

Ver. 1

2017

# Civil Defense Fire Protection Technical Requirements Checklists

**Ministry of Industry**  
**Industrial Development Authority (IDA)**

Headquarters:  
42 Al-Salam Axis, Fifth Settlement, New Cairo

| S. N     | Inspection Items                                                                                                            | Yes | No | Comment |
|----------|-----------------------------------------------------------------------------------------------------------------------------|-----|----|---------|
| <b>1</b> | <b>Building Requirements</b>                                                                                                |     |    |         |
| .1.1     | Internal and external perimeter access routes are adequate for fire apparatus maneuvering.                                  |     |    |         |
| .1.2     | The quantity of emergency exit staircases complies with the occupancy classification and floor area.                        |     |    |         |
| .1.3     | The clear width of emergency exit staircases is adequate for the occupancy load and is not less than 110 cm.                |     |    |         |
| .1.4     | The <b>Fire Resistance Rating (FRR)</b> of walls separating fire compartments is appropriate for the occupancy type.        |     |    |         |
| .1.5     | Has the building been effectively divided into fire compartments?                                                           |     |    |         |
| .1.6     | The <b>FRR</b> of door assemblies is suitable for the designated fire compartments.                                         |     |    |         |
| .1.7     | Exit travel distances and dead-end corridor lengths are within the permissible regulatory limits.                           |     |    |         |
| .1.8     | The firefighting lift (if provided) meets the mandated technical specifications.                                            |     |    |         |
| .1.9     | Doors installed along designated escape routes are of approved fire-rated types.                                            |     |    |         |
| 1.10     | Emergency exit signage is provided and visible along all primary and secondary escape routes.                               |     |    |         |
| 1.11     | The quantity and width of garage ramps (if provided) are appropriate for vehicle and apparatus access.                      |     |    |         |
| <b>2</b> | <b>Fire Alarm Systems</b>                                                                                                   |     |    |         |
| .2.1     | The detector type is suitable for the specific fire load and the intended area of application.                              |     |    |         |
| .2.2     | The coverage area of each initiating device is within the permissible radial limits.                                        |     |    |         |
| .2.3     | Spacing between detectors adheres to allowable limits, as does the device installation height.                              |     |    |         |
| .2.4     | The fire alarm system is of a type-approved by the <b>General Administration of Civil Defense (GACD)</b> .                  |     |    |         |
| .2.5     | The <b>Fire Alarm Control Panel (FACP)</b> is zoned in accordance with the building's fire compartments.                    |     |    |         |
| .2.6     | The <b>FACP</b> is equipped with both audible and visual notification appliances.                                           |     |    |         |
| .2.7     | <b>Manual Call Points (MCPs)</b> are of the resettable type and installed in visible, accessible locations along corridors. |     |    |         |

