



DUBAI AVIATION CITY CORPORATION OHSE CODE OF PRACTICES



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DACC CODE OF PRACTICE – SAFETY AND HEALTH
REQUIREMENTS IN WAREHOUSE



SAFETY AND HEALTH REQUIREMENTS IN WAREHOUSE
DACC (DUBAI SOUTH) Code of Practice
Document Reference No.: DACC.DS.OPS.OHSE.OPS.11.WA

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1.0 INTRODUCTION

- a) This Code of Practice (COP) is mandatory to all **Warehouses** operating within the Dubai South jurisdiction. This COP is designed to incorporate requirements set by UAE and other relevant Regulatory authorities. If requirements of this document conflict with requirements set by another regulatory authority, operational facilities are required to follow the more stringent requirement.
- b) Operational facilities means the business operating in Dubai South such as Offices, Educational Institutions, Medical Facilities, Logistics and Warehouse Facilities, Factories, Recreational Facilities, Multi Store Apartments, Retail Facilities, etc. and all other facilities which are registered under Dubai South License.
- c) A duty Holder is defined as;
 - (i) the person(s) who owns or is in control, through contact or tenancy, of non-domestic premises;
 - (ii) With regard to multiple tenanted premises, the duty holder shall be the person who owns or is in control of the building, including access and egress
 - (iii) All other persons shall cooperate with the with the duty holder to allow them to comply with their duties requirements under this COP.
- d) This COP contains useful guidance on other hazards found in warehouses, such as storage systems, mechanical handling and electrical safety. It also provides information on the working environment and how to deal with accidents and emergencies.
- e) A **warehouse** is a commercial building for storage of goods. Warehouses are used by manufacturers, importers, exporters, wholesalers, transport businesses, customs, etc. They are usually large plain buildings in industrial parks on the outskirts of cities, towns or villages. They usually have loading docks to load and unload goods from trucks. Sometimes warehouses are designed for the loading and unloading of goods directly from railways, airports, or seaports. They often have cranes and forklifts for moving goods, which are usually placed on standard pallets loaded into pallet racks. Stored goods can include any raw materials, packing materials, spare parts, components, or finished goods associated with agriculture, manufacturing and production.

1.1 Objectives

The aim of this COP is to guide all Duty holders/Tenants for the OHSE requirements needed in operational warehouse which is in line with Dubai Aviation City Corporation (DACC) Occupational Health Safety and Environmental Requirements.



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1.2 Submission and Approvals

- a) All operational warehouses within Dubai South Jurisdiction must have a valid Trade License and approvals from Dubai South Specialized Department and other relevant government entities like Dubai Civil Defense, DEWA, Dubai Food Control Authority, Dubai Municipality and etc.; prior to start of operations.
- b) All operational warehouses operating within Dubai South Jurisdiction shall apply for Operational Fitness Inspection from DACC annually prior to the release of **DACC OHSE NOC Certificate** in accordance with *Dubai Aviation City Corporation (DACC) COP – DACC.DS.OPS.OHSE.OPA.01.OF – OHSE NOC for Operation Fitness Certificate (OFC)*
- c) All operational warehouses shall have specific **Operational OHSE plan** in line with the facility operations.
- d) All operational warehouse shall have annual maintenance contract for Pest Control.
- e) All operational warehouses shall have Fire and Life Safety Systems annual maintenance contract attested by Dubai Civil Defense.

2.0 TRAINING AND AWARENESS

- a) Duty Holder shall ensure that OHSE training complies with the requirements of:
 - (i) *Dubai Aviation City Corporation (DACC) OHSERF - Regulations 6 – Competence Management, Training and Awareness;*
- b) In accordance with *Dubai Aviation City Corporation (DACC) OHSERF – Regulation 5 – Leadership, Roles, Responsibilities and Self-Regulations*, Duty Holder shall ensure employees required to implement the requirements of this COP should have basic training in health and safety. All warehouses workers should have adequate training in the hazards associated with their work and within the warehouse, along with the precautions to take.
- c) Duty Holder or their representatives must initially ensure that the employee(s) are trained, licensed (where applicable) and competent in the nature of work, and brief their employees before starting work of the risks and dangers involved in the profession they are engaging in, such as fire, machinery risk, risk from vapor or dust of toxic substances, danger of falling and relevant occupational diseases etc. Suitable training should be given to all staff involved in any potentially dangerous/hazardous operation/activity and such training shall be ongoing/periodic.
- d) Training Matrix Program to be developed to all employees.

3.0 REQUIREMENTS

3.1 Roles and Responsibilities

- a) Duty Holder shall ensure to;
 - (i) Duty Holder shall undertake their roles and responsibilities in accordance with the general requirements of *Dubai Aviation City Corporation (DACC) OHSERF – Regulation 5 – Leadership, Roles, Responsibility and Self-Regulation.*



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- (ii) Duty Holder shall be responsible for performing a risk assessment in accordance with *Dubai Aviation City Corporation (DACC) OHSERF – Regulation 2 – Risk Management* to determine the risks associated with the specific activity. Duty Holder shall include control measures and safe work practices with the advice from consultant or client representative to reduce employee's exposures that could cause an injury.
- (iii) Provide appropriate proactive and preventive measures for protection of their employees from risk of injury or occupational disease, fire risks or other kinds of risks which may result from the use of machinery and other equipment, handling of chemicals/ toxic substances or performing any other work at the work place.
- (iv) Provide a workplace that is free from serious and health hazards.
- (v) Ensure that all employees are given proper Instruction, Information, Training and Supervision.
- (vi) To ensure that suitable and adequate PPE's will be provided to employees depending on the risk associated with their specific task.
- (vii) Employer to ensure newly hired employees has been brief regarding the hazards identified inside and outside the facility.
- (viii) Employer to ensure to provide proper welfare facilities to its employees.

