APPENDIX 23

FIRE SAFETY REQUIREMENTS FOR BUILDING UNDERMAINTENANCE / REFURBISHMENT

1. Scope

This appendix outlines the minimum requirements to be observed to ensure the safety of people in and around the building during maintenance and refurbishment work. It also provides for energy conservation and access to and from the premises.

2. General

Prior to any, maintenance/ refurbishment works being undertaken, the main contractor, shall establish the extent of the building's fire safety arrangements that may be affected by the works. Initially by considering the points in Table 1 below, by identifying the proposed works to the existing structure and surrounds and by establishing the impact on the existing fire safety arrangements.

MFRS requires the main contractor to use the information supplied along with other relevant procedures to put in place suitable safety control measures to remove, reduce or mitigate the risk of fire and provide suitable Means of Escape, adequate fire & safety separation from the site and warning of fire for the duration of the project.

If the answer to any of the questions on the Table 1 is YES, the contractor shall then refer to a more detailed summary of considerations highlighted at Annex A

These considerations should generate suitable control measures and arrangements to be documented by the main contractor to protect all persons.

TABLE 1 - WORKS IDENTIFICATION CHECK SHEET

Use Table 1 below to identify those areas where risk assessment or control measures are likely to be required. Where the answer is YES to any of the items below, then the main contractor will need to refer to the more detailed guide and explanation at Annex A to this document.

PROJECT: _____

(1) Means of Escape are: The structural means whereby a safe route is provided for persons to travel from any point in a building to a place of safety beyond the building without outside assistance	
Will the construction works or site compounds make any changes, internally or externally in this or neighbouring building existing escape routes?	Yes/No
Are there works in corridors, stair enclosures, lobbies and vestibules used by the building occupants for circulation and forms part of the Means of Escape routes from the building?	Yes/No
(2). Fire Compartmentation are means: To contain the fire within the zone of origin and to provide protection to the rest of the building and its occupants by delaying the spread of fire prior to the arrival of the Fire Services by physical barriers such as fire doors and openings in compartment walls, floors, service ducts and shafts or construction openings etc.	
Is there a need to maintain clear physical fire separation (hoardings / fences / partitions / doors etc.) between construction site and work activities by contractors, and staff, or visitors both internally or externally	Yes/No
Will any works be carried out to walls, floors or partitions in corridors, stair enclosures, lobbies,vestibules, service risers or plant rooms, which will be removed, interfere or negating their firebarrier qualities?	Yes/No
(3). Fire Alarm Systems are means: To ensure that the occupants of the premises have adequate warning system in case of fire, but not necessarily by Automatic Fire Detection	
Will the works interfere with the building's existing fire alarm system -	Yes/No
The existing smoke detectors will need to be changed for construction	Yes/No
(4). Emergency and Safety Lighting provides: Adequate illumination of the Means of Escape in all part of the building/premises in the event of a fire or local lighting circuit failure:	
Will the works interfere with the building's existing emergency lighting or normal lighting systems that may affect either general safety or the illumination of the Means of Escape?	Yes/No
(5). Safety Signage indicates: Direction of normal circulation and Emergency changes in the routes forming means of escape as well as other fire safety equipment:	
Will the works interfere with the building's existing Means of Escape or normal circulation routes requiring signage to be changed, provided or special instructions to be produced?	Yes/No

(6). Fire Fighting Provision provides: Adequate means of fighting incipient fires:	
Will the works interfere with the building's existing fixed firefighting systems; including the fire hose reels, pumps, dry risers or other (e.g. Inergen/Gas) systems within the building?	Yes/No
Will there be obstructions / activities that impact of the fire brigade's access to the building and the site?	Yes/No
(7). Hot or Hazardous Works on Site means: Are operations involving working with equipment which generates sparks and heat during the process. It operates at high voltages and may involve inflammable substances:	
Will there be Hot Works and or Hazardous processes within the site that may affect the occupants?	Yes/No
(8). Storage on Site: Involve materials used for the work, inflammable substances such as paint, thinner, lacquer, gases, etc., demolished material:	
Will there be gas cylinders used or stored on site (particularly flammable gases) or other hazardous materials?	Yes/No
Will the storage affect access to and from the site?	Yes/No
Will the storage affect the fire protection system?	Yes/No
Will the storage form fuel for any fire incident?	Yes/No

ANNEX A

A1. Means of Escape

A1.1. Will the construction works make any changes to the existing escape routes?

Escape routes during the project works must be suitable and sufficient for the evacuation of all persons in the building. The contractor should also consider and incorporate items identified below into the risk assessment.

A1.2. Will works be carried out in corridors, stair enclosures, lobbies and vestibules, that impact on occupants evacuating from the premises using these routes?

