

FIT-OUT GUIDELINES

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SECTION 1

General Information

1.1 Introduction

This Fit-out Guideline contains general information, process steps, technical requirements, and health, safety & environment regulations, which have been established by Zoning Authority to assist building owners / tenants, designers, fit-out consultants and fit-out contractors to effectively plan all fit-out activities.

It is essential that all fit-out consultants / fit-out contractors abide with these guidelines and regulations. They shall be responsible for ensuring the design and completion of the fit-out project as per local statutory requirements and relevant international standards.

1.2 Scope

This guideline shall apply to all residential, industrial, institutional or commercial premises within the jurisdiction of the Zoning Authority undertaking new fit-out works, fit-out additions, and fit-out modifications.

The following scopes are covered in this guideline:

- Architectural & Partitioning
- Structural (if applicable)
- MEP (Mechanical, Electrical and Plumbing) Installations
- Health, Safety & Environment Regulations

1.3 Who Is This Guideline For?

- All developers, landlords and building owners
- All new Tenants
- All fit-out coordinators, fit-out consultants, fit-out contractors & fit-out sub contractors who design & execute the fit-out works
- Tenants undertaking minor upgrades or re-fits
- Tenants shifting premises

1.4 Definitions

DTMFZA	Dubai Technology and Media Free Zone Authority
Main Consultant	Appointed by the Building Owner / Client for the concept and final design
Main Contractor	Appointed by the Building Owner / Client for the main "base build" construction of a building.
Regulatory Authorities	Local government authorities for e.g. <ul style="list-style-type: none">▪ Dubai Technology and Media Free Zone Authority (DTMFZA)▪ Dubai Electricity and Water Authority (DEWA)▪ Dubai Municipality (DM)▪ Civil Defense (CD)
Tenant	Office and or Retail occupier based on a leasehold contract with the Master Developer / Freeholder / Building Owner.
Shell and Core	The "base build" construction of the building and the status of the office areas at the time of handover from the Master Developer / Building Owner to the Tenant.
Fit-out	The process of installing or modifying building infill with the specific interior partitioning, floor, ceiling, mechanical, electrical, and environmental requirements, to make habitable space in a base building.
Fit-out Works	Tasks associated with the fit-out project.
Fit-out Design Layout	As provided by the fit-out designer for the fit-out works, submitted to Zoning Authority through Fit-out Coordinator.
Outline Program of Works	As submitted by the fit-out contractor for the complete duration of the fit-out works.
Pre-Qualification of Fit-out contractors	Competency Assessment of fit-out contractors carried out by Zoning Authority
NOC	No Objection Certificate
MEP	Mechanical, Electrical & Plumbing

1.5 Types of Fit-out Works

Fit-out works fall into two categories:

1.5.1 Minor Works

All fit-out works which do not by any means affect the existing electro-mechanical systems, fire-alarm & fire-fighting systems, civil defense requirements, building structure. E.g. painting, tiling, flooring, low height partitions, etc.

1.5.2 General Works

All fit-out works other than the minor works mentioned above. These typically include installation of new fit-outs and modifications to existing fit-outs.

1.6 Who is Involved in the Fit-out Process?

1.6.1 Building Owner

- To ensure all fit-out requirements under the premises are met according to Zoning Authority Fit-out guidelines.
- To appoint Fit-out Coordinator and Facilities Management Operator at the time of Fit-out Initiation. (refer to fit-out initiation process section 2)
- To ensure the selection of appropriately pre-qualified and insured Fit-out consultant / Fit-out contractor.

1.6.2 Tenant

- Office and / or retail occupier based on a leasehold contract with the Building Owner.
- To ensure the selection of appropriately pre-qualified and insured Fit-out consultant / Fit-out contractor.

1.6.3 Fit-out Coordinator (Fit-out Consultant / Designer)

- Appointed by Building Owner / tenant to carry out the technical management of the fit out works.
- Responsible for the fit-out design aspects and its compliance.
- Responsible for liaison with Zoning Authority and other related authorities.
- Updating and handover of the as-built drawings.

1.6.4 Facilities Management Operator

- Appointed by Building Owner, to oversee general administrative activities during the execution of fit-out works.
- To provide any required connection with the existing building facilities such as temporary electrical & water supply, drainage...etc. for the fit-out contractor.
- To arrange security passes and site access for the fit-out contractor's team.

- Responsible for overall logistics during fit-out works which include material handling, storage and garbage disposal, etc.
- Take preventive measures against any damages that may be caused to the building by the fit-out contractor

1.6.5 Fit-out Contractor and Subcontractor

- Appointed by the tenant / fit-out coordinator to execute the fit-out works. Fit-out contractors / subcontractors should be pre qualified by the Zoning Authority.
(refer to Fit-out Contractor's Prequalification section 1.7)
- To ensure that fit-out works is executed as per approved fit-out design.
- To comply with the Health, Safety and Environment Regulations. Primarily, to ensure that the health and safety of their employees and members of the public is not put at risk as a result of the work that they do.
- To ensure that fit-out contractor/subcontractor should abide with insurance policy for workmanship, and are liable for any accident and compensations to the worker.
- Fit-out contractor is responsible for any damages / obstructions to existing services and shall bear the full liability of fit-out works.

1.6.6 Zoning Authority

- Review and monitor the fit-out activities within the jurisdiction to ensure compliance with the regulations and local / international standards.
- Review proposed fit-out layouts and issue fit-out work permits accordingly.
- Ensure compliance through general and HSE inspections during fit-out works execution.
- Carry out completion inspection of fit-out works and issue fit-out completion accordingly.

1.7 Fit-out Contractor's Pre-qualification

Fit-out work cannot commence until the building owner / tenant / fit-out coordinator appoint a pre-qualified fit-out contractor through Zoning Authority.

In order to pre-qualify as a Fit-out contractor to carry out architectural, partitioning, structural works, electrical / mechanical and plumbing installations, the following minimum requirements should be fulfilled:

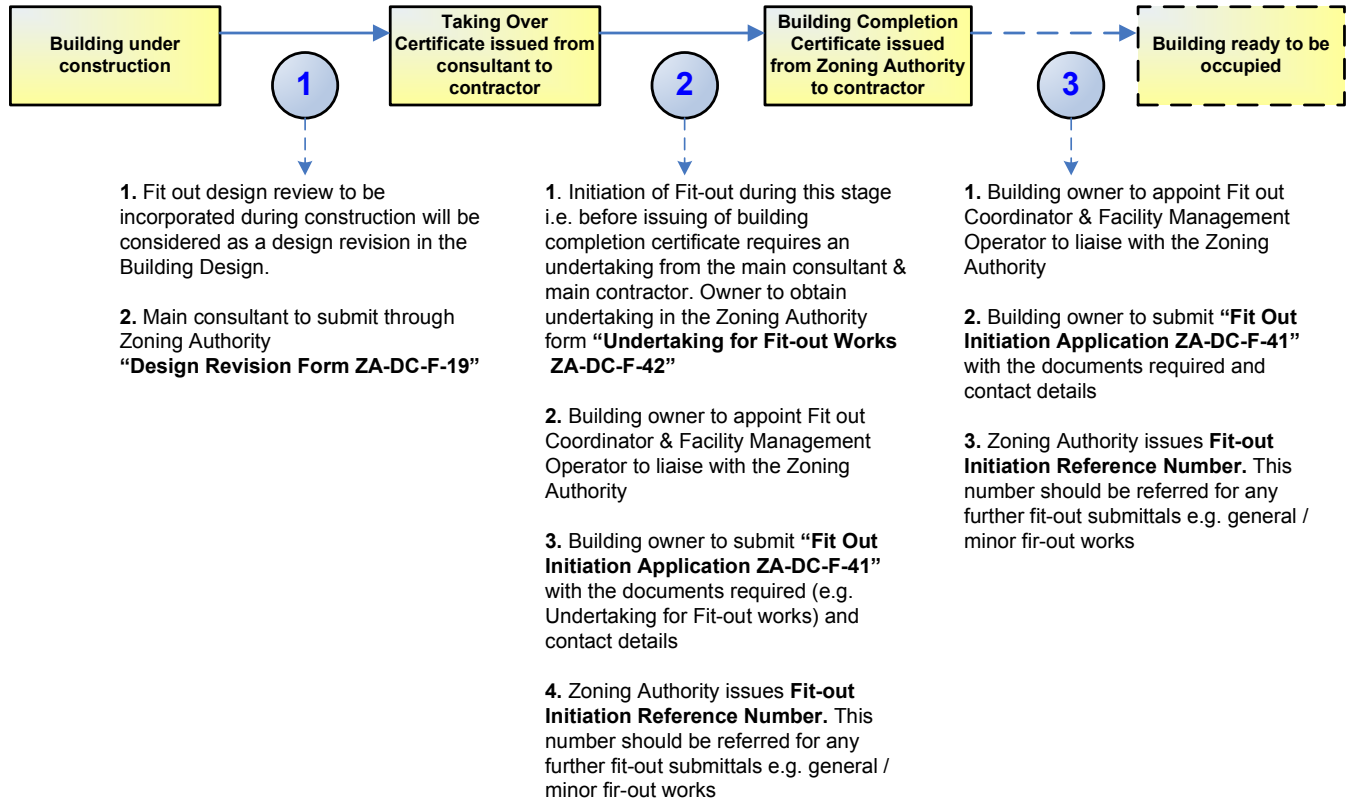
- Valid trade license issued by the Government of Dubai - Department of Economic Development. The activity should be specified as electro-mechanical installations, general maintenance, etc.
- The company should be registered as an electrical contractor or Fit-out contractor at DEWA.
- The company should have previous experience in Fit-out Contracting (e.g. electrical, mechanical, plumbing, architectural/partitioning & structural)
- The company should have at least one Electrical Engineer under their sponsorship with minimum one year experience in Dubai in supervising electrical works and design in compliance with DEWA regulations for electrical installations and other related local authorities/services providers' regulations.
- The company should have at least two Electricians under their sponsorship certified by DEWA.
- The company should have at least one Mechanical Engineer under their sponsorship with minimum one year experience in Dubai in supervising mechanical works and design in compliance with related local authorities/services providers' regulations.
- The company should have at least one safety officer approved by Zoning Authority.
- All technicians to be under the contractor's sponsorship.
- Fit-out contractor to provide a list of completed fit-out projects including the following details:
 - Project name
 - Project location
 - Client
 - Date of completion
 - Client's contact information: Name, Tel.#
- Fit-out contractor to fill and complete the "Fit-out Contractor's Pre-qualification Application" (ZA-DC-F-40) form along with documents required.