b) Duties of Employees

- (i) Work in accordance with the training and instruction given by their employer;
- (ii) Not do anything that could endanger themselves or other people.
- (iii) Follow correct instructions, don't take chances, if you don't know, ask.
- (iv) Correct / Report unsafe conditions, and help to keep everything clean and orderly.
- (v) Use right tools and equipment for the job, use them safe.
- (vi) Report all injuries, get first aid promptly. Comply with all safety rules and sign
- (i) Don't horseplay, avoid distracting others.
- (ii) Use prescribed equipment, wear safe clothing, and keep them in good condition.

c) Supervision of Safe Work performance

- (i) Duty holder shall ensure to appoint a member of top management as the OHSE management representative with specific Responsibility and Authority for ensuring that that *Dubai Aviation City Corporation (DACC) OHSERF* is implemented, maintained and monitor the performance and review progress.
- (ii) Ensure appropriate and competent OHSE resources to develop, implement and maintained *Dubai Aviation City Corporation (DACC) OHSERF*.



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- (iii) Required number of OHSE staff for tenants, consultants and contractors (based on total number of employees or based on project risk factor): *(Refer to Dubai Aviation City Corporation (DACC) OHSERF – Regulation 5/Table 3.3.)*

3.2 Floor Layout

- a) Walkways must be clearly marked and guarded if necessary, pedestrian walkways must be segregated from vehicular traffic.
- b) Sufficient space must be provided around machinery (Minimum 1meter. From extendable machinery parts) and between machinery/storage and walls, giving the workers room to move and carry out their ordinary duties without obstacle, and allowing for repair of their machinery and the transfer of items used at work.
- c) Floors must be free from any obstructions and slippery substances.
- d) All floor opening including roof level must be guarded and properly covered.
- e) Adequate directional signage's and warning signage's (in multi-language) must be provided in strategic locations inside and outside the facility i. e. (speed limits, pedestrian's walkways, no smoking restricted areas.)

3.3 Air Quality

- a) Minimum Ventilation Requirements for Adequate Indoor Air Quality
 - (i) All new and existing air conditioned buildings must be mechanically or mixed mode ventilated and must comply with the minimum requirements of ASHRAE Standard 62-2007. Occupancy density for each space is determined based on its activity in accordance with the requirements of Dubai Municipality if available or using the default occupancy density values in ASHRAE 62-2007.
- b) Indoor Air Quality Compliance - New Buildings
 - (i) For all new buildings, suitable ventilation for the building occupants and ensure the air quality in accordance with the technical guidelines issued by Dubai Municipality. The buildings which optionally apply the following procedures will be awarded indoor air quality certificate by Dubai municipality.
 - (ii) Indoor air quality testing must be carried out prior to occupancy. The maximum limit for indoor air contaminants included in Table 3.1.b (1) must not be exceeded. A report which shows compliance with these requirements must be submitted to **Dubai Aviation City Corporation (DACC) OHSE Department**.



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Table 3.1.b (1) - Schedule, Duration of Sampling, and Maximum Limit for Contaminants

Sampling Schedule	Type of Samples	Maximum Acceptable	Sampling Duration
Pre-Occupancy	Formaldehyde	< 0.08 parts per million (ppm)	8- hour continuous monitoring (8 hour time weighted average [TWA])
	Total Volatile Organic Compound (TVOC)	< 300 micrograms/m ³	
	Suspended Particulates (<10 Microns)	< 150 micrograms/m ³	

- (iii) Air Quality testing must be carried out by an air testing company or laboratory accredited by Dubai Municipality (DM), and the Compliant test results must be submitted to *Dubai Aviation City Corporation (DACC) OHSE Department*.
- (iv) Air quality testing equipment must have initial and periodical calibration certificate as per manufacturer requirement from an external calibration facility accredited by DM or at least annual calibration certificate. The initial and periodical calibration certificates must be saved in a special register to be checked by *Dubai Aviation City Corporation (DACC) OHSE Department* in order to ensure the accuracy of the readings as condition of renewal the indoor air quality certificate.

3.4 Noise

- a) Noise is the undesirable high sound which exceeds the allowable limits. Rules of chapter seven (7) on noise protection of the *Local Order no. 61/1999 (Environment Protection Regulations in the Emirate of Dubai)* shall be applied on noise resulting from construction, building and demolition works. Noise is divided into two types:
 - (i) Noise affecting public and neighbors:
 - 1) Continuous allowable noise levels resulting from workplaces during the period from 7 am to 8 pm and in the period from 8 pm to 7 am shall not exceed the following levels:



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Allowable Limits for Noise Level in Different Areas

Area	Allowable Limits for Noise Level (dBA)*	
	Day Night (7 a.m. - 8 p.m.)	Night (8 p.m. - 7 a.m.)
Residential Areas With Light Traffic	40 - 50	30 - 40
Dubai South Residential Areas	45 - 55	35 - 45
Residential Areas with include some Workshops & Commercial Business or Residential Areas near the Highways	50 - 60	40 - 50
Commercial Areas	55 - 65	45 - 55
Industrial Areas (Heavy Industry)	60 - 70	50 - 60

*dBA means decibels adjusted. dBA is used for determining the sound exposure to humans
(ii) Noise affecting employees in workplace (occupational noise)

The duty holder shall not expose the employees in the workplace to noise levels higher than the levels specified in the table below.