Identify areas and routes likely to be in conflict with the construction works and the activities of occupants, including general circulation areas. The main contractor will need to arrange to separate, segregate or protect occupant's escape routes during the works.

A1.3. Will new or temporary internal fire escape routes be required because of proposed works?

Identify the possible need to remove, alter or modify existing escape routes to enable construction works to be completed. Fire Safety Manager can assist with guidance on alternative routes or ways that may assist contractors to maintain the means of escape via other or adjoining premises for instance.

A1.4. Will there be a need for escape routes to pass through the construction site?

What are the arrangements and procedures for access through construction site in emergencies only?

A1.5. Will there be any changes to the final exits, external escape or circulation routes on leaving the building?

Identify any final exit doors likely to be affected by the works, ensure suitable arrangements for escape, that thereare no conflicts of interests between escape and security etc. Consideration should be given to existing fire escapes discharging from the project area or adjoining premises impact on traffic routes (both pedestrian & vehicular), any en-route hazardous storage, processes, loading, unloading activities, disabled access and egress etc. Fire Safety Manager can provide guidance on alternative routes to assist contractors to maintain the means of escape during the works.

A2. Fire Compartmentation

As a guide, a minimum of 30 minutes, Fire Resistance (FR30) should be applied during the works to fire doors and temporary openings which protect the Means of Escape. In certain circumstances, a higher degree of structural fire compartmentation may be necessary during the construction phase, depending on the risk and/or site activities;

A2.1. Will there be any changes to the existing fire doors?

The contractor shall identify any fire doors that may be affected by the project works. Ensure suitable arrangements are made to protect, maintain the doors and their important function to ensure adequate fire compartmentation between works and occupants

A2.2. Will any existing fire doors be removed?

The contractor need to identify any fire doors that need to be removed, then to provide suitable arrangements to maintain adequate fire compartmentation between site and other occupants when removed.

A2.3. Will any existing fire rated walls or partitions be removed, or interfered with (negating their fire barrier qualities)?

The contractor need to identify fire partitions and walls that are to be removed by the project works, so that suitable arrangements can be made to maintain adequate fire compartmentation between site and occupants.

A2.4. Fire Spread

Fire spread may be a significant risk due to the contractor's activities; therefore, in all cases, construction sites are to be fire separated.

Table 2:

Location of Hoarding or Cabin	**Fire Rating (for exposure from each side separately)**
Internal Location - separating construction or storage areas from occupied areas;	**60 minutes** (FR60) fire separation required;
Internal Location - part of a firefighting shaft (stair, lobby,access corridor);	**120 minutes** (FR120) fire separation required
External Location - office use, adjacent to escape routes orother buildings;	**30 minutes** (FR30) fire separation required;
External Location - storage use, adjacent to other buildings or escape routes;	**60 minutes** (FR60) fire separation required
External Location SKIPS - Skips waste removal locatedadjacent to buildings (unless located greater than 3m fromany structure) then must be fire horded between the skip and the building;	**30 minutes** (FR30) fire separation required
External Location - more than 20m from other buildings,escape routes;	No fire separation required;

A3. *Fire Alarm Systems*

A3.1. Will the construction work interfere with the building's fire alarm system?

The fire alarm maintenance contractor must carry out all works on a 'live' fire alarm system in an occupied building. The main contractor must ensure that the fire alarm system is maintained to give adequate warning and the ability to raise the alarm to occupants in the rest of the building.

A3.2. Is it likely that the construction work will cause false alarms, due to dust and dirt within the construction site?

Control measures must be introduced and maintained as per fire alarm construction arrangements and standards, i.e.:

- Change all smoke detectors in and around the site likely to be effected by dust etc, to rate of rise (heat) detectors,

- Seal all openings and gaps around doors, windows or service risers to stop the passage of dust etc migrating into areas where these control measures are not in place.

A3.3. Will it be necessary to maintain or install temporary Automatic Fire Detection?

A system must be in place to provide 'early warning to occupants' of fire or smoke within escape routes. In certain circumstances and for insurances purposes automatic fire detection will need to be maintained and managed.

A3.4. Does the existing building fire alarm system need to be maintained during the project?

The main contractor will need to take such steps to ensure that his works do not detrimentally affect the existing building fire alarm system. Any works on the system (or part of the system) by the project, must include full functional tests to prove the building system continues to operate correctly. Records will need to be kept in respect to any works to the fire alarm system during the project.

A4. Emergency & Safety Lighting

A4.1. Will changes interfere with the existing emergency lighting?

Circulation areas and escape routes from the building may require temporary emergency escape lighting if occupants work outside of 'normal working hours'. If the construction works are scheduled during the winter months,when darkness may fall within the normal occupation times for the building, then illuminated escape routes (with emergency backup lighting) should be considered.

A4.2. Will there be a need for safe pedestrian lighting?

