هيئة الزكاة والضريبة والجمارك
Zakat, Tax and Customs Authority

General Technical Requirements Guideline for Express shipments warehouses

Abridged Version
Oct. 2023

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Note:

These are general requirements, and ZATCA has the right to leverage the level of standards or requirements as per each carrier's operating model.

1. Purpose

This document aims to provide guidelines on the engineering design, trade facilitation requirements, security requirements and computer network infrastructure requirements for investors (Second Party) by implementing architectural and engineering designs to ensure all aspects of the facilities that are to be operated by Zakat, Tax and Customs Authority (First Party) are executed in a considered and cohesive fashion.

2. Introduction

This document provides the summarized general engineering and trade facilitation requirements adequate to design and construct facilities that will be operated as express shipment warehouses.

3. General Requirements

3.1. Radiation Protection

The arrangement of the X-ray machine, whether fixed or mobile, must comply with the ANSI Z54.1-1963 standards. The A/E must ensure a safe distance surrounding the X-ray machine.

3.2. Applicable Codes and Standards

1. International Building Code (IBC) - 2009
2. International Fire Code (IFC)
3. National Fire Protection Association (NFPA)
4. Saudi Building Code (SBC 201) - General

3.3. Accessibility

Unless a waiver is granted, compliance with SBC Chapter 11 and the ICC A117.1 technical specifications is mandatory to ensure accessibility standards are met in all facilities.

3.4. Local Content

In alignment with Saudi Vision 2030, the company is expected to prioritize local materials and products and adhere to "The Mandatory List of Products and Materials" by the Local Content and Government Procurements Authority (LCGPA).

3.5. Security

Security mandates must align with and receive approval from ZATCA's Security Department.
An obligatory Access Control System must be established by a Security Service Company recognized by ZATCA.
Constant CCTV surveillance is essential at entrances and relevant parking areas, along with other strategic locations.
Lighting must be even and consistent, ensuring no dark zones that may impede visual clarity, and must synchronize with the capabilities of security cameras.

4. Architectural Requirements

The parameters for architectural requirements set the minimum standards to be respected in the warehouse design.

4.1. Indoor Working Environment

The objective is to provide facilities that offer the best possible environment to support the mission, functions, and needs of the warehouse.

4.2. Functional Requirements

Operational and supporting facilities will depend on the company's import/export volume and staffing needs. Coordination with ZATCA, including with the Security Department, is crucial for validating facility needs. The tentative list of required facilities includes:

- Offices
- Amenities (toilets, break rooms, prayer rooms, and store)
- Control room
- Server room
- Storage areas
- Security features (fence, gates)
- Inspection-related infrastructure (including K9 and X-ray)

This list is preliminary, and additional facilities may be mandated upon further consultation.

4.2.1. Finishing

The facilities should emphasize low-maintenance and vandal-resistant interiors and systems, utilizing easily available, high-caliber materials for effortless repair and replacement.

Aesthetic considerations should prioritize harmony and restraint in the variety of materials, textures, finishes, and colors used.

4.2.2. Furniture, Equipment, and Fittings

Furniture and fittings must be chosen for their functionality, user capacity, and adherence to the Disability, Access, and Inclusion Plan.
All furniture should have BIFMA certification. Any equipment must meet ZATCA's standards and receive a No-Objection statement.

4.2.3. Lighting

Artificial light must follow the recommended range of illuminance.Artificial lighting shall also meet the requirements of the lighting range recommended by the European standards (EN 12464-1) depending on the type of space.

4.2.4. Sound Transmission Class

Mechanical equipment shall be located and installed to minimize transmission of objectionable sound to the surrounding area. The required sound transmission class (STC) is determined based on ASM E90 and E413 standards.

4.2.5. Signage

Signage must adhere to ZATCA's identity guidelines and must be placed at eye level as required by accessibility requirements.
Evacuation Plan and Life Safety directional signage are mandatory.

4.3. Outdoor Working Environment

Where outdoor activities are required, the A/E is required to provide the best solutions to mitigate the effects of the harsh microclimate. In particular, the conditions to be addressed are heat, humidity, sand, dust, rain, and storms.

4.4. Applicable Codes and Standards

1. International Building Code (IBC) - 2009
2. Occupational Safety and Health Administration (OSHA)
3. Saudi Building Code (SBC 201) - General

5. Electrical Requirements

5.1. Electrical Characteristics

The facility's electrical system must have a reliable 24/7 power source. Essential sections like cold storage, IT, and security systems should have standby generators with a 24-hour fuel reserve and UPS with a minimum of 15-minute battery backup.

Adherence to SEC, SBC, SASO, IEC, and Saudi Arabia Distribution codes is mandatory, ensuring proper voltage levels, cable standards, and energy-efficient LED lighting installations.
The system must prioritize energy conservation, suitable outdoor installations, and adherence to required illumination levels for safety and efficiency.