Sound level dBA

Duration per day, hours

85	8 hours
87	6 hours
90	4 hours
92	3 hours
95	2 hours
97	One hour and half
100	One hour
102	45 minutes
105	30 minutes



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107	22.5 minutes
110	15 minutes
115	7.5 minutes

3.5 Medical Examinations – Occupational Health

- The employer shall arrange for a medical examination of all workers engaged in Processing / manufacturing activities that are hazardous and/or pose a potential risk to the health of workers at the expense of the employer every 12 months and maintain a record of these results. All medical examinations carried out for this purpose shall be conducted at the clinic or hospital holding valid license issued by licensing authorities in U.A.E. It remains the employer's responsibility to assess such potential health impacts and take all suitable measures and record workers' health parameters during the period of employment and ensure that any identified problem is addressed immediately.
- The Competent Department may at any time, direct any employer or occupier to conduct a medical examination of workers under his control, at a nominated government clinic or hospital, if, in the opinion of the Competent Department, their health may be at risk. The employer shall ensure that any medical evaluation described in is relevant to the nature of the risks of the job as advised by the Competent Department.

3.6 First Aid

- Duty holders/Tenants shall ensure that facilities under their responsibility shall be provided with appropriate medical facility in accordance with the requirements of **Dubai Aviation City Corporation (DACC) COP – DACC.DS.OPS.OHSE.OST.05.FA**, and a certified first aider shall be provided in every shift must be provided with adequate first aid facilities along with full time first aiders during working hours.
- Duty Holder must provide or ensure that there are an adequate and appropriate number of First aiders, equipment and facilities for rendering first aid to his employees if they are injured or become ill at work. A first aider is a person who has received training and who holds a current first aid certificate from a Third Party organization approved by Dubai Accreditation center and listed in Dubai South.

3.7 Housekeeping

- Proper housekeeping and stacking of materials within the buildings/warehouses must be practiced. Areas outside pre-built warehouses, corridors between offices of leased buildings, open areas between plots of land and Authority property are not to be used for placement of equipment, materials, waste or other items. Open storage within a lessee premises is normally



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not advised, but where inevitable shall necessitate approvals from the Competent Department with due consideration for setback distances, Fire Protection, emergency access/ egress, safety of vehicles/equipment and dust from vehicle movement areas. All such open storage grounds shall be hard surfaced and fenced/covered to maintain good aesthetics. Open areas within a lessee's premises shall not be used for storage/dumping of any wastes/unused materials which either pose an OHSE problem or affect aesthetics.

3.8 Lighting / Illumination

- a) Employers shall provide adequate illumination in the work place to ensure the safe conduct of work. Minimum illumination intensities should not be below those specified in Table Document *Dubai Aviation City Corporation (DACC) COP – DACC.DS.OPS.OHSE.WRW.01.WA - General Workplace Amenities*. Further, lights and light fittings should avoid dazzle and glare and be so positioned that they do not cause hazards. Moreover, where persons are particularly exposed to danger, in the event of failure of artificial lighting, emergency lights must be provided.

3.9 Warning / Directional Signage's

- a) Duty holders/Tenants must provide warning signs in all potentially dangerous areas, such as chemical/ gas cylinder storage areas, machinery, drills etc. Lessees must provide safety signs for protective clothing as per working hazard, such as "WEAR SAFETY GEAR" for noisy areas, "WEAR MASK" for dusty operational areas, in addition to other signs like "NO SMOKING", "FLAMMABLE STORAGE AREA" etc.
- b) Duty Holder should adopt a bold, recognizable, consistent pattern or symbol using standardized colors and should comply with *OSHA 1910.144, OSHA 2013* Safety signs and standards.

3.10 Warehouse Safety

Dubai Aviation City Corporation (DACC) OHSE Department identifies some of the major safety hazards mostly encountered in operational warehouses and the solutions that can be adopted by businesses to reduce accidents and minimize injury in the facility.

a) Material handling Equipment's (MHE)

- (i) MHE can be dangerous. OSHA records about 100 warehouse employees are killed and 95,000 injured every year in MHE accidents while operating MHE's. The majority of fatalities are caused by MHE turnovers.
- (ii) Being crushed between a MHE and another surface is the second highest percentage, followed by getting struck a MHE and then getting hit by falling material from a dropped load.
- (iii) Safe Operation of MHE includes the following:



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- 1) Operators must be qualified
- 2) Appropriate clothing must be worn
- 3) Examine Equipment before use (Pre-inspection Check)
- 4) Starting up the Equipment
- 5) Consider the surrounding environment
- 6) Operate at a safe speed
- 7) Avoid Hazards.
- 8) Ensure your load is stable and secure
- 9) Make sure you have clear visibility
- 10) MHE's are for Carrying Loads only
- 11) Keep Clear of the Mast
- 12) Driving on Ramps
- 13) Ensure the MHE is not Over-loaded -
- 14) Ensure the Load is evenly distributed
- 15) Refueling / Battery Replacement
- 16) When the Shift Ends
- 17) Train employees on the hazards associated with the combustion by products of forklift operation, such as carbon monoxide. **Diesel engines are not allowed to operate in closed environment.**

