



Engineering Standard

SAES-O-203

10 March 2012

Security Gate

Document Responsibility: Safety and Security Standards Committee

Saudi Aramco DeskTop Standards

Table of Contents

1	Introduction.....	2
2	Conflicts and Deviations.....	2
3	References.....	2
4	General Requirements.....	3

Previous Issue: [New](#) Next Planned Update: 10 March 2017

Primary contact: [Abu Alsaud, Ghasan Mahmoud Zaki](#) on 966-3-8763400

Page 1 of 9

1 Introduction

- 1.1 This Standard covers mandatory requirements governing the design and installation of security gatehouses for Saudi Aramco industrial facilities classified under [SAES-O-201](#), Section 4.2.
- 1.2 This Standard shall be used in conjunction with Security Directive SEC-03 issued by the High Commission for Industrial Security (HCIS), Ministry of Interior, Government of Saudi Arabia. The details of the requirements can be found in SEC-03.

2 Conflicts and Deviations

- 2.1 All conflicts between Standards, Requisitions for Material, related Specifications, Codes, Forms, Drawings and other documents shall be resolved as per [SAES-O-201](#), Section 2.
- 2.2 Any deviations from the provisions of this Standard shall be resolved as per [SAES-O-201](#), Section 2.

3 References

All referenced Specifications, Standards, Codes, Forms, Drawings and similar material shall be of the latest issue (including all revisions, addenda and supplements) unless stated otherwise.

3.1 Saudi Aramco References

Saudi Aramco Engineering Standards

SAES-M-100	<i>Saudi Aramco Building Code</i>
SAES-O-201	<i>Application of Security Directives</i>
SAES-O-204	<i>Security Lighting</i>
SAES-O-205	<i>Integrated Security Systems</i>
SAES-O-206	<i>Security Devices</i>
SAES-O-207	<i>Power Supply</i>
SAES-O-208	<i>Communications</i>
SAES-O-209	<i>Security Doors</i>
SAES-O-210	<i>Security Locks</i>
SAES-P-100 to 199	<i>Electrical Power Standards</i>

[SAES-Q-001](#)

Criteria for Design and Construction of Concrete Structures

3.2 Industry Codes and Standards

American Society for Testing and Materials

ASTM F2656-07 Test Method for Vehicle Crash Testing of Perimeter Barriers

Others

NIJ 0108-01 National Institute of Justice Ballistic Resistant Protective Materials

3.3 Other References

Security Directives

SEC-02 Security Fencing

SEC-03 Security Gate

SEC-04 Security Lighting

SEC-05 Integrated Security Systems

SEC-06 Security Devices

4 General Requirements

The gate architecture specified in this standard specifies the minimum requirements for gates at industrial facilities. The details of each requirement can be found in SEC-03.

The gate architecture is based on managing the approach to a facility, inspection and response. Collectively, these facilities are referred to as the “security gate” and the layout comprises the gate architecture. The gate architecture consists of the elements to manage the approach, inspection and response of vehicles and pedestrians entering or exiting a facility.

The area covered by this standard commences with a preliminary checkpoint within a specified distance from the security gate and concludes with the last crash rated barrier past the security gate. The details are provided in the following sections.

All structures shall comply with the applicable provisions of the Saudi Aramco Building Code [SAES-M-100](#), [SAES-P-100](#) for electrical standards and [SAES-Q-001](#) for concrete structures. The exact details for gate related requirements can be found in SEC-02.

4.1 Preliminary Inspection Checkpoint

Proponents shall include a Preliminary Inspection Checkpoint (PIC) in their facility design when deemed necessary by Industrial Security Operations (ISO). The PIC will allow preliminary inspection by government agencies.

It shall be located within 300 m from the security gate and shall preferably be within line-of-sight of the security gate. If the PIC is not within line-of-sight due to terrain or other considerations, a hotline between the main gate and PIC shall be established.

The PIC shall be located so that there are no alternate routes between the PIC and the main gate.

It shall have adequate space for inspecting vehicles and a rejection lane to allow vehicles rejected by the inspection to return back. It shall be illuminated by checkpoint lighting as specified in [SAES-O-204](#).

4.2 Vehicle Approach Speed Management

Vehicles clearing the PIC shall traverse the Vehicle Approach Speed Management (VASM) section of the roadway. The VASM shall be designed to retard vehicle approach speeds to the security gate. This can be accomplished by a chicane, a zigzag route, a 90 degree turn to the security gate or any other speed control mechanism as long as the intent of the VASM is met. It shall incorporate barriers on the sides of the roadway that shall prevent a vehicle from bypassing the VASM.

