasks commencing. The plans were prepared at the beginning of each shift by trade contractor supervisors or foremen who often used a standardized Safety Hazard Checklist (provided by the construction manager) as a guide. The completed plans were also in the construction manager's standard format and were discussed with all operatives during a pre task "five minute huddle." They were then signed by the supervisor and the operatives undertaking the task. OIOS examined ten pre-task safety plans held by the Senior Safety Manager and found them to be correctly completed and signed. In addition to the above, the Office of CMP, the construction manager and DSS held regular coordination meetings when safety issues may be discussed and progressed by means of tracking sheets. Also, ad hoc meetings were held as required.

19. On the basis of OIOS checks and enquiries, it is concluded that the construction manager's safety organization and framework of meetings promote safe work practices.

OIOS site visit

20. An OIOS auditor walked the construction areas with the construction manager's Senior Safety Manager and the following was observed:

- (a) Random badge checks were carried out and found to be correct.
- (b) Personal protection equipment was correctly worn and displayed the identity of the contractor.
- (c) Signage was prominently displayed in all construction areas, including exits, evacuation details, emergency contacts and the requirement to wear personal protection equipment.

Photo 1 – Signage at the construction site



(d) Fire equipment was clearly signed and it was stated that obstructions would be removed immediately.

(e) A whiteboard in the lobby main entrance details construction activities and their locations in the Secretariat.

(f) A member of UN staff not wearing personal protective equipment (not employed on the CMP) was observed entering the construction area adjacent to the Print Room, even though notices denying access and stipulating protective clothing had been posted by the construction manager's safety staff. The Senior Safety Manager stated that some UN staff had not been cooperative in complying with warnings. This was followed up with the construction manager's Senior Safety Manager later in the audit and he had increased signage and walked the area with senior DSS safety staff, who had spoken to intruders. Efforts to enforce compliance will continue.

Hoist inspection

21. An auditor from OIOS accompanied the construction manager's Senior Safety Manager to attend a "drop test" for two adjacent hoists on 27 July 2010. Each hoist had a safe working load of 7,000 lbs. Both hoists were subject to drop testing. Certificates were still current for both hoists and displayed the expiry date of 28 July 2010 (hence the test). Certificates expire after 90 days at which time the hoists have to be retested and certified. A specialist contractor loaded both hoists in turn to capacity with 7,000 lbs of iron and conducted the test. The test was overseen by a specialist consultant and the construction manager's Senior Safety Manager was also observing. The consultant assessed the test results as acceptable and issued a temporary certificate, prior to the final 90 day certificate being issued. The OIOS auditor on site was informed by the

construction manager's Senior Safety Manager that results could be either pass or fail. If an observed defect could not be fixed while the consultant is present, then the hoist would have "failed" and would not be used again (the key would be removed) until repaired and retested. At the time of the audit, there had been no instances of the hoist failing an inspection.

Permits for potentially hazardous work

22. Some categories of work which are considered potentially hazardous require trade contractors to submit applications for permits to the construction manager for review and approval prior to the start of work. Work permits or plans that are required are:

- (a) Hot work
- (b) Confined space entry
- (c) Excavation and trenching
- (d) Critical lifts
- (e) Fall protection plan
- (f) Guard rail opening
- (g) Utility shutdowns
- (h) Lockout/tagout (relates to electrical works safety)
- (i) Equipment start-up
- (j) Other work plans as deemed necessary

Statistics and management information

23. Monthly highlight reports were prepared by the construction manager and these included a section entitled Environmental Health and Safety. Five reports from March to July were examined by OIOS and reflected the following:

- (a) All new trade workers completed Safety Orientation.
- (b) Two joint reviews were being carried out by the Department of Buildings and Fire Department of New York each month.
- (c) Regular safety inspections have been carried out by UN Safety staff.