SECTION 2

Fit- Out Process

2.1 Fit-out Initiation

- Building owner can initiate fit-out works in any of the following three stages:



1. Fit out design review to be incorporated during construction will be considered as a design revision in the Building Design.

2. Main consultant to submit through Zoning Authority
"Design Revision Form ZA-DC-F-19"

1. Initiation of Fit-out during this stage i.e. before issuing of building completion certificate requires an undertaking from the main consultant & main contractor. Owner to obtain undertaking in the Zoning Authority form "Undertaking for Fit-out Works ZA-DC-F-42"

2. Building owner to appoint Fit out Coordinator & Facility Management Operator to liaise with the Zoning Authority

3. Building owner to submit "Fit Out Initiation Application ZA-DC-F-41" with the documents required (e.g. Undertaking for Fit-out works) and contact details

4. Zoning Authority issues **Fit-out Initiation Reference Number**. This number should be referred for any further fit-out submittals e.g. general / minor fir-out works

1. Building owner to appoint Fit out Coordinator & Facility Management Operator to liaise with the Zoning Authority

2. Building owner to submit "Fit Out Initiation Application ZA-DC-F-41" with the documents required and contact details

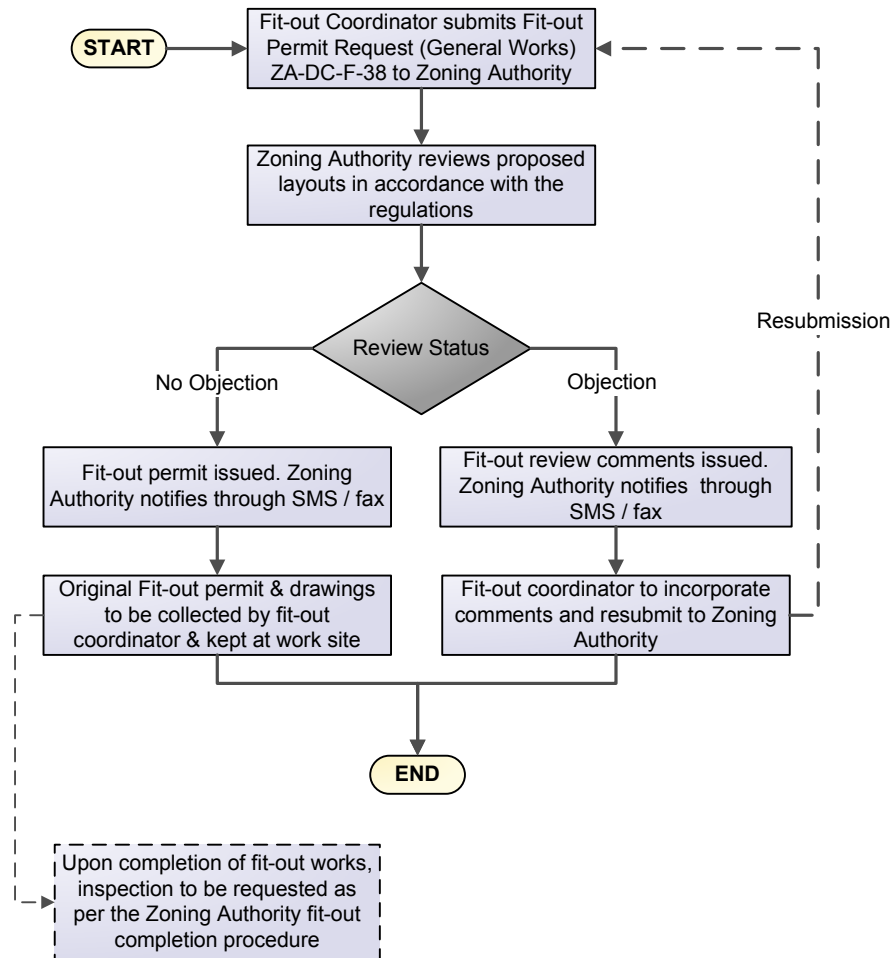
3. Zoning Authority issues **Fit-out Initiation Reference Number**. This number should be referred for any further fit-out submittals e.g. general / minor fir-out works

- Fit-out Coordinator to obtain As-built Drawings/building specifications from owner / client / tenant.
- Tenant/client proposes fit-out requirements to Fit-out Coordinator.

2.2 Fit-out Permit

a. Fit-out Permit Request (General Works)

Procedure Flowchart :



- Fit-out Coordinator submits the proposed fit-out layout through “Fit-out Permit Request (General Works) ZA-DC-F-38” along with the documents required as specified below.

- **General Documents**

- FIT-OUT CONSULTANT 'S / FIT-OUT CONTRACTOR'S APPOINTMENT BY THE TENANT.
- FIT-OUT CONSULTANT'S / FIT-OUT CONTRACTOR'S ACCEPTANCE LETTER (ORIGINAL ON LETTERHEAD)
- COPY OF FIT-OUT CONSULTANT'S / FIT-OUT CONTRACTOR'S VALID PROFESSIONAL LICENSE
- COPY OF TENANT'S VALID TRADE LICENSE (ISSUED BY RELEVANT AUTHORITY)
- NOC FROM CIVIL DEFENCE
- NOC FROM DEWA (ED & WD) INCLUDING SUB-METERING
- NOC FROM TELECOM OPERATOR (IF APPLICABLE)
- NOC FROM THE RELEVANT AUTHORITES FOR SPECIALIZED FIT-OUT PROJECTS (e.g.

- CLINIC, LABORATORY, INSTITUTION, RESTAURANT etc...)
- ENVIRONMENTAL AUTHORITY APPROVAL FOR KITCHENS, INDUSTRIAL USE (IF APPLICABLE).
- OUTLINE PROGRAM OF FIT-OUT WORK.
- HOARDING LAYOUT 2 SETS (IF APPLICABLE)
- COPY OF LEASE AGREEMENT
- COPY OF FEE RECEIPT (AS PER FEE MATRIX).
- SECURITY CHEQUE (AS PER FEE MATRIX)

○ **Drawing Layouts**

ALL THE DRAWINGS LAYOUT SHOULD BE SUBMITTED IN A1 SIZE FOR HARD COPY & IN DWG FORMAT FOR SOFT COPY

- EXISTING AS-BUILT DRAWINGS (2 SETS)
 - PROPOSED ARCHITECTURAL LAYOUT (2 SETS)
 - PLAN
 - SECTION
 - INTERNAL VIEWS
 - REFLECTED CEILING LAYOUTS
 - CORRIDOR WIDTH, HEIGHT (IF ANY)
 - FIRE AND LIFE SAFETY SCHEMES (IF ANY)
 - PROPOSED STRUCTURAL LAYOUT (2 SETS), IF APPLICABLE
 - PROPOSED MEP LAYOUT (2 SETS)
 - HVAC AND VENTILATION LAYOUT
 - DRAINAGE LAYOUT (IF APPLICABLE)
 - WATER SUPPLY LAYOUT (IF APPLICABLE)
 - MECHANICAL EQUIPMENT SHCHEDULE
 - POWER LAYOUT INDICATING METER LOCATION
 - POWER LAYOUT
 - LIGHTING LAYOUT
 - LOAD SCHEDULE
 - SINGLE LINE DIAGRAM
 - EXISTING DEWA APPROVED SINGLE LINE DIAGRAM AND LOAD SCHEDULE
 - FIRE ALARM AND FIRE FIGHTING LAYOUT (CERTIFIED BY SYSTEM INTEGRATOR)
 - LPG LAYOUT (IF ANY)
 - GREASE INTERCEPTER FOR KITCHEN/RESTAURANT (IF APPLICABLE).
 - COORDINATED REFLECTED CEILING PLAN WITH FINAL MEP FIX LAYOUT
- **Hoarding & Signage Specifications Requirements (if applicable)**

In cases when changes are required to the entire office-front design, the contractor shall erect a hoarding for the protection of other clients, staff and the general public, after approval from Zoning Authority.