b) Chemical Storage

- (i) Chemicals pose a wide range of health hazards, such as irritation, and physical hazards, such as flammability and corrosion. Chemical manufacturers and importers to evaluate the hazards of the chemicals they produce or import, and providing information about them through labels on shipped containers and more detailed information sheets called material data safety sheets (MSDS). For more details refer to *Dubai Aviation City Corporation (DACC) COP – DACC.DS.OPS.OHSE.CGF.01.SH – Control of Substance Hazardous to Health and Dangerous Goods.*

c) Machine Guarding

- (i) Duty Holder shall conduct full ergonomic study prior to the operation of Machinery and must ensure control measures are taken by considering factors such as Anthropometry, human performance, human error, working environment and person-Machine interface.
- (ii) Duty Holder shall provide appropriate safeguards to eliminate the hazards, a hierarchical illustration of machine safeguards. The use of various administrative controls is always an essential complimentary element and should be developed in conjunction with selection of safeguards; e.g. training will be common to all safeguarding systems and the safe use of machinery. Refer to *Dubai Aviation City Corporation (DACC) COP – DACC.DS.OPS.OHSE.OST.06.DM* for more details on Guarding of Dangerous Machinery.



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d) Electrical Safety.

- (i) All Electrical installations shall be in accordance with *Dubai Aviation City Corporation (DACC) COP – DACC.DS.OPS.OHSE.OST.02.ES* for Electrical Safety at Work and *Dubai Aviation City Corporation (DACC) COP – DACC.DS.OPS.OHSE.FLS.01.FL – Fire and Life Safety*.
- (ii) All operational facilities must comply with Fire and Life Safety Systems as per *UAE Fire and Life Safety Code of Practice 2018*.

e) Conveyors.

- (i) Workers can be injured when they are caught in pinch points or in the in-going nip points, are hit by falling products or develop musculoskeletal disorders associated with awkward postures or repetitive motions.

Duty holder to ensure that below list shall be considered when communicating hazard to relevant personnel's but not limited to:

1. Inspect conveyors regularly and records to be maintained.
2. Ensure that pinch points are adequately guarded along with the suitable signage.
3. Develop ways of locking out conveyors and train employees in these procedures;
4. Provide proper lighting and working surfaces in the area surrounding the conveyor.
5. Ensure that preventive maintenance regime for conveyors are conducted periodically.

f) Dock Levelers

- (i) Dock levelers are devices used to bridge the gap between the loading dock and vehicle trailer.
- (ii) Duty Holder shall ensure that annual Third Party Inspection for all dock levelers is to be conducted and maintained. Organization conducting third party inspection must be approved by Dubai Accreditation Center (DAC).
- (iii) Duty Holder shall ensure that all hazards a related to the use pf dock levelers has been communicated to relevant staff but not limited to:

- 1) Trapping of feet or toes between the descending platform and loading dock;
- 2) Overturning of mechanical handling devices;
- 3) Trips or falls of people, goods or materials; and
- 4) Trapping of people underneath the dock leveler.



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The following safeguards should be used:

1. When a dock leveler integral to a loading dock is not in use, the platform should be returned to a horizontal position flush with the loading dock as soon as loading/unloading is completed. A mechanism fitted to the dock leveler that automatically returns the platform to a horizontal position after use will give increased protection against the risks caused by the platform being left inadvertently raised or depressed.
2. Toe guards should be provided, e.g. fencing at the sides of the leveler that prevents feet or toes from being caught under the platform as it descends.
3. Provide skirts, plates or other suitable devices to enclose the trapping hazards below the platform.
4. Provide manually operated scotches or other equally effective means to enable the dock leveler to be mechanically locked in a raised position when maintenance or repair work is necessary.
5. Defective safety features, twisted, cracked or misaligned platforms or other defects with dock levelers can cause serious accidents. You should have a planned routine maintenance system, as well as an effective system to report defects and carry out remedial repair work.

g) Material Storage

- (i) Duty Holder to ensure that below list shall be considered when communicating Hazards and Risk related to material storage to all relevant personnel's but not limited to:
 1. Stack loads evenly and straight;
 2. Where mechanical handling equipment is used, sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made. Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard. Permanent aisles and passageways shall be appropriately marked.
 3. Storage of material shall not create a hazard. Bags, containers, bundles, etc., stored in tiers shall be stacked, blocked, interlocked and limited in height so that they are stable and secure against sliding or collapse.



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4. Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control will be exercised when necessary.
5. Place heavier loads on lower or middle shelves;
6. Remove one object at a time from shelves;
7. Keep aisles and passageways clear and in good repair.
8. All damaged pallets shall be removed from the racks.

h) Material Handling

- (i) Improper lifting, repetitive motion or poor design of operations can lead to musculoskeletal disorders in workers.
- (ii) Duty Holder to ensure that below list shall be considered when communicating Hazards and Risk related to Poor ergonomics/Manual Handling and Lifting to all relevant personnel's but not limited to:
 1. Provide general ergonomics training and task-specific training;
 2. Minimize the need for lifting by using good design and engineering techniques;
 3. Lift properly and get a coworker to help if a product is too heavy.
 4. If possible, use powered equipment instead of requiring a manual lift for heavy materials;
 5. Test the load to be lifted to estimate its weight, size and bulk, and to determine the proper lifting method;
 6. Get help if the load exceeds the maximum weight a person can lift safely without assistance;
 7. Don't twist while carrying a load, but shift your feet and take small steps in the direction you want to turn;
 8. Keep floors clean and free of slip and trip hazards.

i) Battery Charging Stations

- (i) Duty Holder to ensure that charging of MHE batteries requires training and caution due to the batteries' weight, the corrosive sulfuric acid contained within, the possibility of explosive hydrogen fumes, and the chance of electric shocks on unprotected exposure.