24. A computerized "SafetyNet" system was used by the construction manager's safety team to keep records for each GMP contract of numbers of inspections conducted, observations made, safe and unsafe conditions observed, and (in case of unsafe conditions) the severity of the condition; low, medium, high or life threatening. A summary report of the safety inspections conducted for the year ended 31 July 2010 revealed the following summary information:

Table 1. Safety inspections carried out by the construction manager's safety personnel for the year ended 31 July 2010

Number of Safety Inspections	Number of Observations	Unsafe Conditions	% Safe	Unsafe Conditions - Severity			
				Low	Medium	High	Life Threat
185	10,889	583	94.6%	431	141	11	0

25. The analysis that supports the above summary information is detailed and broken down into 24 main categories as follows:

Administration	Forklift	Personal protective eq.
Confined space	Hand and power tools	Planning
Cranes and hoisting eq.	Hazard communications	Respiratory
Electrical	Housekeeping	Scaffolds
Environmental	Infection control	Scissor/aerial lifts
Excavations	Ladders/stairs	Site/public protection
Fall Protection	Medical/emergency	Steel erection
Fire protection	Motorized equipment	Welding/cutting

26. These categories are further analyzed into more than 250 sub-categories. OIOS favours the level of analysis that this system facilitates as it provides a checklist for use during inspections and enables the construction manager's safety team to focus on categories of safety issues that should be raised during safety briefings and meetings.

27. OIOS examined the detailed safety statistics and noted the following:

(a) None of the unsafe conditions were considered life-threatening.

(b) Eleven out of 583 unsafe conditions (1.9 per cent) were classified as having a high level of severity. Eight of these related to fall protection and the remaining three related to deficiencies in planning. OIOS discussed this with the construction manager's Senior Safety Manager who commented that fall protection includes lanyards and barriers and there is a temptation for trade contractors to cut corners to save time. As the consequences could be severe, this was treated seriously and operatives warned to follow correct procedures or suffer sanctions. Poor planning did not typically receive a high level of severity rating, but may have led to improper methods being used. Original supporting documents detailing the circumstances of these more serious incidents and the action taken were not available for audit scrutiny. This is considered important because consequences of incidents could impact the reputation of the United Nations (regardless of indemnities and attribution of fault).

(c) 425 of the 583 observed unsafe conditions (72.9 per cent) related to personal protective equipment. OIOS discussed this with the construction manager's Senior Safety Manager who commented that the highest level of non-compliance related to eye protection and safety glasses. There has been a problem of the glasses misting up and causing discomfort in hot weather. It was stated that operatives are always informed of the need to comply if observations of unsafe practices are observed. OIOS observed that notices stressing the need for personal protective equipment were posted throughout the construction site.

(d) 71 of the 583 observed unsafe conditions (12.2 per cent) related to planning with 35 of these being attributable to unsatisfactory daily pre task planning. OIOS discussed this with the construction manager's Senior Safety Manager who commented that pre task plans must be submitted by 09:30am each day. It is essential that safety personnel are aware of numbers of personnel and the locations worked in case of an emergency evacuation of the Secretariat building and the Senior Safety Manager frequently reminds the construction foremen of their responsibilities in this regard.

28. More detailed statistics showing categories of observations and a breakdown of unsafe conditions is attached at Annex 1. Statistics were submitted each month to the construction manager's corporate headquarters and presented in summary form to the Executive Director of CMP.

29. OIOS obtained statistics for incidents requiring medical treatment. As at 1 December 2010 there had been no fatalities or incidents involving hospital stays (other than emergency room treatment). At that time, the number of man hours worked on CMP by trade contractors was approximately two million man hours.

30. Computerised summary details of incidents were kept by the construction manager detailing incident date, date reported, incident type, Occupational Safety and Health Administration classification and activity undertaken when the incident occurred. OIOS obtained a print out that detailed 79 reported incidents as at 31 August 2010. 68 incidents were resolved using first aid and were typified by twisted joints, strains, material in eye, cuts and bruises. Five incidents were categorized as non-recordable, and one had been "cleared by doctor." A further five incidents were classified as recordable and comprised damage (avulsion) to fingers, cut hand, cut forearm, laceration, and back injury. OIOS considers the incidents typical of those caused by misjudgments made during the type of work carried out and did not detect any pattern worthy of recommending further action on the part of the safety personnel employed on CMP, other than continuing to promote vigilance on the part of workers.