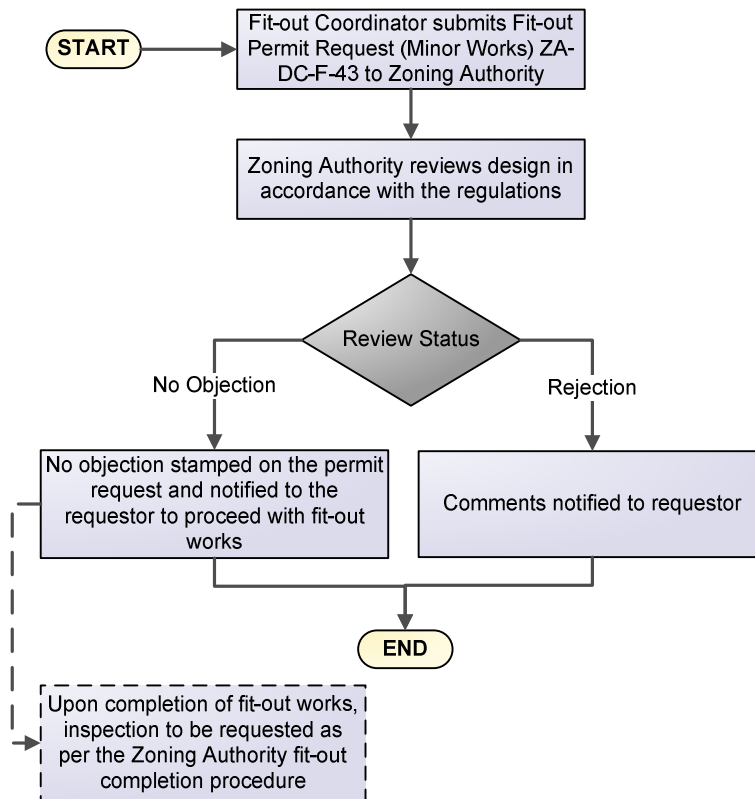
In such cases, the premises shall be enclosed within hoardings constructed from 19mm plywood sheets 1200 x 2400 on 50 x 50 softwood frames bolted together (white painted without any logo or artwork). The hoarding shall contain a single entrance lockable from inside and outside and shall be kept secure at all times. A spare set of keys must be given to Zoning Authority for emergency access to be

gained to the client's/tenant's premises. The hoarding shall be erected on the premise line as shown on the outline drawings and shall not be removed, extended or dismantled without prior permission from Zoning Authority. Hoarding may be moved into the common area (to a limited extent only).

During the fit-out construction period, all fit-out contractors should provide and maintain clear signage (A2 size) on the hoarding to indicate the approval "No Objection" which is provided by Zoning Authority.

b. Fit-out Permit Request (Minor Works)

Procedure Flowchart :



- Fit-out Coordinator submits the proposed fit-out layout through "Fit-out Permit Request (Minor Works) ZA-DC-F-43" along with the documents required as specified below.

- PROPOSED LAYOUTS (1 SET, A3 SIZE)
- OUTLINE PROGRAM OF WORKS
- COPY OF FIT-OUT CONTRACTOR'S VALID PROFESSIONAL LICENSE
- COPY OF TENANT'S VALID TRADE LICENSE (ISSUED BY RELEVANT AUTHORITY)
- COPY OF TENANT'S LEASE AGREEMENT
- COPY OF FEE RECEIPT (AS PER FEE MATRIX) NON-REFUNDABLE.

2.3 Fit-out Work Execution

2.3.1 Storage & Handling of Fit-out Materials

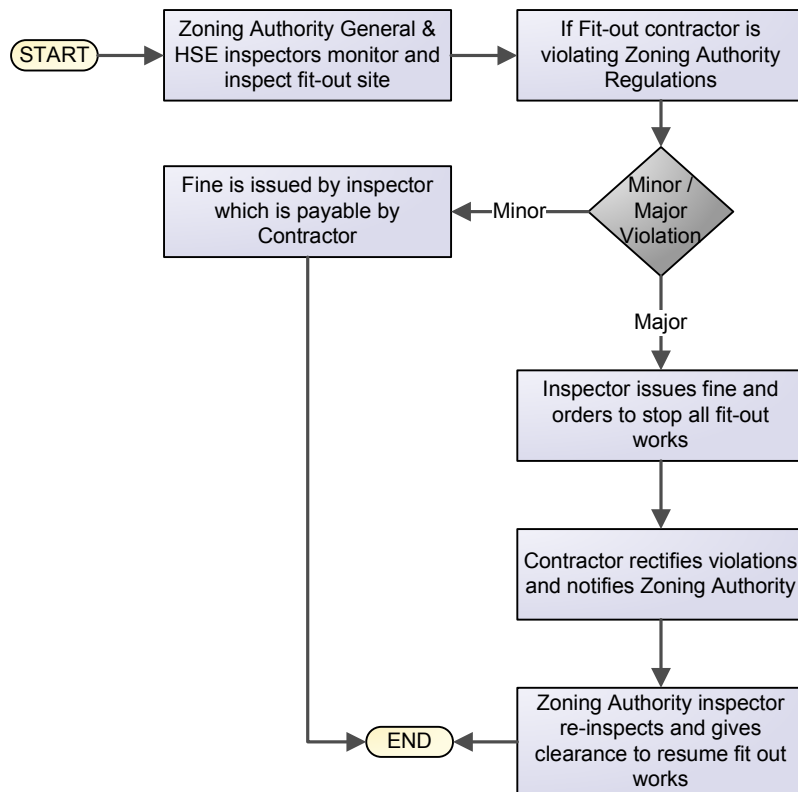
All items of plants, tools and materials brought on to the site are contractor's sole responsibility and must be stored within the client's/tenant's premises area being fitted out at all times. There is no storage permissible outside the working area unless get prior approval from Zoning Authority. Fit-out contractor shall bring materials to site on day-to-day basis.

All loose materials including sand, cement, screed, plaster etc... must be delivered to the site "bagged". Storage and mixing of materials must occur within the client's/tenant's premises. All floors must be protected to prevent the possible seeping of materials into other areas outside the unit premise.

2.3.2 Zoning Authority General & HSE Inspections

- Zoning Authority General Building Inspector and HSE Inspector will monitor and inspect the fit-out site to ensure Zoning Authority Rules & Regulations are followed and enforced along with Health, Safety and Environment Regulations.

Procedure Flowchart :

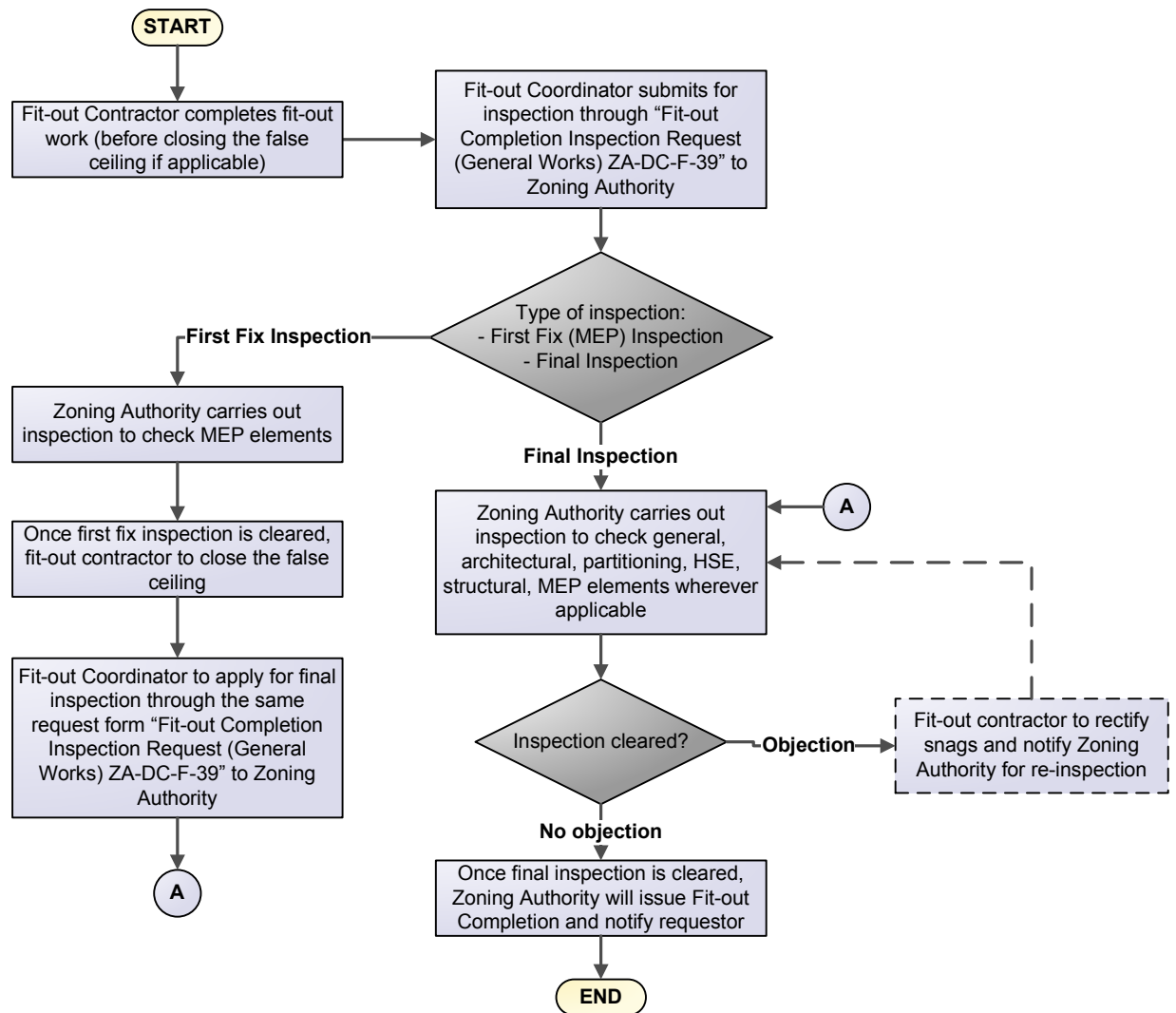


- If the Fit-out contractor contravenes any rules and regulations including health, safety and environment; inspectors shall issue a violation notice as per below
 - If minor violation, fine is applicable.
 - If major violation, fit-out work will be stopped immediately. Fit-out contractor should rectify the violations and notify Zoning Authority. Inspector will re-inspect and give clearance to resume fit-out work.