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- (ii) Hydrogen gas is always present during battery charging, and hydrogen gas is explosive. As such, you should take precautions to prohibit open flames, sparks, or electric arcs in the battery charging areas, and provide good ventilation so that the hydrogen gas doesn't concentrate.
- 1) Battery charging should be done in a place designated for that purpose only.
 - 2) Battery charging areas should be adequately ventilated to disperse fumes. Such areas should also be equipped to flush and neutralize spilled electrolytes, with fire protection equipment, and to protect the charging apparatus from damage by trucks.
 - 3) When charging batteries, never pour water into acid. Always pour acid into water. A safety warning sign shall be posted, this can keep this point fresh in a worker's mind during battery charging operations.
 - 4) Battery vent caps should be checked to ensure their proper functioning. Battery covers should be open for heat to escape.
 - 5) Smoking must be prohibited in battery charging areas. As mentioned earlier, other ignition sources such as welding sparks and fumes, gas burners must be kept away from this area
 - 6) Metallic objects including tools should be kept away from uncovered batteries. Workers should remove metallic wearables like watch, all jewelry, and fitness bands when working with batteries.
 - 7) Eyewash stations with a 15-minute continuous flow must be provided near battery charging units. Such stations should be close to the battery charging area, within a walking distance of 10 seconds or less.) The eyewash station should be in a well-lit area, unobstructed, and marked with conspicuous signage.
 - 8) Personal protective equipment including goggles, face shield, rubber or neoprene gloves, rubber aprons, and safety toe footwear should be provided to protect workers against electrolyte splashes and electrical shocks.

3.11 Racking Systems

- a) The term '**racking**' is used to describe a skeletal framework, of fixed or adjustable design, to support loads generally without the use of shelves. It is usually qualified (i.e. pallet racking, tyre racking, drum racking, etc.). Racking systems are widely used in warehouses as there are considerable space advantages over floor storage and they provide for easy access and retrieval of goods. There are many different types of racking system. The most common types found in warehouses are described in Table below along with its details and terms commonly used for racking systems.
- b) Duty Holder shall ensure that all racking systems should be of good mechanical construction, of sound material, adequate strength and installed and maintained in accordance with the manufacturer's instructions. The maximum safe working load and design configuration for any racking installation should be conspicuously displayed.



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Common types of racking systems used in warehouses	
Racking system	Description
Adjustable pallet racking	A system of upright frames connected by horizontal beams to provide pallet storage levels, which can be adjusted vertically. Each pallet storage position can be accessed individually.
Mobile racking	The racking is mounted on movable base frames running on rails; it can be power-operated, manually operated or mechanically assisted.
Cantilever racking	Racking incorporating cantilever arms, either fixed or adjustable.
Live storage racking	A live storage system provides a block of storage in depth, which has a rear or 'loading face' and a front or 'picking face'. Goods are conveyed from the loading to the picking face either by gravity using an inclined surface or track or by horizontal powered conveyor such that two aisles are necessary to service a block of storage, whatever the depth. This method of storage ensures that the first-in-first-out system operates and is suitable for pallets, boxes, and containers etc., all of which have specific requirements within a live storage system.
Push-back system	A live storage system providing a block of storage in depth, where picking and loading are both done from the front face of the block. Goods are conveyed to and from the storage position either by gravity using an inclined surface or track or by horizontal powered conveyor such that only one aisle is necessary to service a block of storage. This method of storage ensures that a first-in-last-out system operates and is suitable for pallets only.
Drive-through/drive-in racking	This system provides blocks of static storage where pallets are stored two or more deep. By driving into the storage lane, access is gained to pallets supported along their sides on beam rails cantilevered from the frames. Drive-in system: the lift truck drives into a lane and reverses out. Drive-through: similar to drive in, but the truck may drive through the block from one aisle to another.

c) **Racking installation** - Duty Holder shall ensure that requirements for the safe installation of racking vary according to the type and size of the system, and the nature of the building or area for which it is intended. Safe working loads, heights, widths and equipment tolerances should be set by the designers and manufacturers of the total system. The basic principles for safe installation as follows;

- (i) Racking should only be installed by competent people in accordance with the manufacturer's instructions.
- (ii) Racking should be erected on sound, level floors, capable of withstanding the point loading at each base plate.
- (iii) Where the racking design requires it to be secured to the building, only those building members that have been 'proved', by structural calculations, as able to resist the forces applied should be used. In such a case, the racking design should be compatible with the building layout.
- (iv) Double-sided runs should be connected and spaced using suitable run spacers.