Recommendation 1

(1) The Office of the Capital Master Plan should request that the construction manager's Senior Safety Manager should retain original supporting documents detailing the circumstances and perpetrators of unsafe conditions rated as high severity or life-threatening to enable scrutiny and provide a record of attribution of fault and action taken.

31. *The Office of the USG, Department of Management accepted recommendation 1 and stated that both DSS and the Office of the CMP concur with the findings and the single recommendation. On 19 January 2011 the construction manager had been given a written request to comply in full and with*

immediate effect. Based on the action taken by the Office of the CMP, recommendation 1 has been closed.

B. The Office of the CMP

32. The Office of CMP's Director of Building is the construction manager's main contact for CMP safety related issues and was actively involved, for example, in advising on safety in the basement. Meetings were attended by personnel of the Office of CMP and DSS three times a week and any recommendations of the DSS safety team are discussed.

33. The Director of Building participated regularly in the two-weekly site visits by the New York Department of Buildings, including personnel of the Fire Department and Department of Environment Protection. These departments were invited to attend because the Office of the CMP is committed to compliance with city and federal codes. Due to the special status of the United Nations premises, detailed formal written reports of violations were not issued. However, verbal suggestions were made and these were recorded as violations on the Department of Building's web-site Building Information System. As at 1 December 2010, 26 violations were listed of which 19 were in 2009, and 7 in 2010.

34. OIOS examined details of the violations from records made available by the construction manager's Senior Safety Manager and the NYC Department of Buildings website. In broad terms, the violations could be categorized as obstructed egress/gate left open (4), safety netting/toe boards/guard rail (10), signage (1), fire risk (4), debris (1) and erroneous entry subsequently cancelled/insufficient detail available (6). All the violations were listed as "dismissed" which means they had all been remedied to the satisfaction of the Department of Buildings. The Director of Construction, Office of CMP stated that most of the violations were minor and had been remedied within a day. This was supported by the nature of the violations (which appear easy to remedy) and correspondence that was examined by OIOS which provides evidence of follow-up by CMP project managers. On the basis of OIOS enquiries and examinations, it is concluded that prompt action has been taken to remedy violations that occurred.

35. The Director of Construction stated that the Department of Buildings is consulted and details submitted at critical construction stages, for example, crane erection and inspection, and deployment of the "beeche system" for curtain wall installation. The Department of Buildings does not issue building permits to the United Nations because of its special status.

C. The Department of Safety and Security

36. DSS has a section of three personnel headed by a Safety Inspector who reports to the Senior Security Coordinator, CMP. The Safety Inspector and his staff were employed mostly on CMP, but also had some other duties that were not CMP related. The DSS team is responsible for the safety and security of

United Nations staff (as the construction manager's safety team is responsible for site safety and most of the related procedures).

37. The DSS safety personnel had formal safety qualifications. The Safety Inspector was a retired fire marshal and was still an active volunteer fireman and licensed fire instructor and building inspector. He had other qualifications including a certification in asbestos abatement. His two subordinates also had relevant qualifications and had arranged to attend a course leading to asbestos abatement certifications.

38. The Safety Inspector and his two staff undertook daily inspections of the construction site and between them covered every area of construction once or twice a day. The Safety Inspector and his two staff checked that workers perform their tasks safely. Sometimes they were accompanied by a project manager, or one of the construction manager's safety personnel. These inspections were recorded on standard format report sheets and sent to the construction manager's Senior Safety Manager if there were issues to be raised. Two times per month they accompanied personnel of the New York Department of Buildings, including personnel of the Fire Department and Department of Environment Protection. The staff of both the UN and the construction manager's safety organizations agreed that they had a positive relationship.

39. If there is a need for the Safety Inspector to raise safety issues, they are usually escalated to the Senior Security Coordinator, CMP who deals with the CMP's Director of Construction. The DSS Safety Inspector was aware that sometimes UN staff access the construction areas. He looks out for this on his daily walks and would confront persons who had entered into restricted areas.