2.4 Fit-out Completion

a. Fit-out Completion Inspection Request (General Works)

Procedure Flowchart :



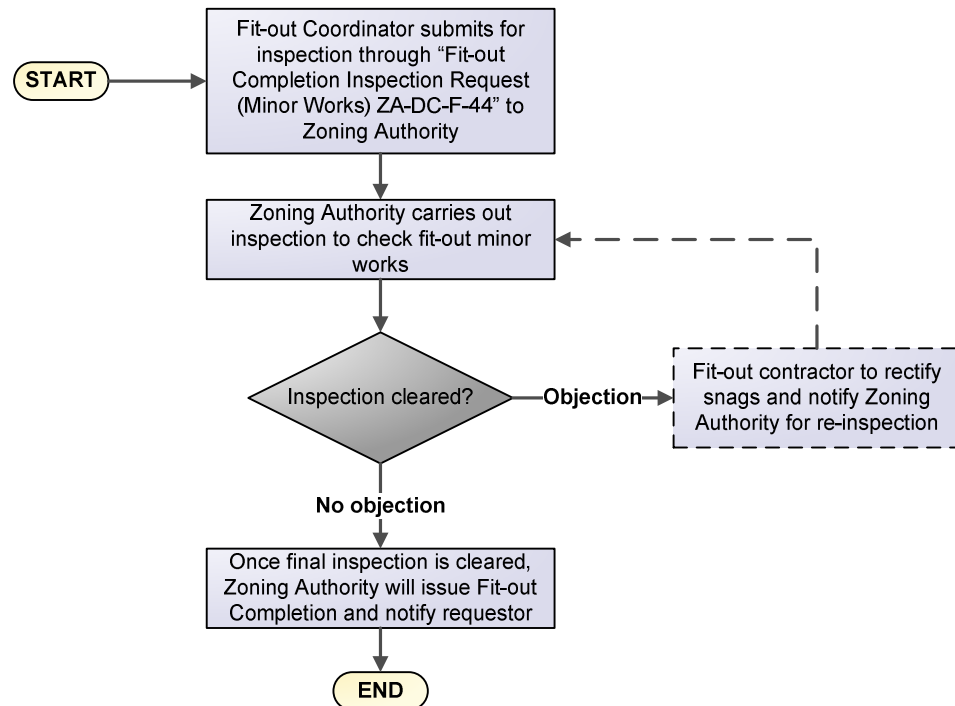
- First fix inspection will be applicable if there have been changes/modification in the existing services installed above the false ceiling. Hence, first fix inspection

should be applied before closing of any false ceiling, along with the following attachments:

- First Fix Inspection
 - NOC FROM CIVIL DEFENCE (ORIGINAL)
 - NOC FROM TELECOM OPERATOR (IF APPLICABLE)
- Once first fix (MEP) inspection is cleared, Fit-out Contractor to close false ceiling.
- Fit out Coordinator to apply for final inspection by submitting the previous (first fix inspection request) “Fit-out Completion Inspection Request (General Works) ZA-DC-F-39” along with the documents required:
 - Final Inspection
 - FIRST FIX INPECTION “NO OBJECTION” (IF APPLICABLE).
 - DEWA FINAL INSPECTION APPROVAL (COPY)
 - NOC FROM FIT-OUT COODINATOR TO ISSUE FIT-OUT COMPLETION
 - TENANT’S ACCEPTANCE LETTER FOR COMPLETED FIT-OUT WORKS (ORIGINAL ON LETTER HEAD)
 - CERTIFIED TAB (TESTING, ADJUSTING & BALANCING) REPORT

b. Fit-out Completion Inspection Request (Minor Works)

Procedure Flowchart :



- Fit out Coordinator to apply for inspection by submitting the “Fit-out Completion Inspection Request (Minor Works) ZA-DC-F-44” along with the documents required:
 - TENANT’S ACCEPTANCE LETTER FOR COMPLETED FIT-OUT WORKS (ORIGINAL ON LETTER HEAD)

SECTION 3

Civil

3.1 Architectural

3.1.1 Fulfillment of Required Internal Spaces

- Leasable areas

Type	Minimum Width	Minimum Area
Retail	2.4 M	11.14 SQM
Office	2.4 M	9.29 SQM
Living room	2.7 M	9.29 SQM
Service room	2 M	6 SQM
Maid room	2.1 M	6.5 SQM
Bedroom	2.5 M	7.5 SQM
Bathroom	1.5 M	2.78 SQM
Toilet	0.9 M	1.4 SQM
Kitchen	1.5 M	3.71 SQM

Any other uses must be provided according to number of people occupied within a space, and international standard.

- Corridors

Type	Minimum Width
Residential	1.8 M for areas more than 232.25 SQM 1.5 for areas less than 232.24 SQM
Offices	1.8 M for areas more than 232.25 SQM 1.5 for areas less than 232.24 SQM
Labor camp	1.8 M for two sided rooms 1.4 m for one side rooms
Mall	3 M
Educational buildings (class rooms)	3 M for two sided classrooms 2.4 for one side classrooms
Other uses	2.4 M
Interior corridors	0.9 M

3.1.2 The Clear Height of Internal Floors

Type	Minimum Height
Office	2.7 M
Retail	3 M
Residential	2.7M
Exhibitions	3 M
Half Mezzanine floor	2.4 M
Full Mezzanine floor	2.6 M
Halls	4.2 M
Mall	4.2 M
Industry	4.2 M
School	3 M
Mosque	3.6 M
Balcony (parapet height)	0.9 M

3.1.3 Lighting and Ventilation Openings

- All spaces within a building (kitchen, corridors, staircases, corridors, lease able areas) must be supported by natural lighting and ventilation through window and door openings.
- If it's required to ventilate an entrance or a corridor through its adjacent space, it's required to treat both spaces as complete area.
- Open kitchens in residential spaces must be supported by sufficient ventilation.

a. Windows

Window openings for leasable areas must be 10% of rentable areas, and 5% of services areas.

b. Doors

Type	Minimum Width
Residential	0.9 M
Offices	0.9 M
Toilets	0.8 M
Retail	1 M
Staircase	1 M
School	1 M
Workshops	3 M

3.1.4 Requirements of Food Outlets

- Restaurants, food courts, and food outlets must follow the health standards.
- Interior finishes for wall, floors, and roofs must be washable materials.
- All spaces must be provided with natural lighting and ventilation systems.
- All shafts and exhaust fans must be located back of the building or on a shaft to keep the building elevations clear.

Type	Minimum Area
Restaurant	28 SQM
Cafeteria	9 SQM
Cafe	9 SQM
Bakery	23 SQM

3.2 Structural

The fit-out consultant/fit-out contractor shall provide structural drawing layouts and specifications for any changes in the existing building structure to the main reinforced concrete, pre-cast concrete, post tension, load bearing block walls and steel structures with NOC/approval from the main consultant of the building as per the following requirements:

- No drilling, chipping, chiseling or coring in the structural members such as slabs, columns, core walls, shear walls and beams etc...
- No extra loads to be added to the existing structure other than the approved ones during the original approval of the building.
- All materials to have a fire rating as prescribed by the codes and standards.
- The gross weight of all the partitions, furniture's, fixtures, landscaping, water fountains and any new features not to exceed the loads assumed during the original approval of the building.
- No demolition of the structural members, permitted.
- All fit-out works to have sufficient allowance for movement of structural members.
- No pre fit-out works, such as hammering, cutting, assembling, etc to be carried out inside the building during execution, which may impair the structural safety and stability of the building.
- Changes of wall cladding, floor finishes, thickness of screed, raised floors is all to be clearly mentioned in the drawings to check the conformance of load with originally approved ones.
- Creation of new opening or closing of existing openings to be clearly mentioned and highlighted in the fit-out drawing submittals.
- Partition loads not to exceed 1kN/m^2 for office use and for other usage of buildings it has to confirm with the originally approved ones.

- Any new planted or floating columns to be shown clearly and the structural adequacy of the supporting members to be checked and all the supporting calculations to be submitted along with the necessary drawings stamped and signed by the main consultant of the building.
- Any structural connection of fit-out works with the building's existing structural members to be shown clearly in the drawings and it is subject to noc/approval of main consultant of the building.
- Any modification or change of usage of building or part of building to be clearly highlighted and mentioned in the drawings.
- Addition of unplanned mezzanine floors is not at all to be done.
- Any drilling beyond the depth of 25mm is to be clearly mentioned and highlighted.
- In case of post tension slabs, sufficient precaution is to be taken and well coordinated with the main and post tension consultant of the building while making drill holes or coring for fit out works.
- A written NOC/approval is to be submitted from the main consultant or the post tension consultant, whenever deemed necessary.

SECTION 4

Mechanical, Electrical & Plumbing (MEP)

4.1 Electrical Installations & General Requirements

Fit-out project as per local statutory guidelines and relevant international standards. This doesn't absolve fit-out contractors/fit-out consultant / facility management operator to fulfill the design liability requirement. Reference is made on 16th Edition of IEEE regulation and DEWA regulations for Electrical installation – 1997 editions.

- Component and part of the installation such as Cables, Apparatus, Equipment and accessories shall comply with the DEWA regulation and relevant BS standards.
- Switches and sockets shall generally be fixed in accordance with the mounting heights and the measurement recommended in relevant standards.
- Recommended lighting luminance shall be as per CIBSE standards.
- All the electrical symbols used shall be as per above reference.