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- (v) Aisles should be wide enough to ensure that mechanical handling equipment can be easily maneuvered. Widths will depend very much on the type of equipment used, e.g. some require a 90° turn to load and offload, some remain parallel to the aisle and have forks at 90° to the direction of travel.
 - (vi) Beam connector locks should always securely fix the connectors at the ends of each beam, to prevent accidental uplift of beams, e.g. by lift truck.
 - (vii) Racking should have a clear unambiguous notice securely fixed to it, stating the maximum load together with any necessary specified load configurations.
 - (viii) The limitations indicated in the maximum load notice should never be exceeded. The weight of each palletized load should be established before a decision is made to store it in the racking. This is particularly important where different products are stored which may vary considerably in weight, or where a new line of product is brought into the warehouse for the first time. In some situations, it may not be necessary to establish the weight of each palletized load, if the racking system is designed and installed to meet the storage requirements of the heaviest palletized load in your company's operation. Nevertheless, you should adopt a system to ensure that all palletized loads intended for storage in racking can be safely stored in accordance with the particular racking design and installation.
 - (ix) Racking should never be altered (e.g. by welding) nor components removed without first consulting the manufacturer. Before changing the position of adjustable components on racking (as supplied), you should establish the design limitations of the new configuration and, where necessary, amend the safe working load notice. Adjusting the position of the first or second beam from the bottom is normally the most critical alteration, which always requires a check on the rated carrying capacity of the rack.
 - (x) High visibility colors for key components of the racking, e.g. horizontal beams, will assist truck operators to correctly position the forks and avoid damage to the racking.
- d) **Pallet stops** - Duty Holder shall ensure that using pallet stops attached to racking structures may increase the risk of structural damage from the load or thrust that may be applied to the racking. If racking layouts are correctly designed to give adequate clearances between back-to-back pallets or loads, then pallet stops are unnecessary for a trained and competent driver to deposit a pallet correctly and safely.
- e) **Racking protection** - Where racking is likely to be struck by lift trucks and other vehicles, it should be protected. Generally, such damage is at the lower levels of the racking – use renewable column guards to minimize the risk of damage from accidental impact. Corner uprights in a run of racking are especially at risk and should be suitably provided with a protective device in a conspicuous color.
- f) Retrofitting upright protection devices to an existing aisle where they have never been provided can have the effect of reducing the available clearances for fork-lift truck maneuvers, which can in some circumstances increase the amount of damage caused. Such situations need consideration on a case-by-case basis.



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- g) **Racking inspection and maintenance** – In general, racking is manufactured from relatively lightweight materials and, as a consequence, there is a limit to the amount of abuse that it can withstand. The skill of lift truck operators has a great bearing on the amount of damage likely to be caused. Any damage to racking will reduce its load carrying capacity. The greater the damage the less its strength will be.
- (i) Duty Holder to ensure that a racking system continues to be serviceable and safe to use, the storage equipment should be inspected on a regular basis. Inspection shall be conducted either by the installer/supplier of the racks or Third party organization approved by Dubai Accreditation center providing **Safe to Use Certificates** proof that the racking system is fit to use and records to be maintained.

3.12 Temperature Control Storage / Cold Storage

- a) Temperature-controlled storage (TCS) operates across a wide temperature range. The main bands are +4/5 °C for chill and –20 °C to –30 °C for frozen, although these can vary depending on product requirements. The additional hazards associated with working in such environments are harshest in stores operating below 0 °C. Some hazards, however, such as condensation build-up, can be found in chill stores.
- b) Hazards can also vary according to the type of TCS. This is caused by the temperature of the store and the size and type of operation undertaken, e.g. small freezer rooms, bulk stores, picking operations.
- c) Duty Holder shall ensure that **Specific Hazards** associated with Temperature Controlled Storage are being communicated to all relevant personnel's inside the facility.

Many hazards are specific to TCS and you should use physical precautions, safety equipment, operational and contingency plans and staff training:

- (i) **Accidental lock-in** - This is potentially a serious hazard that can lead to fatal accidents, particularly in low temperature stores. At temperatures below –12 °C, lone working should be avoided and a buddy system introduced. Adequate emergency exits and signage are essential in TCS, together with highly visible escape routes. This can significantly reduce the danger of a lock-in. However, you should undertake an assessment to confirm there are adequate means of escape considering, for example, escape routes blocked by collapsed racking, fallen stock or other obstructions. Consider all potential means of communication, including lone worker/trapped-man alarms, mobile phones, radios, PA systems and computer links.

Duty Holder shall ensure that the following precautions are recommended to avoid accidental lock-in but not limited to;

1. Only authorized people should be allowed to enter the TCS. They should be fully instructed on the means of escape, the use of 'locked-door' opening devices and trapped-man alarms.
2. Clear, conspicuous signs should be prominently displayed at the entrance door(s), indicating 'No unauthorized entry'.



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3. Battery-operated emergency lighting should be provided to clearly indicate the escape route(s).
 4. Trapped-man alarms, door-release devices and emergency exits should be properly maintained and regularly tested to ensure that they are in good working order.
 5. Before a TCS is locked, a thorough check should be made by an appointed member of staff to ensure that it is unoccupied.
 6. The fire authority should be contacted for advice regarding any arrangements or conditions that may be necessary to meet current fire safety standards.
- (ii) **Handling and accidental release of refrigerant** – Ammonia and halocarbons are the main refrigerants used in cold store applications. Ammonia related works must be in accordance with *Dubai Aviation City Corporation (DACC) COP – DACC.DS.OPS.OHSE.OPS.01.AW – Ammonia Works*
1. Equipment failure, improper maintenance work, mechanical damage or accidental release during refrigerant replenishment can all produce a potentially hazardous situation.
 2. Probably the greatest hazard comes from the release of ammonia. This is a toxic and flammable gas and should be handled with extreme care. Small or minor leaks should be identified, isolated and neutralized. Larger leaks should be classed as major and dealt with according to the cold store's emergency procedures. Personnel should not attempt to correct a leak unless competent and authorized to do so, and only when wearing the correct PPE. The system should be designed to minimize the likelihood and consequence of accidental release of liquid ammonia during maintenance, e.g. when oil draining. In such circumstances, either a double valve arrangement (including a self-closing valve), or the use of a drain catch pot system, should be included in the system design.
 3. Refrigerant handling and accidental release should be included in facility COSHH assessments.
 4. Halocarbon refrigerants are of a lower toxicity but still pose a major risk, particularly in small confined environments such as plant rooms and small freezer rooms where displacement of oxygen can cause asphyxiation (suffocation). Even at low concentrations, halocarbons can cause health problems. If involved in a fire, these refrigerants produce toxic decomposition products. Suitable and adequate ventilation is required in all plant rooms to ensure workplace exposure limits are not exceeded.
 5. Mechanical ventilation is required in plant rooms where group 2 and 3 refrigerants are in use. The requirement for mechanical ventilation where group 1 refrigerants are in use should be determined through competent risk assessment.