40. As the DSS Safety Inspector was familiar with site conditions and well qualified to give an opinion, OIOS enquired whether he considered the construction site to be safely managed by the construction manager and in compliance with Occupational Safety and Health Administration (OSHA) and other relevant regulations. He agreed that they were and stated that if issues arose, they were dealt with at the time.

41. Hot work permits were issued by the DSS Fire Unit for tasks involving burning, soldering and welding. OIOS met with the OIC, Fire Unit who said that New York City codes were strictly enforced, and so workers undertaking the task had to possess a Certificate of Fitness and must also have a separate fire watch person with a Fire Guard Certification of Fitness in close proximity. There must also be a fire extinguisher available. At the end of the task the area must be searched to determine that there is no risk of fire. This search is repeated after 30 minutes to double check. Spot checks were carried out by personnel of the Fire Unit. Approximately four or five hot work permits were issued each day. These detailed the contractor doing the work, the location, the names of all the workers, and were signed as approved by the Fire Unit personnel after checks were made that the workers held current Certificates of Fitness.

42. Compliance with New York City codes was enforced by "fire watch" personnel who were employed as independent contractors to walk around,

observe and report on the activities and methods of hot works operatives. Fire watch records are subject to inspection by the City of New York Fire Department. If an area is left without fire water supply or fire alarm system because of ongoing works the New York City Fire Department Fire Safety Director is informed. Such areas are visited and inspected once an hour, 24 hours each day and hard copy records kept.

43. OIOS examined a sample of 20 hot work permits and they were all signed as required. Certificates of Fitness to carry out hot work and Certificates of Fitness to carry out Fire Guard duties were examined and were all found to be current. Fire Guard patrol logs were examined and all were correctly completed with times, locations and signatures by the responsible Fire Guard.

D. Asbestos abatement

Asbestos in the United Nations Secretariat and the risks it poses

44. Asbestos is a hazardous material that was commonly incorporated into the structure of older buildings. It has always been known that the UN Secretariat has areas where Asbestos Containing Material (ACM) had been incorporated into the original construction. It was important to develop a strategy before works commenced to eliminate the risks associated with asbestos and to comply with the regulatory framework governing asbestos. Therefore a firm of consultants was employed, and in 2002 an environmental remediation strategy was developed in support of the renovations that would be undertaken.

45. The report that resulted from that consultancy identified the health risks associated with ACM and the regulatory environment relating to its abatement. According to the report, “Intact and undisturbed ACM does not pose a health risk. It may, however, become a health hazard if it is damaged, disturbed, or deteriorated over time and releases fibres into the air. If released into the air, asbestos fibres may be inhaled. After prolonged or intense exposure, inhaled asbestos fibres may cause various types of lung disease.” The Occupational Safety and Health Administration (OSHA) website further states: “Asbestos workers have increased chances of getting two principal types of cancer: cancer of the lung tissue itself and mesothelioma, a cancer of the thin membrane that surrounds the lung and other internal organs. These diseases do not develop immediately following exposure to asbestos, but appear only after a number of years.” (OSHA is the main US federal agency charged with the enforcement of safety and health legislation).

46. The consultant’s report includes the nature and details of locations where ACM is situated within the Secretariat building. The report identified ACM as being present in vinyl floor tiles, acoustical plaster, transite panels, sprayed-on fireproofing, thermal system insulation, tar coating, soft concrete, window caulking, roofing material and exterior waterproofing throughout the complex.

47. Weekly meetings were held to coordinate abatement activities and these were attended by personnel from the consultant programme managers and the construction manager. OIOS attended one of these meetings as an observer and

examined tracking sheets prepared by the consultant programme managers to outline upcoming work together with dates of work plans received, and scheduled and actual start and completion dates. OIOS examined a sample of 6 tracking sheets and noted that there were no points of contention recorded.