| S. N        | Inspection Items                                                                                                              | Yes | No | Comment |
|-------------|-------------------------------------------------------------------------------------------------------------------------------|-----|----|---------|
| .2.8        | The main <b>FACP</b> is installed in a constantly attended location (monitored 24/7).                                         |     |    |         |
| <b>3</b>    | <b>Fire Fighting Systems</b>                                                                                                  |     |    |         |
| <b>.3.1</b> | <b>Manual Fire Suppression Systems</b>                                                                                        |     |    |         |
| .3.1.1      | The classification of portable fire extinguishers is compatible with the specific fire hazards present.                       |     |    |         |
| .3.1.2      | The capacity of each portable fire extinguisher is suitable for the hazard density of the area it serves.                     |     |    |         |
| .3.1.3      | Portable fire extinguishers are located in visible, unobstructed positions and provide full coverage.                         |     |    |         |
| .3.1.4      | Do the quantity and spatial distribution of portable fire extinguishers comply with mandated spacing?                         |     |    |         |
| <b>.3.2</b> | <b>Water-Based Fire Suppression Systems</b>                                                                                   |     |    |         |
| .3.2.1      | The dedicated fire water supply is hydraulically independent and separate from other utility services.                        |     |    |         |
| .3.2.2      | The fire water reserve is sufficient for the hazard classification based on certified hydraulic calculations.                 |     |    |         |
| .3.2.3      | The fire pump station is located in an area suitable for the technical requirements of the installed pumps.                   |     |    |         |
| .3.2.4      | The pump set consists of three units (Electric–Diesel–Jockey) or (Electric–Electric–Jockey with <b>ATS</b> ).                 |     |    |         |
| .3.2.5      | Fire pumps are of an approved type, specifically listed and labeled for fire protection service.                              |     |    |         |
| .3.2.6      | Pump flow rates and pressures adhere to the hydraulic calculations certified by the project consultant.                       |     |    |         |
| .3.2.7      | The pump room/riser is equipped with a certified Alarm Check Valve ( <b>ACV</b> ).                                            |     |    |         |
| .3.2.8      | Underground and aboveground fire mains are of approved types, conforming to Egyptian or International codes.                  |     |    |         |
| .3.2.9      | All isolation valves are of the approved <b>OS&amp;Y</b> type, monitored either electrically (tamper switch) or mechanically. |     |    |         |
| .3.2.10     | Fire hydrants and standpipes are distributed to provide total site coverage and comply with standard specifications.          |     |    |         |
| .3.2.11     | At least one <b>FDC</b> is provided for <b>GACD</b> /Civil Defense access.                                                    |     |    |         |

| S. N        | Inspection Items                                                                                                                | Yes | No | Comment |
|-------------|---------------------------------------------------------------------------------------------------------------------------------|-----|----|---------|
| .3.2.12     | Approved 2.5-inch Fire Department Landing Valves are installed in designated locations with spacing within permissible limits.  |     |    |         |
| .3.2.13     | Approved 1.5-inch Fire Hose Reels are installed in designated locations with spacing within permissible limits.                 |     |    |         |
| .3.2.14     | The network is divided into Fire Compartments, each adhering to allowable area limits based on hazard classification.           |     |    |         |
| .3.2.15     | Each Zone Control Valve is equipped with a monitoring connection (Flow/Tamper) to the FACP.                                     |     |    |         |
| .3.2.16     | Fire mains have a nominal diameter of not less than 4 inches and are installed in accessible locations.                         |     |    |         |
| .3.2.17     | Fire mains are equipped with an automatic Air Release Valve at the highest point of the network.                                |     |    |         |
| .3.2.18     | Residual pressure at the hydraulically most remote fire hose reel must be no less than 4.5 bar.                                 |     |    |         |
| <b>4</b>    | <b>Automatic Fire Suppression Systems</b>                                                                                       |     |    |         |
| <b>.4.1</b> | <b>Automatic Water Sprinkler Systems</b>                                                                                        |     |    |         |
| .4.1.1      | Sprinkler head types must be compatible with the hazard classification and required temperature ratings.                        |     |    |         |
| .4.1.2      | The number of installed sprinkler heads is appropriate for the pipe diameters (Schedule) as per hydraulic standards.            |     |    |         |
| .4.1.3      | Are all isolation and control valves for the automatic water sprinkler system monitored (electrically supervised)?              |     |    |         |
| <b>.4.2</b> | <b>Gas-Based Fire Suppression Systems</b>                                                                                       |     |    |         |
| .4.2.1      | The Clean Agent or gas type must be suitable for the specific fire load in the protected enclosure.                             |     |    |         |
| .4.2.2      | The extinguishing agent must be certified as safe for personnel occupancy (e.g., FM-200/Novec 1230).                            |     |    |         |
| .4.2.3      | Agent concentration levels must be verified by hydraulic calculations to be effective without exceeding NOAEL limits.           |     |    |         |
| .4.2.4      | Enclosure integrity must be maintained (closure of openings) for Total Flooding or compensated for in agent quantity.           |     |    |         |
| .4.2.5      | System actuation must be governed by Cross-Zoning Logic (signals from two detectors) to confirm fire presence.                  |     |    |         |
| .4.2.6      | The dedicated Gas Release Control Panel must be interfaced with the building's main FACP.                                       |     |    |         |
| .4.2.7      | \$CO_2\$ cylinders are equipped with weighing devices or liquid level indicators interfaced with the FACP for low-agent alerts. |     |    |         |