4.1.1 DEWA Electric Supply and Point of Building Electric Supply

The nominal electric supply voltage from DEWA is 230/400 V $\pm 10\%$, 50 Hz, 3-phase, 4 wire with separate neutral and protective conductor. All equipments, apparatus, materials and accessories used in electrical installation should be designed, and rated for operation on this electric supply. Protective devices against overload, short circuit, earth leakages, over voltages, fluctuation, transients, and harmonics in fit-out installation as deemed as essential shall be provided.

The point of building electric supply which defines the boundary of building owners sub main distribution boards / distribution board where electricity shall be available within the building at the time of fit-out works .

4.1.2 Competitive Assessment of Electrical Fit-out Contractors

Electrical fit-out contractor who will execute the works at fit-out premise should be registered with DEWA.

4.1.3 Standards for Equipments and Materials

All equipments, apparatus, materials and accessories used in electrical installation should be as per relevant British Standards as indicated in DEWA regulations – 1997 edition.

4.1.4 Workmanship and Protection of Works

All fit-out installation shall be carried out in a neat, orderly workmanship. All equipment and accessories shall be installed at operational height approved by DEWA.

Fit-out contractor shall take all necessary steps to protect and keep safe all power distribution/ equipments during the course of the works and shall report to facility operator any damages or defects

4.1.5 Maintenance and Periodic Inspection

Maintenance, periodic inspection and testing of fit-out installation shall be carried out to ensure safety and satisfactory performance. Every fit-out installation shall be subject to periodic, random inspection and rectification shall be arranged for the defects if any found or as notified by DEWA/ Zoning Authority Development Control.

4.1.6 Inspection and Testing of Electrical Installations

Fit out contractor shall be required to submit inspection request to Zoning Authority Development Control for fit-out installation works. All installation and equipment shall be as per approved drawings from Zoning Authority Development Control and DEWA. All installation shall be subject to Zoning Authority Development Control and DEWA inspection before energizing the electrical supply. Approved DEWA/ Zoning Authority drawings shall be filed by land lord/ building owner/ FM operator for future use.

4.1.7 Extensions and Alterations

The tenant should not make any alterations/ extensions to the fit-out electrical installation without obtaining prior Zoning Authority Development Control approval on change made.

4.2 Load Assessment and Demand

4.2.1 Lighting and Small Power

All lighting and fan circuits should be generally be installed with maximum load per circuit within 1200 W and circuit breaker rating 12 A (2.5 mm² / 2.5 mm² circuit conductor) or 16 A (2.5 mm² / 2.5 mm² circuit conductor). A minimum of 100 W should be considered for each normal lighting and fan points. 50 W shall be considered for low wattage light points.

A radial final sub-circuit may be installed to serve maximum of four 13 A, switched socket-outlet and controlled by 20 A circuit breaker in the distribution board. A maximum of 6 socket-outlets may be connected to a ring circuit, controlled by 30 A circuit breaker.

A current demand of 13 A should be assumed for each 13 A switch socket outlet circuit. A minimum of 200 W per point may be considered for each 13 A switched socket –outlet, installed for general utility purpose other than in kitchen. All twin socket-outlets should be considered as two separate socket-outlet points. Kitchen/pantry area may require separate circuit.

A current demand of 15 A should be assumed for each 15 A switched socket-outlet circuit. For stationary appliance and equipment including air-conditioners, medical equipments, industrial equipments the actual load of each appliance and equipment should be considered as connected load.

4.2.2 Maximum Demand

All distribution boards should be rated for total connected loads before a diversity factor is applied.

The demand load for each final sub-circuit is determined by adding the actual or assumed load for individual points /appliance/equipment, whichever is higher.

In general, proposed connected load for the proposed fit-out shall be equal or less than provisional load allocated for the fit out area.

The details of load distribution schedules should be as per DEWA format.

4.2.3 Load Balancing

In case of three phase supply, load shall be distributed to ensure the load balance between the phases at all distribution boards

4.2.4 Power Factor and Correction Capacitors

The power factor of the fit-out installation shall be within the range of 0.9 lagging and unity. All final equipments such as AC units, light fittings, motors, or any apparatus shall be provided with suitable power factor correction capacitor to maintain 0.9 lagging

4.3 Apparatus and Accessories

4.3.1 Switches

The switches provided for local isolation of electric supply to individual apparatus and/ or circuits should comply with BS 3676. The rating of the switches should be selected based on individual applications, such as resistive or inductive loads. The minimum current rating should be 5 A. For industrial use the switches should be metal clad /polyamide

4.3.2 Plugs and Socket – Outlets

The single phase plugs and socket-outlets used in domestic and commercial installations should comply with BS 1363. The socket-outlets should be shuttered type, double pole, 3 pin flat type with switch.

The industrial plugs and socket-outlets should comply with BS 4343 and should be with switch, integrally built in or attached to it. The rating and type of socket-outlets with plugs provided should be selected to suit individual applications and should not be interchangeable for different current ratings.

4.3.3 Control of Water Heater

Double pole switches (with neon indicator) of appropriate rating should be provided **DOE** control of water heaters. The control switch for water heater situated/installed in a bathroom or toilet should be installed immediately outside the bathroom /toilet.

Water heater should be connected to a separate final sub-circuit from the distribution board. The heater should incorporate an integral earthing terminal adjacent to the phase and neutral terminals.

4.3.4 Control of Air Conditioning Unit / Equipment

A 15 Amp switched socket outlets / 20m isolators should be provided for air-conditioners such as FCU / other type of blowers. Double pole switch, of appropriate rating, with flex outlet mounted adjacent to the unit should be provided for control of other air-conditioning units.

Each air-conditioning unit should be connected to a separate final sub-circuit, from the distribution board. Where it is possible or applicable, AC system to be controlled through timer and motion sensors

4.3.5 Light Fittings

The type of light fittings that should be used in fit-out premises to be as per following:

- Compact fluorescent lights instead of incandescent lamps
- Halogen with dimming system
- Linear and circular fluorescent lamps
- HPS and metal halide
- Light emitting diodes lights
- Electronic ballast instead of magnetic ballast

The lighting circuits shall be controlled through energy efficient switching methods such as

sensors/ timer and relays.

4.3.6 Isolators

Double pole switch/ triple pole isolator, of appropriate rating, adjacent to the unit should be provided for isolation of any equipment.

4.4 Earthing and Earth Leakage Protection

4.4.1 Earth Continuity Conductor (ECC)

Every circuit in the sub-main and final distribution boards should be provided with a separate, green and yellow (G/Y), PVC insulated copper "ECC". The minimum cross sectional area of ECC's should be selected as DEWA specification.

The ECC's should be terminated at electrical equipment, apparatus and distribution switchgear, light fitting, mounting boxes of switches and socket-outlets, etc with tinned copper lugs, as applicable, at both ends on purpose made earth terminals.

4.4.2 Earth Leakage Protection

The earth leakage protection should be suitably designed and incorporated in each and every consumer installation.

The Earth Leakage Circuit Breaker (ELCBs) /Residual Current Circuit Breakers (RCCBs) should generally comply with BS 4293.

Operation of the ELCB/RCCB, earth leakage detection system, etc should be periodically checked and tested to ensure consumer safety.

4.4.3 Equipotential Bonding

All metal works of the consumer installation, other than current carrying parts, including cable tray, metal conduits, trunking, exposed metal parts of equipments, metal water pipes, apparatus, appliance shall be provided with equipotential bonding conductors.

4.5 Cables, Wires, Wiring System and Cable Management System

4.5.1 Cables and Conductors

For general purposes and in normal situations PVC/XLPE insulated, standard copper conductor cables complying with BS 6004 & BS 6346 / BS 5467 should be used for all fixed wiring installation of fit-out premises. For fire zone, essential circuits, 2 hrs fire rated LSF sheath cables shall be used.

4.5.2 Minimum Size of Conductor

The minimum size of conductor used in lighting circuits should be 2.5 mm² and 4 mm² for utility socket outlets.

4.5.3 Wiring System

All wiring and accessories shall be selected and installed to suit individual locations and complying with DEWA regulations. Circuit from different distribution boards shall not be installed in common conduits. The wires of individual categories such as lighting, power, and others to be properly segregated in common trunking with barriers.

Where grid control switch used for group switching, phase barriers shall be used and labeled. No switches or sockets shall be installed in a situation where water is regularly used, shall be mounted 2 m away from the water tap/ sink etc...

Switches shall be installed at 150 cm from the finish floor level. 13A general purpose sockets-outlet shall be installed 35 cm above finished floor level.

4.5.4 Identification label, Color Identification

All section of the tenant electrical installation, circuits, protection devises in the DB shall be provided with identification labels to clearly indicate the location and purpose of each item or circuit.

Instruction or caution notices for correct operation shall be provided in English and Arabic of suitable letter sizes.

4.5.5 Trunking, Cable Tray and Conduits

The trunking, cable tray and conduit for wiring / cable installation shall be carried in neatly and orderly manner with purpose made accessories, inspection bends and junction boxes. All surface conduits / trunking installation shall be straight runs and with branches at right angle only. Suitable grommets and bushes shall be installed at terminal ends. All PVC conduits shall be firmly secured with suitable adhesives. G.I conduits shall be installed in all accidental damage areas, subjected fire risk and industrial installations.

PVC conduit shall be from high impact rigid PVC complying BS 4607. G.I trunking and tray shall comply with BS 4678.

4.6 SMDB / DB`s

Sub-Main Distribution Board (SMDB) / final Distribution Board (DB) which is installed within the tenant fit-out installation should be factory assembly complying with relevant BS EN 60439. An integral isolator should be provided for isolation of the incoming supply. SMDB / DB shall install at operational height of less than 2m and shall be near to the main door of the tenant premise. Any switch room inside the tenant space shall be adequately ventilated within the controlled environment and shall be readily accessible.