The method used for the abatement of asbestos

48. Trade contracts for asbestos abatement were managed by the construction manager's project managers and overseen by the consultant programme managers on behalf of the CMP. A presentation entitled: "Briefing to UN staff – Asbestos Abatement overview" was prepared by a firm that conducted air monitoring for the CMP and is available for viewing on the CMP web site. It was the subject of a presentation made to staff prior to the commencement of abatement works. The presentation outlined procedures for air sampling and analysis, preparing the work area, and asbestos removal. Some of the precautionary measures imposed were as follows:

- (a) Federal, State and City regulations
- (b) Air sampling and analysis before, during and after abatement
- (c) Operatives wear protective clothing
- (d) Decontamination units for personnel and ACMs
- (e) Warning signage
- (f) Temporary electrical power panel to enable isolation
- (g) Critical barriers to isolate abatement areas using taped polythene
- (h) Negative air pressure within work area prevents escape of fibres
- (i) ACM kept wet and bagged in labeled bags for transport down hoist after the end of normal working hours
- (j) Final clean up including high performance filtered vacuum machines
- (k) Fortnightly inspections by Department of Buildings (including the Department of Environmental Protection). The Department of Environmental Protection arranged to enter a "tented area" (the active area for abatement works) on 19 August 2010. One observation was made: an electric hand tool had been left within the tented area by the abatement contractors who had constructed the wooden frame. There was concern that the tool may have been contaminated with asbestos fibres. The construction manager's Senior Safety Manager and the consultant overseeing the works on behalf of the United Nations explained that prompt action had been taken to bag the tool in waste bags, and discard it along with other contaminated waste.

OIOS site visits

49. OIOS was accompanied by a staff member of the consultant programme managers on site visits to observe preparatory and ongoing abatement works on 27 May 2010 and 13 August 2010. The implementation of the above precautionary measures (paragraph 47) was evident. Specifically, air sampling machines were operating, clean areas for changing had been assembled, warning signage was prominently displayed, the electrical power was provided by a single panel, critical barriers were under visible negative air pressure. (The OIOS staff

member was not qualified to enter the abatement area to observe decontamination units or work in progress). OIOS checks confirmed that the companies carrying out abatement works held current asbestos handling licenses with the New York Department of Labour. Based on the observations and explanations received during the site visit, OIOS concluded that the abatement work was proceeding using safe working practices.

Photo 2 – Air monitoring machine



Photo 3 – Warning signage



Photo 4 – Changing area



Air monitoring results

50. Air monitoring was carried out by one of two firms who were independent of both the construction manager and the contractor carrying out the asbestos abatement. Monitoring machines checked the concentration of asbestos fibres in the air, which must be less than 0.01 fibres per cubic centimeter of air. Air monitoring was carried out prior to, during and after abatement works and testing results were emailed to the member of staff of the consultant programme manager who oversees and coordinates abatement works. Written results were also submitted, including re-occupancy letters from the air monitors that confirm compliance with regulatory requirements and clear the specified area for re-occupancy. The consultant programme manager's staff stated that no results received from the air monitors exceeded the maximum allowed since abatement works began. This was confirmed by OIOS checks on all the re-occupancy letters for 2010 (up to 27 July 2010) which were usually issued within a day of abatement work being completed.

51. The DSS Safety Inspector undertook spot checks at the perimeter of abatement works, but did not enter contaminated areas. He ensured and advised the construction manager's safety team about requirements for proper signage and, in the event of an incident requiring evacuation, he would be responsible for the evacuation of personnel. The whiteboard in the Secretariat lobby notified the progress of abatement work so that fire crews or other personnel are aware of locations where there is abatement work proceeding. The Safety Inspector recorded his observations on standard forms each day and sent them to the construction manager's Safety Manager for necessary action. He also maintained close contact with the construction manager's Safety Manager and spoke to him daily and expedited any actions that were urgent. OIOS examined a small sample of daily inspection reports and of the 41 issues raised, none related to asbestos abatement.

V. ACKNOWLEDGEMENT

52. We wish to express our appreciation to the Management and staff of DSS, the Office of the CMP and the Construction Manager for the assistance and cooperation extended to the auditors during this assignment.