| S. N       | Inspection Items                                                                                                                                                    | Yes | No | Comment |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---------|
| 4.2.8      | All system components and accessories are of approved types, conforming to Egyptian ( <b>ECP</b> ), European ( <b>EN</b> ), or American ( <b>UL/FM</b> ) standards. |     |    |         |
| 4.2.9      | Gas cylinders are stored in secure, protected areas suitable for high-pressure vessel housing.                                                                      |     |    |         |
| 4.2.10     | Electrical rooms feature automatic gas suppression, with localized protection for electrical panels via pneumatic tubing/hose systems.                              |     |    |         |
| <b>4.3</b> | <b>Foam Fire Suppression Systems</b>                                                                                                                                |     |    |         |
| 4.3.1      | The foam system is technically suitable for the specific high-challenge fire hazard (e.g., fuel/chemical storage).                                                  |     |    |         |
| 4.3.2      | Foam concentrate quantity and type (AFFF/AR-AFFF) adhere to hydraulic calculations and the compatibility requirements of the <b>SDS</b> .                           |     |    |         |
| 4.3.3      | The system's Foam Concentrate Control Valve or Deluge Valve is electrically interfaced with the <b>FACP</b> .                                                       |     |    |         |
| 4.3.4      | All system components and hardware are of approved types, conforming to <b>ECP</b> , <b>EN</b> , or <b>UL/FM</b> standards.                                         |     |    |         |
| 4.3.5      | Is kitchen hood suppression conducted using an approved Wet Chemical System (e.g., <b>NFPA 17A</b> ), providing full coverage for appliances and ductwork?          |     |    |         |
| <b>4.4</b> | <b>Ventilation Systems</b>                                                                                                                                          |     |    |         |
| 4.4.1      | Adequate natural ventilation is provided with volumetric flow rates compliant with the nature of the industrial operations.                                         |     |    |         |
| 4.4.2      | Mechanical ventilation is provided for enclosed areas via certified fans capable of required Air Changes per Hour ( <b>ACH</b> ).                                   |     |    |         |
| 4.4.3      | Fresh air intake volumes are sufficient to meet minimum per-occupant requirements according to the Egyptian Building Code.                                          |     |    |         |
| 4.4.4      | Particulate filters are installed for all incoming outdoor air supply units.                                                                                        |     |    |         |
| 4.4.5      | Has <b>Pressure Differential Mapping</b> (Positive, Negative, or Neutral) been implemented based on the specific operational requirements?                          |     |    |         |
| 4.4.6      | Suitable filtration/scrubbing systems are provided for the exhaust air from designated hazardous or specialized areas.                                              |     |    |         |
| <b>4.5</b> | <b>Smoke Control and Extraction Systems</b>                                                                                                                         |     |    |         |
| 4.5.1      | Smoke Extraction Fans are connected to the Emergency Power Supply (via <b>ATS</b> ) and interfaced for automatic <b>FACP</b> activation.                            |     |    |         |
| 4.5.2      | Fans are certified fire-rated types, capable of sustained operation at high temperature levels (e.g., 300°C for 120 minutes).                                       |     |    |         |