4.7 Tariff Metering and Power Supply

Tariff metering shall be provided by DEWA, to be installed by fit out contractor at building common electrical room. In case of multiple tenant space (combined areas) conversion to single space, single meter at electrical room or single meter at point of tenant supply shall be provided. In case of complete floor converted to single tenant space, meter shall be provided at point of DEWA supply or at LV room.

4.8 Fire Alarm Detection and Life Safety System

The fit-out consultant/fit-contractor/facility management operator to fulfill the design liability requirement. Reference is made on NFPA -72, NFPA 101 and Dubai Civil Defense requirements.

4.8.1 Fire Alarm and Detection System

The emergency lighting system and all its components shall be designed and installed to meet the local Civil Defense requirements and the respective BS 5266, and NFPA 72 standards.

The Fit out contractor shall provide a fire alarm system or components to integrate to the main fire alarm panel. The system shall include analogue addressable control panels, addressable manual stations, addressable smoke sensors, heat sensors, detector base with isolators, alarm indicating appliances, interface with Public Address system, wiring, termination and all other necessary material for a complete operating system. All additional components shall be same make as that of the base build installations. Fit-out contractor shall obtain system integrators certification for any addition/ deletion of system components from the loops. Detector shall be provided in all enclosed spaces.

Prior to commencement of fire alarm and detection works, fit-out contractor to obtain Zoning Authority Development Control and Civil Defense approval.

4.8.2 Emergency, Life Safety and Lighting System

The emergency lighting system and all its components shall be designed and installed to meet the local Civil Defense requirements and the respective NFPA 101, DIN/VDE 0108 & BS 5266 standards applicable to this project.

Fit-out contractor shall obtain system integrators certification for any addition/ deletion of system components from circuits. Exit and emergency lights shall be installed in anti panic route as fire escape plan for the fit-out premise.

The emergency load shall be for a duration of 3Hours with minimum 75% light output from each lamp connected to emergency operation and the same shall be applicable for standalone emergency and exit lights.

4.9 Mechanical

4.9.1 HVAC Installations

All the HVAC installations works should comply with relevant ASHRAE standards and DM administrative resolution # 66. The indoor environmental condition including the noise level in each zone should meet the functional requirement of the space.

Fit-out consultant/fit-out contractor should consider the following procedures when designing / modifying existing HVAC installation and should ensure that the acoustic, volumetric and psychometric performances are achieved so as to meet the indoor design criteria.

- Consultant is required to substantiate with calculation the conditioned air distribution for each zone.
- Modification to controls, BMS, VAVs and Thermostats etc...should be coordinated with Client's operator / facility maintenance team
- Chilled water system should not be tapped to introduce additional cooling equipment (unless existing tap-offs are readily available.
- Additional cooling (if required in critical areas) shall also be provided with DX units considering the availability of electrical power.

- Sufficient volume control dampers shall be provided in the duct work to facilitate air balancing.
- All the material and controls intended to be used in fit-out installations shall be the same as existing.
- System design brief and method of statement shall be submitted wherever applicable.
- All the duct works should comply with DW-144 / SMACNA standards.
- Flexible ducts should not exceed 1.5m in length.
- Chilled water pipes should be re-flushed, if drained for modification.
- Proper access panels shall be provided for all the equipments valves and controls located above false ceiling.
- Location of condensing units of additional AC equipment and the refrigerant pipe routes shall be coordinated with existing services and building elevation.
- Additional toilets, pantries etc shall be ventilated with a standalone fan if the premises is not provided with an exhaust fan

4.9.2 Fire Fighting Installations

All the fire fighting installations should comply with relevant NFPA code of application and to be approved by Dubai Civil Defense Department.

Fit-out consultant/fit-out contractor should consider the following procedures when designing / modifying existing Fire Fighting Installations.

- All the Rooms / Spaces (except telecom / electrical rooms where wet services are not permitted) should be covered with sprinkler system if the building is provided with Sprinkler system.
- Computer server rooms and critical equipment rooms shall be provided with dry automatic fire extinguisher system (FM200 or equivalent).
- All the components and systems such as sprinklers, valves, etc should be UL listed / FM approved, as required by DCA.
- If the building is not provided sprinkler system then adequate numbers of hand held fire extinguisher should be provided at easily accessible locations, subject to Civil Defense approval.
- Each room shall be provided with adequate numbers of smoke detectors and connected to the building fire alarm system as per Civil Defense regulations.
- Kitchen extract hood shall be provided with wet chemical suppression system

4.9.3 Plumbing & Drainage Installations

All the installations should comply with relevant industry standards and practices. Contractor should consider the following procedures when designing / modifying existing Plumbing & Drainage works.

- DM Notes are to be duly signed and stamped by the Consultant certifying that the appended drainage system design is fully adhering to DM Building regulations and DM notes
- In case of additional metering requirements, DEWA-WD stamping on water supply layouts is to be obtained, confirming metering configuration' conformance with DEWA-WD regulations.
- In general, DEWA regulations for water & energy conservation are to be complied. (refer to DEWA' letter ref:SMCS/46/2008 issued to all consultants)
- Coring on floor slab for drain pipe is prohibited if the lower floor is meant for leasing. Structural approval shall be obtained to core the slab in permissible area.
- Alternatively drain pump with pipe works connecting to exiting drain pipe at higher level should be proposed where coring is prohibited.
- All the wet area should be water proofed and tested.
- Condensate drain from additional AC units (if any) should be routed with proper slope and connected to existing system.
- Proper access panels shall be provided for all the equipment and valves located above false ceiling

4.9.4 Kitchen Installations

It is recommended that all kitchen / restaurants design drawings and layout drawings be approved by Dubai Municipality Food & Hygiene Department prior to submitting to Zoning Authority - Development Control.

Approval from Civil Defense for LPG system is to be obtained. (refer to Civil Defense circular vide Protection # 1467, vide 3248/17/5).

Fit-out consultant / fit-out contractor should consider the following in their design:

- Wet chemical fire suppression system for the kitchen hood if gas fired kitchen equipment is used.
- LPG system with gas leak detection, auto shut down during a gas leak and emergency stop etc should be installed as per Civil Defense guidelines by Civil Defense approved contractor and the location of the LPG system is to be approved by Civil Defense.
- Proper kitchen extract and make up air system shall be provided with necessary duct works cleaning access etc Extract and make up air flow rate to be substantiated with design calculations
- Obtain DM food and Hygiene department approval on Kitchen and restaurant drawings and layout.

4.9.5 Testing & Commissioning

Testing, adjusting and balancing of all the MEP services especially HVAC installation, Fire fighting and Fire alarm installation for major Fit-out works must be carried out by a Testing, Adjusting and Balancing (TAB) agency and to be witnessed, verified and validated.

All validated commissioning and balancing reports should be submitted to Zoning Authority at the time of final inspection.

SECTION 5

Health, Safety & Environment (HSE)

5.1 HSE Regulation and Policy Background

Every year, a significant number of people are killed by accidents involving fit-out works, and many more people are injured and also a majority of damages is done to property. Better planning, execution, training and awareness can avoid most of these accidents.

This guidelines will help people involved in the fit-out works reduce the chances of accidents happening. It will guide developers, tenants, fit-out consultants and fit-out contractors to prevent accidents.

These guidelines will give more details regarding the fit-out management to help prevent all the fit-out related accidents and all the applicable requirements.

Refer to the Health, Safety and Environment Regulations of Zoning Authority – Development Control

5.2 Working at Height

- There shall be suitable and sufficient safe access to and egress from every place at which any person at any time works.
- Platform, staging or other structure, whether of a permanent or temporary character, shall be constructed, situated or maintained in any workplace in such a manner as to prevent risk of bodily injury.
- Where work cannot safely be done on or from the ground or from part of a building or other permanent structure, there shall be provided, placed and kept in position for use properly maintained either scaffolds or where appropriate ladders or other means of support, all of which shall be sufficient and suitable for the purpose.
- No scaffold shall be erected or be substantially added to or altered or be dismantled except under the immediate supervision of a competent person possessing adequate experience of such work. All material for any scaffold shall be inspected by a competent person on each occasion before being taken into use. Contractors shall appoint such competent person and shall arrange for their training as necessary.
- Every scaffold and every part thereof shall be of good construction, of suitable and sound material and of adequate strength for the purpose for which it is used, satisfying international standards. The contractor/ sub-contractor shall be responsible for the design and safety of scaffold system.
- Sufficient material shall be provided for and shall be used in the construction of scaffolds.
- Scaffold construction should take into consideration the type of work, load-height and also weather conditions.
- Scaffolds, trestles, ladders, folding step ladders shall not be so painted or treated that defects cannot easily be seen.
- Metal parts used for scaffolds shall be of suitable quality and be in good condition and free from corrosion or other patent defect likely to affect their strength materially.

5.3 Lifting Operations

- 1) All the requirements of Zoning Authority Health, Safety and Environment Regulations with respect to lifting equipments and lifting operations should be complied with.
- 2) No hoist shall be used unless:
 - Thoroughly examined before use on a construction site and also after alteration or repair.
 - Thorough examination shall be done every 6 months.
 - The thorough examination and test shall be done by an approved third party competent company /examiner.
- 3) No person shall be carried by the hoist unless:
 - It is provided with a cage.
 - Hoist carrying persons shall be constructed with cage gate with interlocking arrangements to prevent the occupants falling out or from being trapped between any part of the cage and fixed structure or moving part or from being struck by articles or materials falling down the hoist way.
 - Every hoist enclosures shall be fitted with interlocking gates at landing places.
 - Every hoist used for carrying persons shall be provided with an over-run device at the top of the hoist way.