STATUS OF AUDIT RECOMMENDATIONS

Recom. no.	Recommendation	Risk category	Risk rating	C/O ¹	Actions needed to close recommendation	Implementation date ²
1.	The Office of the Capital Master Plan should request that the construction manager's Senior Safety Manager should retain original supporting documents detailing the circumstances and perpetrators of unsafe conditions rated as high severity or life-threatening to enable scrutiny and provide a record of attribution of fault and action taken.	Governance	Medium	C	Action completed	Implemented

1. C = closed, O = open

2. Date provided by Office of USG, DM in response to recommendation.

ANNEX 2

A summary of key safety related duties of the construction manager, trade contractors, UN DSS, and Office of CMP

Construction Manager	Trade Contractors	DSS	Office of CMP
<p>Ensuring that safe practices in the construction area by the construction manager’s and trade contractors’ personnel.</p> <p>Preparation of project manual that includes requirements relating to health and safety.</p> <p>Management of trade contracts that impose a number of safety obligations on trade contractors.</p> <p>Provision of 4 full-time safety staff who monitor and enforce safety requirements.</p> <p>Delivery of safety orientation sessions and distribution of a Safety Orientation Booklet.</p> <p>Weekly safety meetings with trade contractors’ supervisors.</p> <p>Provision of management information on numbers of inspections conducted, observations made and unsafe conditions observed.</p> <p>Preventing unauthorized persons from entering the construction site</p>	<p>Trade contractors have persons designated as responsible for safety.</p> <p>Trade contractors have a duty to ensure that their operatives use safe working methods.</p> <p>Supervisors organize orientations and hold safety meetings using themed safety training briefing sheets that are produced by the construction manager.</p>	<p>The Safety Inspector and his two staff undertake daily inspections of the construction site.</p> <p>The Safety Inspector and his two staff check that workers perform their tasks safely.</p> <p>The Fire Unit employs “fire watch” personnel” who are independent contractors to inspect and report on the activities of hot works operatives.</p> <p>The Fire Unit liaises with the City of New York Fire Department.</p> <p>DSS Safety and Fire Unit personnel review designs and plans to ensure they are acceptable.</p>	<p>Management of the Coordination Agreement with the construction manager to ensure that the construction manager delivers safety related obligations.</p> <p>The Office of CMP informs UN staff and other stakeholders on safety issues, e.g. the presentation on asbestos abatement and town hall meetings.</p> <p>Planning and strategy regarding health and safety issues.</p> <p>Specialist oversight of asbestos provided by consultant programme managers.</p> <p>Liaison with New York City regulatory authorities.</p>

Safety inspections carried out by the construction manager's safety personnel for the year ended 31 July 2010

	Observations	Unsafe Conditions	Safe Conditions	% Safe	Low	Medium	High	Life threat
Administration	265	1	264	99.6				
Workers orientated	50	1	49			1		
Other admin sub categories	215	0	215					
Confined space	59		59	100.0				
Cranes & hoisting eq	169	1	168	99.4				
Safety latches used	8	1	7	87.5		1		
Other sub-categories	161	0	161	100.0				
Electrical	733	17	716	97.7				
Electrical room protected	23	6	17	73.9		6		
Grounding prongs on plugs	116	1	115	99.2	1			
GFCI tested before use	132	9	123	93.2	3	6		
Temporary lighting present	130	1	129	99.2	1			
Other sub-categories	330	0	330	100.0				
Environmental	99	1	98	99.0				
Concrete cut wet & vacuumed	6	1	5	83.3	1			
Other sub-categories	93	0	93	100.0				
Excavations	65	0	65	100.0				
Fall protection	683	14	669	98.0	3	3	8	
Improper tie back to lanyard	8	1	7	87.5		1		
Ext/interior guardrails	73	2	71	97.3		2		
Fall protection at 6 feet	97	9	88	90.7	3		6	
Task specific fall protection plan	2	1	1	50.0			1	
Safety harness & lanyard inspected	83	1	82	98.8			1	
Other sub-categories	420	0	420	100.0				
Fire Protection	107	1	106	99.1		1		
Fire suppression equipment available	20	1	19	95.0		1		
Other sub-categories	87	0	87	100.0				
Forklift	19	0	19	100.0				
Hand and power tools	618	1	617	99.8	1			
Ground prong in place	105	1	104	99.0	1			
Other sub-categories	513	0	513	100.0				