| S. N   | Inspection Items                                                                                                                    | Yes | No | Comment |
|--------|-------------------------------------------------------------------------------------------------------------------------------------|-----|----|---------|
| .4.5.3 | Volumetric fan capacity (CFM/CMH) is sufficient for smoke extraction based on certified design calculations.                        |     |    |         |
| .4.5.4 | Smoke extraction ductwork is either dedicated or integrated with exhaust systems via certified <b>MFSDs</b> .                       |     |    |         |
| .4.5.5 | <b>MFSDs</b> are installed on all duct penetrations through fire-rated barriers as required.                                        |     |    |         |
| .4.5.6 | Have <b>Stairwell Pressurization Systems</b> been implemented to maintain the required pressure differential per the Egyptian Code? |     |    |         |
| 5      | <b>Warehouses</b>                                                                                                                   |     |    |         |
| .5.1   | Have the commodity type, classification, and hazard level of stored materials been technically determined?                          |     |    |         |
| .5.2   | Is the inventory arranged to ensure Unobstructed Emergency Access and Escape Routes are maintained?                                 |     |    |         |
| .5.3   | Is the installed fire suppression system (e.g., <b>ESFR</b> /High-Density) suitable for the specific commodity hazard class?        |     |    |         |
| .5.4   | Do storage heights and sprinkler head types adhere to the required <b>Clearance to Deflector</b> and ceiling height limits?         |     |    |         |
| .5.5   | Are the permissible widths for Longitudinal and Transverse Aisles strictly maintained throughout the warehouse?                     |     |    |         |
| .5.6   | Are <b>First-Aid Firefighting Appliances</b> (Extinguishers/Hose Reels) distributed according to maximum allowed travel distances?  |     |    |         |
| .5.7   | Are detection and alarm systems (e.g., Aspirating/Beam) compatible with the warehouse height and stored materials?                  |     |    |         |
| 6      | <b>Control Rooms</b>                                                                                                                |     |    |         |
| .6.1   | Are the installed suppression systems based on Clean Agent Gas (e.g., FM-200) or Water Mist technology?                             |     |    |         |
| .6.2   | Has the detection and suppression coverage been extended into <b>Suspended Ceiling and Raised Floor Voids (Plenums)</b> ?           |     |    |         |
| .6.3   | Are HVAC/CRAC units interfaced with the <b>FACP</b> for automatic shutdown and Fire Damper actuation?                               |     |    |         |
| .6.4   | Is the automatic suppression system fully supervised and interfaced with the building's main <b>FACP</b> ?                          |     |    |         |
| 7      | <b>Electrical Services (Transformers, LV Rooms, and Metering)</b>                                                                   |     |    |         |
| .7.1   | Is fire protection provided by an approved Gas-Based or Water Mist automatic suppression system?                                    |     |    |         |
| .7.2   | Have all technical voids (plenums) above the ceiling or beneath the floor been included in the protection zone?                     |     |    |         |

| S. N     | Inspection Items                                                                                                                                                                                   | Yes | No | Comment |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|---------|
| .7.3     | Have HVAC units been fully integrated with <b>FACP</b> for automatic shutdown upon alarm or suppression discharge?                                                                                 |     |    |         |
| .7.4     | Is the automatic suppression system supervised and electrically interfaced with the building's main <b>FACP</b> ?                                                                                  |     |    |         |
| <b>8</b> | <b>Various High-Risk Operations</b>                                                                                                                                                                |     |    |         |
| .8.1     | Boilers: Has a valid installation permit and <b>Boiler Operating Authorization</b> been obtained from the Ministry of Industry, and are they protected by certified alarm and suppression systems? |     |    |         |
| .8.2     | Hydrocarbon Refueling Facilities: Are on-site fuel stations secured with <b>GACD</b> -approved fire detection and automatic suppression systems?                                                   |     |    |         |
| .8.3     | Lead-Acid Battery Rooms: Are facilities equipped with <b>H2</b> Gas Detectors, automatic suppression, and <b>FACP</b> -integrated ventilation for explosive gas dilution?                          |     |    |         |
| .8.4     | Vertical Transportation: Where elevators are installed, has a certified <b>Firefighters' Lift</b> been provided per Life Safety Code requirements?                                                 |     |    |         |
| <b>9</b> | <b>Training and Governance</b>                                                                                                                                                                     |     |    |         |
| .9.1     | Has an adequate number of personnel ( <b>25%</b> of workforce for initial training; <b>15%</b> for annual recurrence) been trained on <b>GACD</b> procedures and first-aid firefighting equipment? |     |    |         |
| .9.2     | Fire Safety Committee: Has a statutory committee been established to oversee the readiness of alarm/suppression systems and coordinate <b>EREPs</b> with <b>GACD</b> authorities?                  |     |    |         |