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Duty Holder shall ensure that the following precautions should be taken against the accidental release of refrigerants:

- 1) Refrigeration plant should be properly maintained and only operated and maintained by competent personnel who are properly trained, qualified and familiar with the specific refrigeration plant to be worked on. A plant diagram should be available and there should be proper labelling and identification of significant valves for isolation.
- 2) A clear emergency procedure, including details of the precise duties of all relevant staff and the arrangements for evacuation, rescue, first aid, plant isolation etc., should be drawn up and effectively communicated to everyone likely to be affected in an emergency situation. This procedure should be periodically practiced and reviewed.
- 3) Plant rooms should be provided with adequate and suitable ventilation including:
 - a. Adequate ventilation to prevent build-up of toxic or dangerous concentrations —of refrigerant from operational leakage. Mechanical ventilation should be provided in plant rooms where ammonia or halocarbons are the refrigerant in use. This should be discharged to a safe place in the open air;
 - b. Emergency ventilation to prevent dangerous accumulations of a refrigerant (e.g. flammable ammonia vapor/air mixtures) in the event of a plant or operational failure;
 - c. Refrigerant vapor detectors should be provided in plant rooms to activate an alarm should the workplace exposure limit be exceeded. Where mechanical ventilation is required for the plant room, the activation of this alarm should automatically switch on the ventilation fans.
- 4) **Group 1 refrigerants-** non-flammable and non-toxic (e.g. CO₂, halocarbons): Where there is an exposure limit for refrigerants in this category, ventilation should be adequate and suitable to ensure the workplace exposure limits are not exceeded. Where natural ventilation is inadequate for this purpose, mechanical ventilation should be provided and should switch on if the concentrations exceed the workplace exposure limits. The decision on whether natural ventilation is adequate should be achieved through the process of risk assessment. This should be carried out by a competent person and it may also be appropriate to seek advice from a competent industry body
- 5) **Group 2 refrigerants** – ammonia: Ventilation fans should switch on if the concentration of refrigerant exceeds 1% by volume (V/V).
- 6) **Group 3 refrigerants** - hydrocarbons: Ventilation fans should switch on if the concentration of refrigerant exceeds 25% of the lower explosive limit.



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- 7) In unmanned machinery rooms for group 2 and 3 refrigerants, the detector(s) should also isolate all zone electrical circuits, other than emergency lighting and ventilation, by circuit breakers located in a safe place.
 - 8) The refrigerant concentration in each plant room should be monitored at one or more points within the room and detectors should be positioned to give warning of any leakage before a dangerous vapor accumulation can occur.
 - 9) The refrigerant detector, when sensing a refrigerant concentration exceeding its pre-set limit, should, in addition to its other functions, initiate an alarm in the plant room and elsewhere so that emergency action may be initiated.
 - 10) Emergency extraction fans installed in plant rooms should be of sufficient capacity to prevent any dangerous build-up of flammable concentrations.
 - 11) For minor maintenance work and for dealing with small leaks, a respirator with an appropriate filter may be suitable. However, where a high concentration of refrigerant is foreseeable, use self-contained breathing apparatus, along with other PPE as determined by risk assessment. Employees should receive suitable training in the use of this PPE. The risk assessment should also consider the provision of emergency rescue from areas affected by the release.
 - 12) A water shower is required to douse individuals who have been exposed to ammonia.
- (iii) **Handling and accidental release of refrigerant** – Freezing of the tissues results in frost-nip or frostbite. Prolonged cold exposure, without freezing, may cause chilblains.
- a) Duty Holder shall ensure to provide special arrangements for the welfare of workers who are exposed to low temperatures for extended periods. These will include the provision of thermal protective clothing and warming rooms with drinks dispensers. Suitable and sufficient breaks should be arranged, based on a comprehensive risk assessment.
- (iv) **Lift trucks** - The type of lift truck operated within a TCS will depend upon the nature of the operation. For example, where there is a high volume, full pallet operation, consider fitting lift trucks with heated cabs. Where the driver needs to get on and off the lift truck frequently, open-cab trucks may be more operationally practical. In these circumstances, you will need to consider, for example, providing appropriate PPE and facilities for taking additional breaks to warm up.
- (v) **Personal Protective Equipment (PPE)** - The nature of PPE required to protect workers in a TCS environment can have major effects on normal mobility, manual dexterity and visibility.
- a) Duty Holder shall ensure that suitable PPE should be provided and used in all instances. Selection of PPE should take account of the temperature, length of exposure, type of operation and personal preference. Different circumstances will apply, for example, to extended work periods inside the TCS, compared to



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intermittent or short-term exposure, and whether there is significant air movement within the store. Additional guidance on the selection of appropriate PPE can be obtained from the standards *ISO 11079 and BS EN ISO 9920 / Dubai Aviation City Corporation (DACC) COP – DACC.DS.OPS.OHSE.OST.10.PP – Personal Protective Equipment*.