Internal and external areas likely to be used by occupants (including escape routes and circulation areas) should be illuminated with suitable lighting arrangements for general safety.

A5. Safety Signage

A5.1. Will there be changes to the Means of Escape?

Appropriate signage will need to be provided to clearly mark the escape routes, door furniture (if temporary or out of the ordinary operations) by using signage complying with BS ISO 3864.

A6. Fire Fighting Provision

A6.1. Does the project works interfere with the existing fixed fire fighting systems including the fixed hose reels/their pumps/break tanks, dry risers or other (e.g. Inergen Gas suppression) systems within the building?

Procedures must be implemented to ensure that these systems are maintained or, that suitable alternative arrangements are undertaken by the project manager.

A6.2. Does the project works interfere with portable fire extinguishers.

Extinguishers provided are not to be damaged, interfered with or moved from fire points. The existing extinguishers should be removed from the project areas by the Fire Safety Manager and replaced on completion of the works.Contractors should provide their own extinguishers, which are suitable for the risk within the site.

A6.3. Does the project works affect the Fire Service Access?

Roads, entrances, access and turning points identified or likely to be used by the Fire Service Vehicle attending an incident at the premises must be maintained free of obstructions and hindrances. If access is made unavailable then alternative arrangements must be made.

A7. Hot or Hazardous Works on Site

A7.1. Will there be Hot Works and/or Hazardous Processes within the site that increases the risks of fire and thereby affect the occupants?

Suitable assessments of risks and their controls are to be provided by Contractors for Hot Works complete with method statements provided. Competent supervision must be in place during the works. Such systems and procedures must meet or improve Hot Work Permit Systems or the standard set out in the documentation.

If the use of acetylene is unavoidable and approved by the Fire Safety Manager, cylinders are not to be stored on site kept; and acetylene removed from site as soon as its use is completed.

Combustible material located within 10 metres of the work must be removed or protected with non-combustible curtains, metal guards of flameproof covers.

Barricades, warning signs and spark/flash screens must be provided to protect other personnel in the area.

The work area, trenches, pits, etc. must be clear of flammable liquids, gases or vapours

All floor and wall openings within 10 metres of the work being conducted must be covered to prevent transmission of sparks.

The hot work area and any adjoining areas must be patrolled from the start of work until 30 minutes after the work is completed (including rest periods).

A 7.2 Protection from falling, collision and impact

Stairs, ladders, scaffolders and ramps should be designed, constructed and installed as to be safe for people moving between different levels in or about the building.

Stairs, ramps, floors and balconies to which people have access should be provided with barriers where it is necessary to protect people in or about the building from falling.

Glazing in critical locations – below 800mm from floor level and 1500mm in doors and adjacent side panels is required to either be safety glass which breaks safely, resist impact without breaking or be permanently protected.

A8. Storage on Site

A8.1. Will there be Gas Cylinders used or stored on site?

Storage and control measures must be provided, to protect the building's occupants and the Fire Service attending any incident.

A8.2 Conservation of fuel and power

Provision shall be made for the conservation of fuel and power in buildings by limiting heat gains and losses and by providing fixed building services which are energy efficient and have effective controls. It also makes provision to supply building owners with sufficient information about the building, the fixed building services and their maintenance requirements so that the building can be operated in such a manner as to use no more fuel and power than is reasonable in the circumstances

A8.3 What arrangements will be in place to remove waste materials at the end of each day from within the building?

All waste materials once outside must be kept away from the building and must not obstruct circulation or escape routes etc.

A.9 Ventilation

A9.1 Will there be adequate ventilation?

Adequate means of ventilation for people within a building is required. Ventilation is the removal of 'stale' indoor air from a building and its replacement with 'fresh' outside air of reasonable quality.

The ventilation strategy can be delivered by a natural ventilation system or a mechanical ventilation system or a combination of both (i.e. mixed-mode or hybrid ventilation system). When creating new habitable accommodation, it is important to consider ventilation at an early stage is it may require provision of a new window to provide natural ventilation, or the installation of a mechanical air supply and extract system if natural ventilation is not possible.

A.10 Electrical

Refurbishment work in buildings presents the greatest risk and must be planned, managed and monitored to ensure that workers are not exposed to risk from electricity.

Specific specialist electrical work should only be undertaken by those who are trained and competent to do so and by following strict procedures.

The electrical equipment used must be safe, and properly maintained.

Those responsible for planning and managing refurbishment work must understand the electrical system of the building in which the work takes place and liaise with the building occupier.

This will enable building work to be planned and managed so that the integrity of the electrical system is not compromised and the workforce remains safe.

Residual current device (RCDs) must be properly installed and enclosed; checked daily; treated with care; kept free of moisture and dirt; and protected against vibration and mechanical damage.