5.4 Hot Works

Hot Works include any work activity that includes welding, brazing, soldering, use of angle grinder or any other work activity that creates heat or 'sparks.

- 1) Developer/ client should ensure to implement Hot Work Permit system.
- 2) **A Hot Works permit** shall be required before commencement of any Hot Works on-site. Where 'hot works' are applied the Fit-out Contractor should take suitable and sufficient fire safety measures at the place of work.

5.5 Confined Space Entry

- 1) Suitable and sufficient safety precautions should be implemented when the Fit-out Contractor is required to work in any confined space such as raised floor voids, ceiling voids or service risers in any part of the Developer's areas, public areas or areas shared with tenants.
- 2) Confined space entry permit system should be implemented when the Fit-out Contractor is required to work in any confined space such as raised floor voids, ceiling voids or service risers in any part of the Developer's areas, public areas or areas shared with other tenants.
- 3) Developer/ client should ensure to implement Confined Space Entry Permit system.

5.6 Storage of Materials

- 1) Tools and materials stored in the fit-out work areas should be stored in an organized and safe manner, so as to eliminate risk of fire, falling materials, trip hazards and blockage of passage ways.
- 2) Packing materials such as paper, foams and plastics, should be removed from the work area and the building as a matter of urgency, again to eliminate the risk of fire.
- 3) The Fit-out Contractor shall ensure that no electrical or hot works are carried out in the vicinity of any stored materials of a potentially flammable substance or nature. Included in this category are paints, chemicals and cleaning materials. The Fit-out Contractor shall record and store separately all materials that have a potential to cause any possible hazard to health.
- 4) These materials normally carry a safety warning of possible health hazard, particularly the warning of being toxic nature.
- 5) No materials are to be stored in a loose manner; all materials shall be stored and or transported in a safe and fit-for-purpose container.
- 6) No storage of materials is allowed in the public or common areas.

5.7 Fire Prevention

Developer should:

- 1) Designate their buildings as a non smoking building.
- 2) Ensure to have suitable and sufficient designated safe smoking areas.
- 3) Ensure that a specific fire risk assessment is carried out and suitable and sufficient safety precautions are in place.
- 4) Ensure that specific fire emergency plans are in place and every one involved in fit-out work is aware.
- 5) Ensure to implement Hot Work Permit system whenever hot works are required to be carried out.

Consultant should:

- 1) Designate their buildings as a non smoking building.
- 2) Ensure to have suitable and sufficient designated safe smoking areas.
- 3) Ensure that a specific fire risk assessment is carried out and suitable and sufficient safety precautions are in place.
- 4) Ensure that specific fire emergency plans are in place and implemented by fit out contractor.
- 5) Ensure to implement Hot Work Permit system whenever hot works are required to be carried out.

Fit-out Contractor should:

- 1) Designate their buildings as a non smoking building.
- 2) Ensure to have suitable and sufficient designated safe smoking areas.
- 3) Ensure that a specific fire risk assessment is carried out and suitable and sufficient safety precautions are in place.
- 4) Implement specific fire emergency plans and procedures.
- 5) Implement Hot Work Permit system at all times whenever hot works are required to be carried out inside the project site.

The emergency numbers are:

Dubai Civil Defense	997
Police	999
Zoning Authority-Development Control	04- 3900500

5.8 Compressed Gases for Welding, Cutting and for other Operations

- 1) All welding and cutting equipment should be of the approved type and maintained in good condition. All personnel working with welding equipment shall be trained, competent and be provided with personal protective equipment. The following precautions shall be taken during welding and cutting operations.
- 2) Before starting to weld or cut, the work area shall be inspected to ensure that sparks or molten metal will not fall on combustible materials.
- 3) Cylinders should be stored in a safe and designated location.
- 4) All storage area should have no smoking signs posted.
- 5) A dedicated storage facility for the storage of industrial gas cylinders should be available. A means of segregating the oxygen cylinders from any other gas cylinders should be an integral part of the design.
- 6) Cylinders should be in an up right position with safety caps on main valve while storing, transporting and using.
- 7) Special measures should be taken to ensure equipment is inspected at regular intervals.
- 8) Precautions shall be taken to ensure employees are trained and required Personal Protective Equipments (PPE) must be worn (Welding Mask, face shield, goggles, leather gloves, leather apron, etc.)
- 9) No welding or burning should be done in a hazardous area without obtaining written authorization from the responsible competent person. (Hot Work Permit system).
- 10) It should be made sure that suitable fire extinguishing equipment is in the work area.

- 11) No welding or burning shall be carried out on barrels, tanks, piping or other system which have contained either combustible or unknown products without first obtaining **approval** from the responsible authority and testing for explosive, combustible or poisonous gases or liquids.
- 12) Whenever it is necessary to work after normal day light hours, lighting equipment should be provided which should provide an intensity of illumination that will permit work to be carried out in a safe and professional manner without risk of personal injury or damage to the material.
- 13) Welding or cutting operations should not be undertaken either by torch or electrodes, under the following conditions.
- 14) In open vessels containing or having contained substances which may evaporate or gasify when subjected to heat or other, thus forming highly explosive mixtures.
- 15) The oxygen – acetylene bit, gauges and other accessories should not be lubricated or smudged with oil, grease and other flammable substances which can easily catch fire upon contact with compressed oxygen.
- 16) Welding equipment should not be tampered.
- 17) The oxygen and acetylene hose lines should be properly connected to the safety valves by means of a regulator and to the cutting torch by a hose clamps.
- 18) All the Oxygen and acetylene gas cylinder regulators must be fitted with **Flash Back Arrestors** to prevent back fire incase of fire in hose pipe line system.
- 19) High and low pressure gauges should be in good working condition.
- 20) Regulators should be fitted to the cylinder valves by means of non inflammable packing able to guarantee perfect sealing.
- 21) Cylinders shall be transported, stored and used securely fixed in the upright position. They must never be rolled on their sides, dropped or man-handled with the gauges fitted. When not in use, they shall be stored in a specially designated area with the safety caps on main valve.
- 22) All the oxy – acetylene gas cylinder regulators must be fitted with respective **Flash Back Arrestors** to prevent flash back of fire in case of fire in hose pipe line system. Flash back arrestor is a mandatory requirement.
- 23) Cylinders shall be stored in a safe, dry, well ventilated place and reserved for that purpose. All cylinders must be chained or otherwise secured in upright position to prevent rusting. Cylinders stored in the open shall be protected from ground contact, extreme of weather and direct sun rays.
- 24) Cylinder storage must be planned so that cylinders shall be used in the order in which they are received from the supplier.
- 25) Empty and full cylinders must be stored separately and empty cylinders plainly marked to avoid confusion.
- 26) Empty cylinders must be kept separately according to the type of gas content.

- 27) Cylinder storage rooms must be ventilated sufficiently so that explosive concentration of gas cannot accumulate. Smoking or any other source of ignition must be prohibited.
- 28) When the job is finished the cylinders valves must be closed.
- 29) The operators must make sure that, the safety pin of the acetylene cylinders is inserted at all times to close the flow of gas in case of emergency.
- 30) Valves caps shall be in place when cylinders are not in use.
- 31) Cylinders shall be transported securely and upright in trolleys. They shall never be rolled.
- 32) Oxygen cylinders shall be stored separately from acetylene cylinders.

- **Chemicals**

The main route of entry of chemicals into the body is by inhalation of the vapour, skin contact.

Whether as the pure compound or as part of a mixture such as gasoline, benzene may give rise to the following health consequences:

- a) Inhalation of high concentrations of vapour can lead to loss of consciousness, respiratory failure and if continued, to death.
- b) Prolonged and repeated exposure to chemicals has been identified as being associated with blood disorders of varying severity which are usually reversible after removal from the exposure.
- c) Skin contact may cause local irritation and dermatitis on repeated contact.

Physical hazards:

- a) Fire
- b) Explosion
- c) Slip and trips

All the safety requirements of Material Safety Data Sheets of respective chemicals should be complied with.

5.9 Emergency Evacuation

- 1) Developer should develop an Emergency Evacuation Plan and shall be in place before the fit out works start.
- 2) Fit-out Contractors must obtain a copy of the building's Emergency Evacuation Plan and procedures from the Developer and should designate a responsible person to act as a 'fire marshal' in the event of an emergency.
- 3) Under no circumstances should any personnel try to re-enter the building until they are informed it is safe to do so by the emergency services.

5.10 Information, Training and Supervision

- 1) Employees shall be made aware of the known or suspected hazards associated with or arising out of the work or duties assigned to them and where necessary shall be suitably trained or instructed to enable them to carry out their tasks in a safe and efficient manner.
- 2) Employees should be trained in the safe use of plant/equipment which they will be using for their work.
- 3) Employees should be instructed on how to use plant/equipment safely.

5.11 Electrical Safety

- 1) Developer should ensure that a specific 'permit to work system should be implemented if any electrical work that involves any form of isolation of any electrical supply.
- 2) All the requirements of Dubai Electricity and Water Authority (DEWA) Regulations should be complied with.
- 3) Refer and comply with all the requirements of Technical support department of Zoning Authority.