	Observations	Unsafe Conditions	Safe Conditions	% Safe	Low	Medium	High	Life threat
Hazard Communications	104	0	104	100.0				
Housekeeping	841	23	818	97.3	5	18		
Clear access to building/site	137	5	132	96.4		5		
Cords/hoses off ground/protected	111	5	106	95.5	3	2		
Impalement protection	109	7	102	93.6		7		
Slip, trip, fall hazards	111	2	109	98.2	1	1		
Access and egress walkways clear	136	4	132	97.1	1	3		
Other sub-categories	237	0	237	100.0				
Infection control	32	0	32	100.0				
Ladders/stairs	338	11	327	96.7	4	7		
Clear of debris/materials	50	1	49	98.0	1			
Inspected for defects	52	1	51	98.1		1		
Ladders secured	20	1	19	95.0	1			
Ladders use (inactive)	81	5	76	93.8	2	3		
Stepladders fully extended	41	2	39	95.1		2		
Non specified unsafe condition	1	1	0	0.0		1		
Other sub-categories	93	0	93	100.0				
Medical/Emergency	258	2	256	99.2	2			
Person with first aid/CPR on site	20	1	19	95.0	1			
Team contact numbers	58	1	57	98.3	1			
Other sub-categories	180	0	180	100.0				
Motorized Equipment	247	1	246	99.6		1		
Flagman used if applicable	35	1	34	97.1		1		
Other sub-categories	212	0	212	100.0				
Personal protective equipment	4660	425	4235	90.9	363	62		
Hard hats	1024	87	937	91.5	83	4		
High vis reflective vest	715	34	681	95.2	32	2		
Proper clothing	472	1	471	99.8	1			
Proper face/eye protection	670	188	482	71.9	151	37		
Safety glasses/side shields	585	115	470	80.3	96	19		
Other sub-categories	1194	0	1194	100.0				

	Observations	Unsafe Conditions	Safe Conditions	% Safe	Low	Medium	High	Life threat
Planning	710	71	639	90.0	40	28	3	
Accessible/Posted (inactive)	44	6	38	86.4	2	4		
Adequate steps listed	44	2	42	95.5		2		
Completed and on file	51	5	46	90.2	3	2		
Crew participation	46	3	43	93.5		2	1	
Adequate resources	48	9	39	81.2	5	4		
Proper methods used	51	7	44	86.3		6	1	
Risk communication	40	1	39	97.5	1			
Daily pre task completed	90	35	55	61.1	29	5	1	
Posted in work area	29	2	27	93.1		2		
Sub imp plan (PEP)	45	1	44	97.8		1		
Other sub-categories	222		222	100.0				
Respiratory	8	1	7	87.5		1		
Workers properly fit tested	3	1	2	66.7		1		
Other sub-categories	5	0	5	100.0				
Scaffolds	230	2	228	99.1		2		
Proper fall protection	3	1	2	66.7		1		
Sills, plates jacks installed	13	1	12	92.3		1		
Other sub-categories	214	0	214	100.0				
Scissor/aerial lifts	146	5	141	96.6	3	2		
Gate or chain secured	19	5	14	73.7	3	2		
Other sub-categories	127	0	127	100.0				
Site/public protection	162	3	159	98.1	3			
Barricades installed properly	19	1	18	94.7	1			
Perimeter fences	15	1	14	93.3	1			
Traffic control plan	10	1	9	90.0				
Other sub-categories	118	0	118	100.0				
Steel erection	7	1	6	85.7	1			
Fall protection plan	1	1	0	0.0	1			
Other sub-categories	6	0	6	100.0				
Welding/Cutting	329	2	327	99.4		2		
Fire extinguisher present	37	2	35	94.6		2		
Other sub-categories	292	0	292	100.0				