Temporary routes to allow passage of long or articulated loads are acceptable as long as they do not compromise the intent of the VASM to general traffic.

The approach to the security gatehouse after the VASM shall be less than 50 m to minimize the distance available to vehicles to accelerate after slowing down for the VASM.

4.3 Auxiliary Gate

The auxiliary gate shall provide the capability to shutdown pedestrian or vehicle lanes or the entire gate as needed. The gate shall be at least 3 m high and within 3 m-10 m of the gatehouse.

It shall consist of a steel gate that can be used to close selected entry or exit lanes or to close all lanes when they are not needed. It shall incorporate security measures to prevent an intruder from entering through or climbing over the gate when it is closed. The gate shall be constructed of strong steel elements. Chain link gates shall not be acceptable.

4.4 Gatehouse

The gatehouse shall be sized to accommodate security personnel assigned to the gate. Gatehouse sizing shall be approved by ISO/HCIS prior to construction. Section 4.12 of [SAES-O-201](#) provides details for access of applicable standard drawings. In general, all gatehouses shall have 360 degree visibility and ballistic resistant glass, door and window frames and walls. Proponents shall utilize these standard designs as the basis for their design.

Design shall take in consideration results of building risk assessment (BRA) in the event that the gatehouse is judged to be impacted by risk from process facilities. As clearly specified in the SD, steel prefab gatehouses and concrete prefab gatehouses are acceptable construction methods as long as all ISO/SD requirements are complied with. ISO shall approve all steel or prefab gatehouse designs prior to construction.

Power to the gatehouse shall clearly distinguish between commercial power and UPS power by the use of distinct outlets for each power source. Power outlets sourced from UPS power shall only be used for designated security devices and no extra outlets, other what are required, shall be installed.

Audible and visual alarm indicators shall be deployed as specified for systems installed at the gatehouse and in compliance with [SAES-O-206](#).

X-ray units shall be deployed at gates when specified by ISO. This X-ray unit, compliant with [SAES-O-206](#), shall be installed close to the gatehouse for inspecting packages entering the facility. The X-ray unit shall be installed so that it does not obstruct gatehouse visibility and it shall be housed in an environmentally controlled enclosure. The walls of the X-ray enclosure shall be mostly glass to allow a clear line of sight from the gatehouse to the inside of the X-ray building. Refer to the drawings section at the end of this standard for standard drawings of x-ray enclosures.

IT interface and power supply equipment shall not be installed in the gatehouse. This type of equipment shall be installed in a support building as specified in [Section 4.8](#) of this standard.

4.5 Sunshade

The area above the gatehouse and inspection lanes and areas shall be covered with a sunshade. The sunshade shall have adequate clearances (5.5 m) to allow trucks and vehicles to enter the facility.

The sunshade shall extend to an adequate distance on both sides of the gate to cover positions where security personnel will conduct inspections. The sunshade

extension to cover these positions shall allow for gate orientation and the sun's position to optimize coverage at all times of day.

The sunshade shall incorporate active bird repellents to discourage birds nesting or resting in the sunshade area. Water drainage from the sunshade surface shall be provided.

4.6 Traffic Management

Adequate parking shall be provided in the gatehouse area for additional inspection and visitors. Lanes shall be separated by medians adequately sized for personnel and gate equipment. Roadway containment in the inspection area shall prevent inbound vehicles from unauthorized access and shall extend from the inspection area to the Final Denial Barrier (FDB) where deployed.

4.7 Overwatch

An overwatch position shall be setup to permit deployment of heavy mounted weapons when required by ISO and/or HCIS. This position shall be inside the facility, covered with a sunshade, provide an unobstructed view of the gate area within 300 m of the gatehouse.

4.8 Support Buildings

Support buildings shall be provided to house personnel support facilities in addition to data rooms and electrical rooms as required by systems deployed at the gate. Toilets shall be provided within 20 m of the gatehouse. Doors into the support building shall be within line-of-sight of the gatehouse. Security equipment rooms and electrical rooms shall have doors and locks compliant with [SAES-O-209](#) and [SAES-O-210](#).

All network interface equipment shall be deployed in the support building if security systems are deployed at the gatehouse. Security system related equipment shall be housed in a separate room from the IT data room or electrical room.

Refer to the drawings section at the end of this standard for standard drawings of support buildings.

4.9 Communications

Communications at the gatehouse shall comply with the requirements in [SAES-O-208](#) with a full suite of telephones, hotlines and radios. Each gatehouse shall have full access to the corporate network with adequate bandwidth to meet the needs for administrative functions, remote monitoring &

control of security systems and remote transmission of gate surveillance video where installed.