Low-Voltage Requirements

5.2. Introduction

The facility will function on a Landlord/ Tenant model with shared services. Individual metering and building controls will be managed via an IP network and IoT platform.
ZATCA's IT and Security requirements will take precedence over ELV requirements.

5.3. General Requirements

5.3.1. Communications

The warehouse is to be equipped with necessary cabling, data & network systems, servers (physical and virtual), and IP-based voice & video technology to ensure reliable communications.

5.3.2 Electronic Safety and Security

The facility must include systems for access control, security screening, suspect baggage tracking, perimeter security, and video surveillance.

5.4. Reference Standards

5.4.1. General

The most recent editions of references and publications are applicable unless a specific edition date is stated.
All cited specifications, codes, rules, and standards in the text refer to their latest printed editions.

Conflict

If the Specification or drawings call for material or construction methods below the reference standards, immediately notify the Engineer. Post Engineer's approval, adhere to minimum code standards.
Ensure that works interfacing with telecommunication service providers like STC, Mobily, MIFON, or Zain comply with their latest standards and receive their approval.

6. Mechanical Requirements

6.1. Firefighting System

All facilities must adhere to the Civil Defense Life Safety Requirements and comply with the Saudi Building Code and other relevant national regulations, including the General Directorate of Civil Defense and NFPA, for all other technical aspects.

6.2. HVAC

All enclosed spaces within the facilities, including storage warehouses, workshops, and inspection areas, must have adequate air conditioning or ventilation based on their function. All designs should conform to the Energy Conservation Code and relevant ASHRAE standards.
Adequate outdoor air ventilation rates must be maintained, and the HVAC systems should be designed with appropriate dust traps, filters, and standby units for critical areas.
All equipment and system selections must comply with relevant Saudi Building Code (SBC), NFPA standards, and SMACNA directives, ensuring effective and efficient functioning, safety, and adherence to the specific climate conditions in Saudi Arabia.

6.3. Plumbing

Materials used must align with the latest ASTM Standards Specifications. All piping and fittings in the building must comply with the SBC 701 requirements, IPC, and UPC standards for sanitary, vent, and drainage systems.
Water heaters and plumbing fixtures should meet the ANSI/ASHRAE Standard 90.1 and ASHRAE Handbook, respectively, in addition to adherence to Saudi Building Code requirements.

7. Structural Requirements

7.1 Types of structures

Structures are classified into the following categories:

1. Building Structures
2. Non-building Structures
3. Transportation Structures

7.1.1 Building Structures

The structural integrity of the building must be guaranteed by addressing both vertical and lateral loads.

The design must provide direct and continuous load paths from the roof to the foundation, ensuring all structural elements and connections along this path have adequate strength and stiffness.

In line with codes, the building structures should sustain local damage under extreme loading conditions while maintaining overall stability. The design should ensure continuity, redundancy, and ductility.

The company must present detailed design and drawings to confirm the building's resilience and capacity to withstand various loads, ensuring its long-term stability and safety.

7.1.2 Non-building Structures

Technical specifications must ensure highway traffic interoperability within KSA. These structures should meet ZATCA's expectations for aesthetics and function.

Essential features include simplicity, regularity, integrity, redundancy, and ease of maintenance.

The construction phase should aim to minimize traffic disruption.

All bridges are required to have concrete safety bridge railing, aligning with MOT and AASHTO standards to guarantee optimal safety and compliance.

7.1.3 Transport structures

Concrete properties shall be selected to suit the expected conditions. Portland-Pozzolan cement shall be used for non-building structures, while Type V cement shall be used for un-reinforced concrete on the ground.

Concrete reinforcing steel shall be in accordance with specifications, and epoxy-coated reinforcement shall be used for the structures.

Applicable Codes and Standards

The following hierarchy will apply where a conflict or difference occurs between standards or documents:

1.Saudi Arabian Statutory Requirements

2.Relevant Design Standards or Codes of Practice

Where inconsistencies identified are considered critical, they shall be highlighted and agreed upon with ZATCA.

8.The initial and general requirements of the infrastructure of the computer network

The express shipping company must ensure its systems are linked with ZATCA's. The warehouse needs to be provided with all equipment required (including a separate server room and isolated computer network for communication with customs).

8.1 Requirements for computer network infrastructure, works, and materials required

Warehouses shall be equipped with sufficient cabinets, distribution boards & panels, cables, routers, switches, LAN controllers, access points, IP phones, servers and UPS in order to enable the setup and operation of a secure computer network that allows communication with ZATCA.