5.12 Hazardous Substances to Health

- 1) Fit-out contractors should control exposure to hazardous substances to prevent ill health. Contractors have to protect both employees and others who may be exposed by complying with the Control of Substances Hazardous to Health Regulations. Fit-out Contractors should assess risks, implement measures needed to control exposure and establish good working practices.
- 2) Risk to health from hazardous substances used should be assessed properly and adequate measures should be implemented to prevent or control employees being exposed to hazardous substances.
- 3) Where preventing exposure is not reasonably practicable, then substances hazardous to health should be adequately controlled.
- 4) Emergency plans and procedures should be in place to deal with accidents, incidents and emergencies involving hazardous substances.
- 5) All the employees should be properly informed, trained before using the substances hazardous to health.
- 6) Adequate competent supervision should be maintained at all times by fit-out contractor to ensure safe usage of substances hazardous to health.

5.12.1 Asbestos

- 1) Usage of asbestos is strictly prohibited in any form.
- 2) If asbestos found in old buildings during removal process, work should be stopped immediately and it should be reported to client and Zoning Authority.
- 3) Asbestos should be removed in accordance with the local and international good occupational hygiene practice.

- 4) Suitable and sufficient safety precautions must be taken to avoid exposure to asbestos.

5.12.2 Paints

- 1) Material Safety Data Sheets should be obtained and suitable and sufficient safety requirements should be followed.
- 2) Exposure to hazardous paints cannot be eliminated suitable protective measures should be implemented.

5.12.3 Dust

- 1) Exposure of employees to inhalation, ingestion, skin absorption, or contact with any material or substance at a concentration above those specified in the "Threshold Limit Values of Airborne Contaminants, should be avoided.
- 2) Engineering controls must first be implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits.
- 3) Dust coming out of fencing is strictly prohibited. If dust cannot be prevented from coming out of fencing, suitable measures should be implemented like covering the external face of building with dust arresting nets.

5.12.4 Gases and Fumes

- 1) Contractor should make a suitable and sufficient assessment of the risks to employee's health if they are exposed to gases and fumes. They should then take the necessary steps to **prevent** or **adequately control exposure** in the workplace.
- 2) Where exposure cannot be prevented, contractor should consider the use of a combination of specific control measures including:
 - a) Work place air extraction fans.
 - b) Tailpipe exhaust extraction systems
 - c) The use of filters attached to tailpipes;
 - d) Catalytic converters; and more general control measures
 - e) Turning off engines when not required;
 - f) Job rotation;
 - g) Providing suitable personal protective equipment (suitable gloves should be worn when handling hot and cold diesel fuel).
- 3) Contractor should provide respiratory protective equipment only as a last resort when other means of controls are not suitable.
- 4) Liquefied Petroleum Gas (LPG) cylinders should be handled, stored and used safely to prevent accident at project sites.
- 5) All the hose pipes, regulators and flash back arrestors shall be in good working condition.

5.13 First Aid

- 1) In every project site, there shall be a first-aid box or cupboard provided, maintained and readily accessible during all working hours.
- 2) Each first-aid box or cupboard should be placed in a clearly identified and readily accessible location.

- 3) Boxes and kits should be checked frequently to ensure they are fully stocked and all items are in a usable condition.
- 4) The first-aid box or cupboard should protect the contents from dampness and dust.
- 5) Suitable and sufficient information signs should be placed at appropriate places on site to identify the nearest access to first aid facility incase of an emergency.

5.14 Noise

- 1) Noise level from any fit out or demolition site should not exceed 85 bBA during the period 7:00 A.M - 8:00 P.M.
- 2) Contractor must consider noise reduction in the site layout, planning and execution phases.
- 3) Access roads to the site should be positioned such that vehicular movements cause minimum disturbances to residential buildings.
- 4) Heavy vehicle movements to and from the site must only be made during the scheduled normal working hours unless approval has been granted by the **Zoning Authority**.
- 5) Where possible, any heavy equipment with an internal combustion engine should not be left standing with its engine operating in a street adjacent to a residential area.
- 6) Work must not extend beyond the hours without the prior approval of Zoning Authority. In cases where work is approved to be extended beyond the normal working hours if the noise of this activity will impact in a residential area, then the affected premises should be notified of the intended work, its duration and times of occurrence.
- 7) Work that creates the most noise should be scheduled to minimize the impact on residential premises.
- 8) Construction materials shall be properly handled so that the minimum noise is generated.
- 9) In noise sensitive areas acoustic treatment shall be provided to equipment and other noise sources where practicable.

NORMAL WORKING HOURS

6:00 A.M to 7:00 P.M - Saturday to Thursday

5.15 Welfare Facilities

Developer/client should:

Provide suitable and sufficient welfare facilities (sanitation, rest areas, washing facility, drinking water) should be provided and maintained in good hygienic condition at all times.

5.16 Security

The developer should have the following security management systems in place:

- 1) Security structure.
- 2) Trained security guards, both stationed and roaming.
- 3) Contractor passes are to be issued for all categories of personnel working on the Fit-out Works for the duration of their respective works programme.
- 4) No person shall enter the building for what ever reason without a security pass.
- 5) Visitor passes are to be issued for short non-working purpose visits on a daily basis and stating the purpose of the visit.

5.17 Heat Stress

- 1) Main contractor should assess the risk of heat stress and implement the measures to prevent heat stress at work.
- 2) Contractor's employees must be made aware of how to work safely in heat, the factors that can lead to heat stress, and how to reduce the risk of it occurring.
- 3) Local orders, Zoning Authority Development Control requirements related to heat stress should be complied with.

5.18 Environment

5.18.1 Environmental Impact Assessment (EIA)

Environmental Impact Assessment shall be carried out and comply with all the Environmental local orders, regulations and guidelines of Dubai Municipality.

5.18.2 Waste Disposal

- 1) To enable efficient and controlled management of waste disposal, the Developer for the duration of the Fit-out Works, shall supply for the use of the Fit-out Contractor a dedicated waste skip(s).
- 2) It is strongly recommended that personnel handling any type of waste wear and adopt the appropriate personal protective clothing and equipment.

5.18.3 Solid Waste

- 1) Solid Waste is to be removed by the Fit-out Contractor from the fit-out site to the dedicated waste skip(s) in a safe and organized manner.
- 2) All solid waste is to be either safely 'bundled' or transported in a fit-for-purpose container. Materials that could create dust or other odour must be sealed during transportation through the building to the dedicated waste disposal area.

5.18.4 Liquid Waste

Liquid waste includes all substances of a semi-fluid nature, including materials such as, but not limited to, unset plaster and wall coatings.

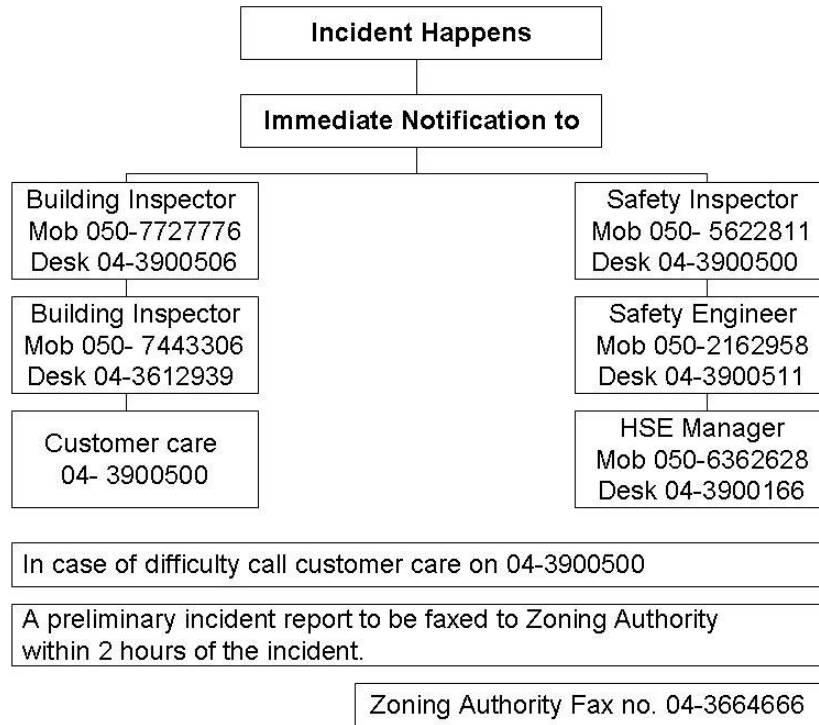
- 1) All liquid waste materials must be sealed in suitable containers or protective wrapping by the Fit-out Contractor, to eliminate the risk of any spillage during transportation through the building to the dedicated waste disposal area.
- 2) Liquids that contain any petroleum based products, including lubricants, should be regarded and treated as 'Hazardous Waste.'

5.18.5 Hazardous Waste

- 1) Waste of a hazardous nature should be suitably containerized or wrapped separately and clearly marked 'Hazardous Waste.' In addition to obvious substances such as chemicals, paints and adhesives, any petroleum based products should also be treated as hazardous waste.

5.19 Accident Notification Procedure

- 1) As per the requirements of Zoning Authority – Development Control Health, Safety and Environment regulations all **detailed accidents report should be submitted to Zoning Authority – Development Control in standard form within 48 hours.**
- 2) All the accidents shall be investigated by Zoning Authority – Development Control to find the root cause.
- 3) The notification of accidents shall be done as per the Accident Notification Process.



SECTION 6

Forms

The following forms are for fit-out submittals to Zoning Authority:

- Fit-out Initiation Application ZA-DC-F-41
- Undertaking for Fit-out Works ZA-DC-F-42
- Fit-out Contractor's Pre-qualification Application ZA-DC-F-40
- Fit-out Permit Request(General Works) ZA-DC-F-38
- Fit-out Permit Request (Minor Works) ZA-DC-F-43
- Fit-out Completion Inspection Request (General Works) ZA-DC-F-39
- Fit-out Completion Inspection Request (Minor Works) ZA-DC-F-44