- b) When there is prolonged exposure to temperatures of -20°C or below, it is advisable to avoid exposure of bare skin. When working in environments of -40°C , provide specialist respiratory protection and make sure goggles are worn. Also at -40°C , if there is any air movement, ensure that no work activity occurs, as the risks to health are too high.

3.13 Welfare Facilities

- a) Duty Holder shall ensure to comply with the requirements for *Dubai Aviation City Corporation (DACC) COP – DACC.DS.OHSE.OPS.WRW.01.WA – General Workplace Amenities and Dubai Aviation City Corporation (DACC) OHSERF – Regulation 12 – Workers Welfare*.

3.14 Risk Assessment

- a) Warehousing is a complex industry that can expose workers to a multitude of risks; health and safety should be proactively managed just like any other part of the business. The first step in managing health and safety is to identify the priorities – i.e. to carry out a **Risk Assessment**. This CoP will help as it covers the recognized main hazards in warehouses. It is also important to consider additional hazards specific to a site that may also need attention.
- b) Duty Holder shall evaluate each activity to determine if hazards are present and the workplace shall be assessed using risk management practices as required by *Dubai Aviation City Corporation (DACC) OHSERF – Regulation 2 – Risk Management*.
- c) Risk assessment is an important step in protecting your workers and your business, as well as complying with the law. It helps you focus on the risks that really matter – the ones with the potential to cause real harm. You are legally required to assess the risk in your workplace so that you can put in place a plan to control them.
- d) A risk assessment is simply a careful examination of what in your work could cause harm to people, so that you can weigh up whether you have taken enough precautions or should do more to prevent harm. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures.
- e) Many risks in a warehouse may already be well controlled, e.g. the correct industrial trucks may be used and the drivers correctly trained, but you should also consider other issues such as **Supervision, Monitoring and Maintenance**.



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4.0 RECORD KEEPING

- (a) Duty Holder shall ensure record keeping in accordance with the requirements of *Dubai Aviation City Corporation (DACC) OHSERF – Regulation 8 – Document Control and Record Management* for the purpose of performance review in accordance with the requirements of *Dubai Aviation City Corporation (DACC) OHSERF – Regulation 14– Performance Management* and *Dubai Aviation City Corporation (DACC) OHSERF – Regulation 19 – Management Review*.
- (b) Duty Holder shall ensure records of the below but not limited to:
- (i) Personnel training and awareness;
 - (ii) List / register of appointed / authorized personnel;
 - (iii) List / register of machine, equipment, devices utilized in warehousing activities
 - (iv) Inspector competency;
 - (v) Inspections result; and
 - (vi) Manufacturer's catalogue with all necessary information.
 - (vii) Testing and Inspections Certificates

5.0 REFERENCES

NO.	DOCUMENT NAME	DOCUMENT NO.
1	Risk Management	DACC OHSERF – Regulation 2
2	Leadership, Roles, Responsibility and Self-Regulation	DACC OHSERF – Regulation 5
3	Competence Management, Training and Awareness	DACC OHSERF – Regulation 6
4	Communication, Consultation and Participation	DACC OHSERF – Regulation 7
5	Document Control and Record management	DACC OHSERF – Regulation 8
6	Emergency Management	DACC OHSERF – Regulation 13
7	Performance Management	DACC OHSERF – Regulation 14
8	Incident Management	DACC OHSERF – Regulation 15
9	Personal Protective Equipment	COP – DACC.DS.OPS.OHSE.OST.10.PP
10	Control of Substance Hazardous to Health and Danger	COP – DACC.DS.OPS.OHSE.CGF.01.SH
11	Ammonia Works	COP – DACC.DS.OPS.OHSE.OPS.01.AW
12	Work Related Medical Emergency Treatment	COP – DACC.DS.OPS.OHSE.WRH.05.ME
13	Waste Management	COP - DACC.DS.OPS.OHSE.ENV.12.WM
14	Indoor Air Quality Requirements	COP – DACC.DS.OPS.OHSE.ENV.08.AQ
15	OHSSE Inspection for Issuance of OHSSE-NOC for Operation Fitness Certificate (OFC)	COP – DACC.DS.OPS.OHSE.OPA.01.OF
16	Guidelines on Cleanliness	COP – DACC.DS.OPS.OHSE.OST.07.CL
17	Electrical Safety at Work	COP - DACC.DS.OPS.OHSE.OST.02.ES
18	Fire and Life Safety.	COP - DACC.DS.OPS.OHSE.FLS.01.FL.
19	Protection / Protection and Development of the Environment	Federal Law No. (24) of 1999



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20	Labor Law and its Amendments	Federal Law No. (8) of 1980
21	Determination of Preventive Methods and Measures for the Protection of Workers from the Risks of Work	Ministerial Order No. (32), of 1982
22	Regarding the Level of Medical Attention the Employer is Obligated to Provide to his Workers	Ministerial Decision No. 37/2 of 1982
23	Concerning Public Health and Safety of the Society in the Emirate of Dubai	Local Order No. 11 of 2003
24	Defining Works that are Hazardous or in which it is Permissible to Reduce the Legally Decided Working Hours	Ministerial Resolution No. 4/1 of 1981
25	Federal Regulation for Handling Hazardous Materials, Hazardous Wastes and Medical Wastes	Issued by Cabinet Decree No. 37 of 2001
29	UAE Life and Safety Code of Practice 2018	2018
30	DACC OHSE Regulatory Framework	2018
31	Environment Protection Regulations in the Emirate of Dubai	Local Order No. 61/1991