9. General Requirements for Security Systems and Technologies

9.1 General requirements for all works and security technologies:

The product of each item shall have a high and similar level of quality in terms of quality, size, shape, color and structure. It shall be free from defects. The equipment shall be manufactured in the award year.

All systems, units, and parts to be supplied, whether for installation or repair, described as the terms and specifications shall be produced by a global company with sufficient manufacturing expertise, and having actual operational records for systems confirming the efficiency of the equipment and systems. A list of the sites to which these systems are installed and operated shall be attached by the manufacturer.

All security technologies shall meet the requirements of the High Commission for Security and Safety at least second level.

9.2 Security control and monitoring rooms:

The contractor is tasked with outfitting this room with advanced technologies to monitor all security systems, including alert and fault detection.

9.2.1 Security control and monitoring information systems for central-room security applications and their internal and external connections.

Security control and monitoring units, whether inside or outside the central room, should encompass a range of remote operational and management devices and technologies (i.e., displays, control units, and various indicators).
Additionally, the contractor will secure and implement server specifications, communication cabins, and networking supplies to support these information systems, ensuring thorough security oversight and management, excluding the management of inspection systems and radiators, which are covered in the X-ray systems section.

9.3 Container and truck X-ray inspection system

This section outlines the operational requirements and technical specifications for all radiographic inspection systems and accessories.

9.3.1 General conditions and requirements for all inspection systems in case it is required

The contractor must ensure the systems procured are from reputed international companies certified in quality control and in compliance with global standards for radiological and radiation protection systems.

The inspection system includes all necessary electrical, mechanical, electronic, and security components, ensuring thorough inspections of containers, trucks, vehicles, and passenger cars for prohibited and restricted materials. The contractor's responsibilities encompass the implementation and security of technical requirements, project management, and maintenance and operation services to fulfill ZATCA's strategies.

The systems, devices, and components supplied shall conform with the requirements and standards.

The supplier is mandated to secure all necessary operational licenses from the relevant authorities in the Kingdom of Saudi Arabia for the X-ray inspection systems.
Prior to supply, the systems must undergo rigorous factory acceptance tests submitted to the competent authority in ZATCA to ensure their efficiency, safety, and adaptability to various environmental conditions in KSA.

The inspection system should be equipped with state-of-the-art features, including high-resolution imaging, material differentiation, emergency shutdown mechanisms, and automated radiation dose indicators to guarantee the utmost safety and operational efficiency. Moreover, the system must support seamless remote operation and connect to a centralized information network for efficient data storage and retrieval.
The contractor is responsible for the system's calibration, maintenance, and ensuring its compliance with all regulatory standards, including procedures related to remote communication and operation.

10. General Security Requirements

The site shall be surrounded by a wall of all sides and have all the Security requirements, either barbed wire, lighting, etc. with all safety requirements in accordance with industrial security requirements. There is one main gate for truck entry and another for truck exit with hydraulic fenders, in addition to sliding doors and electric arms and cameras linked with ZATCA.

Separating the outbound area from the incoming one and also separating the warehouses from the detection (inspection) area.

A gateway for employees and workers entrance including: Device to check bags and packages, Metal detection gateway.

11. Trade Facilitation Requirements

The express shipping operator must ensure the warehouse is designed to fulfill all infrastructure and technology requirements to enable the successful processing of shipments entering the country across the six stages below:

1. Arrival and reception.
2. Unloading and loading.
3. Customs inspection.
4. Short-term storage.
5. Verification and auditing .
6. Release and dispatch.

For each stage, specific infrastructure and technology requirements are defined.

11.1 Arrival and Reception

The facility shall be equipped with all necessary equipment to ensure the effective completion of the Stage, including automated scanning systems, secure data transmission, security surveillance, real-time GPS tracking, and automated check-in systems.

11.2 Unloading and Loading

Facilities shall be equipped with all necessary equipment to ensure effective completion of the Stage, includingdesignated unloading & loading zones, mechanical unloading systems, sensors for package integrity, controlled environment storage, digital logging, and automated weight verification.

11.3 Customs Inspection

Facilities shall be equipped with all necessary equipment to ensure effective completion of the Stage, including dedicated inspection lanes, x-ray machines, high-speed data access, inspection cameras, and data backup.

11.4 Short-Term Storage

Facilities shall be equipped with all necessary equipment to ensure effective completion of the stage, including automated storage retrieval systems, temperature and humidity control, intrusion detection systems, automated inventory updates, and automated routing.

11.5 Verification and auditing

The facility should be provided with all equipment required to ensure effective completion of the stage, including automated audit trails, record-keeping, firewall protections, and manual override systems.

11.6 Release and dispatch

The facility should be provided with all equipment required to ensure effective completion of the stage, including secure data transmission, paper and digital records, monitoring systems, ID verification, timestamps, and physical seals.

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