4.10 Lighting

Lighting at the gatehouse and gatehouse area shall fully comply with [SAES-O-204](#).

4.11 Environmental

Environmental systems shall comply with the requirements of [SAES-O-201](#). AC units deployed for the gatehouse shall not obstruct the approaches to the gatehouse from any side.

4.12 Access Management

The area around the gatehouse and around the entire perimeter shall be fenced so that visitors cannot enter the facility without being cleared by gatehouse personnel.

All access management devices deployed for access management shall meet the requirements of [SAES-O-205](#) and [SAES-O-206](#). Gates leading into industrial facilities shall deploy the ISO Security Access Control System (SACS) in compliance with [SAES-O-205](#) and [SAES-O-206](#).

Industrial facilities and major administrative facilities, as defined by ISO, shall have an [SAES-O-206](#) compliant X-ray system to examine the contents of packages entering the facility.

No personal vehicles shall be permitted into industrial facilities.

4.13 Surveillance Cameras

Main entry gates shall use fixed cameras for surveillance and Pan-Tilt-Zoom (PTA) cameras for assessment in the gate area.

These cameras shall have an adequate field of view and focal length to view both sides of the gate and the gatehouse. They shall have a clear view of pedestrian and vehicle traffic entering and exiting the facility.

Cameras shall be monitored at the security control center monitoring the facility.

4.14 Response Zone

The response zone is the roadway between the gatehouse and a certified, deployable FDB which shall prevent unauthorized vehicles from entering the facility after passing the inspection point. The roadway shall be bordered with

roadway containment to prevent any vehicle from bypassing the response zone. The FDB shall be certified as specified in [SAES-O-206](#). These barriers shall be installed in both entry and exit lanes and shall face the outside.

The length of the response zone shall be at least 20 meters between the droparm barrier and the FDB.

Gatehouse personnel shall have a clear view of the roadway between the barrier and the gatehouse to ensure routine barrier deployment will not cause problems when vehicles are traversing the roadway.

Active sensors shall be used to ensure that vehicles will not be affected by barrier deployment. These sensors shall be wired into the routine deployment switch but shall be ignored if an emergency deployment is activated.

4.15 Power Supply

Power supply at the gatehouse shall fully comply with [SAES-O-207](#).

4.16 Temporary Gate Closures

Class 1 & 2 facility gates that are not manned 24/7 shall have surveillance cameras and intrusion sensors that are activated when the gate is unmanned. The cameras and sensors shall be monitored at the local security control center. The cameras and sensors shall provide the same level of monitoring as the rest of the perimeter.

4.17 Gate Requirements Definition

Full containment and control of all vehicles and personnel is required at all gates. This shall be achieved through a combination of active and passive barrier systems managed by on-site security personnel. Where possible, at internal non-industrial gates, ISO shall review the requirements and determine where any requirement can be relaxed while retaining compliance with HCIS requirements. This relaxation shall be determined by ISO on a case by case basis after considering the SD and other HCIS requirements.

4.18 Manning

Manning at gatehouses shall be determined by ISO. Manning shall take into account facility classification and HCIS requirements and shall be determined on a case by case basis.

4.19 Drawings

Typical drawings of security related items, such as gate architecture and associated elements, can be found as specified in Section 4.12 of [SAES-O-201](#).

The standard gatehouse design depicted in the standard drawings incorporate all existing SD requirements. The alternatives of steel or concrete prefab are also acceptable as specified in [Section 4.4](#) of this standard. The gate area layouts are typical and can be modified to meet specific requirements at a gate. In all cases, changes shall be compliant with SD requirements.

ISO shall have final approval authority of all gatehouse and gate area designs.

Sections 4.11 and 4.12 of [SAES-O-201](#) contains additional details on standard drawings, designs and equipment.

4.20 Gate Clearances

Refers to the minimum distance, past the FDB, at which a critical facility inside a Class 1, 2, or 3 facility may be located.

Critical elements located inside the facility are items such as, but not limited to, main electrical facilities, storage tanks (non-water), pump stations, control rooms and processing facilities. Proponent shall determine critical elements needed for the facility and ensure clearances are complied with. HCIS shall have the right to designate elements to comply with clearance requirements.

Such critical items shall be located at least 100 m - 200 m past the FDB.

These clearances apply to the distance that critical elements are located from the FDB. This does not apply to non-critical elements which can be located closer to the FDB as long as safety and building codes are complied with.