GUIDELINES FOR FIRE FIGHTING PLAN SUBMISSIONS				FF-01-2014
Note: For Strict Compliance ***Each item is checked for completeness and compliance to NFPA Standards and General Directorate of Civil Defence, General Requirements. Check the applicable/required item/s and attached this document to each plan submission / re-submissions made.***				**PS-_____-FF**
Item	DESCRIPTION	Provisions		
		Y	N	NA
1.0	**GENERAL**			
	a.) Drawings to be submitted through MOI Online Permit System Portal must be in ACAD file format, purge, bonded with corresponding model space & paper space layouts for review.			
	b.) Drawing layouts shall follow the standard format for Title Block.			
	c.) All drawings, calculations & related design reports shall be signed and endorsed by the designated Consultant Engineer, attested by the Engineering Company to where he/she is employed. The consultant shall certify on every drawing layout that the fire safety plan submission is designed with the provision of NFPA 10, 13, 14, 20, 22, 24 101, 170, 5000, other applicable NFPA standards and Qatar Civil Defence requirements. Declare that the equipment and all devices to be used for fire fire fighting shall be Listed for such purposes and approved type by QCDD.			
2.0	**PLANS AND DOCUMENTS TO BE SUBMITTED**			
	a.) Detailed Design Report – A narrative report that provides the following (where applicable): - Description of the building, uses and occupancies of each spaces, passive and active fire protection system that will work together with the smoke control system. - Design criteria and objectives. Automatic fire sprinklers, standpipes and other extinguishing systems.			
	b.) Cover/Front Page, Floor Plans, Building Elevation & Sectional Drawings, Miscellaneous Details, Riser Diagram, Calculation & Details as listed on the Approved Building Plan.			
	c.) Policy Plan (Indicating Location, PIN, & QARS (Areas/Street/Plot Numbers, application number).			
	d.) Urban Planning & Development Authority (UPDA) latest and updated registration of the Consultant & the Engineering Consulting Company.			
	e.) This document, the Guidelines for plan submission to serve as review checklist.			
	f.) Fire Safety provision shall be in accordance with the minimum requirements as prescribed by NFPA Standards and QCD General Requirements. Provisions in excess of the minimum requirements shall be confirmed by the design consultant with a letter from the owner/client.			
3.0	**STANDARD DETAILS TO BE SHOWN ON TITLE BLOCKS**			
	a.) Proper endorsement, drawing title & QCD space for stamps shall be provided.			
	b.) List applicable codes used in the design of the project shall be indicated with complete editions & date.			
	c.) Logo & stamp of the consultant/contractor firm complete with address and contact information shall be properly placed.			
	d.) Owner's name & other details such as address and contact nos. shall be indicated.			

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	e.) Complete address of the project, Pin, area, plot & street nos. must be clearly provided.			
	f.) Indicate correct plan scale in each drawing page.			
	g.) Complete name of engineer shall be clearly shown.			
	h.) History of revisions must be provided.			
	i.) Sheet number and content title must be consistent with the drawing index.			
4.0	**COVER / FRONT PAGE** ***Declaring, enumerating or tabulation of all the fire safety provisions required for the project.***			
	a.) Drawing index with corresponding paper size and scale must be provided clearly and consistent with each page of the drawings.			
	b.) Area statement of every floor, level, room, area and/or occupancy.			
	c.) Project description shall be provided to indicate the intent and purpose of the submission, building classification, construction type, building occupancy, hazard classification and the processes or operations conducted in the building or structure. Type of commodities classifications (Class I to IV / Group A,B,C), storage arrangement/type (Palletized, Solid Piled, Bin Boxes, Shelf Storage, Rack) and Storage Height shall be included in the description. Such description shall be consistent with the design report.			
	d.) Scope of work: A summarized design intent (based from design report), proposed project details/activity must be clearly indicated.			
	e.) Design parameters / criteria with complete description of the system shall be properly declared and supported with engineering calculations. (e.g. automatic fire sprinklers, standpipes system) - For Industrial occupancies a brief description of manufacturing process involved (spraying , metal cutting, dipping, forming, extrusion, drying , or what is applicable to the project). A narrative on the process flow from raw materials to finish product shall be provided together with the equipment / machineries (if oven, boilers, radiant coils, conveyor or what is applicable to the project). - Show the design criteria for each type of occupancy but not limited to the following: a. Type of Occupancy: b. Hazard Classification: c. Commodity Classification: d. Area of Operation: d.1. For CMDA, minimum area of operation (or actual area for deluge) d.2. For CMSA, number of active sprinkler. e. Design Density: f. Area per sprinkler coverage: g. Sprinkler K-factor: h. Type of sprinkler used:			

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	i. Maximum & minimum sprinkler spacing: j. Maximum sprinkler distance from wall and other obstruction: k. Maximum Ceiling Temperature l. Sprinkler Temperature Rating m. Inside & outside hose stream allowance: n. Minimum Duration of Operation: o. Standpipe Classification: - Consultant/Mechanical Engineer must check the appropriate declaration & the submitted Hydraulic calculation.			
	f.) Equipment Schedule must be provided. (this may be provided on a separate sheet). - Fire Pumps equipment schedule indicating the type of pump, capacity, head and power requirements - Fire Extinguisher equipment schedule indicating the class (A,B,C,D,K) capacity (lbs/ kg / gal), type (ABC, dry / wet chemical, CO, foam or others), description (wheeled, cartridge), rating in terms of A:B:C) and tagging (i.e. FE-1, FE-2). - Water Tank equipment schedule indicating the following: area, effective height, volume, capacity, duration, construction type (steel, concrete) , location, accessories .			
	g.) General notes applicable for the project shall be provided.			
	h.) Provide only the applicable legends & symbols making sure that all floor plan layouts shall be consistent with the schematic riser diagrams. - Provide unique legend and symbol for each type of sprinkler (if std. sidewall, ec sidewall type, cmsa, upright, pendent and so on) , also for fire extinguishers (type, class and capacity).			
	i.) Brief material specification related equipment/devices, etc. shall be provided.			
	j.) Specify all fire fighting pipes for fire safety application penetrating thru walls and slabs shall be sealed with fire retardant material with rating of not less than the fire rating of the wall or slab being penetrated.			
	k.) Indicate in the general notes that piping of wet/dry fire fighting system shall be protected against seismic events complying with nfpa 13. provide declaration on plan that flexible connection shall be installed on building seismic/expansion joints/gaps and shall be in compliance with chapter 9 of NFPA 13-2013 ed.			
	l.) Provide declaration that contractor / consultant shall coordinate with other trades prior to installation. Any conflict / obstructions shall be resolved or provided with additional/changes sprinklers if necessary (or other fire safety equipment where applicable).			
5.0	**SITE PLAN** ***Site Plan scaled to fit an A0 or A1 drawing sheet and shall indicate the following:***			
	a.) Means of access to the site and to the perimeter of each building for firefighting vehicle and equipment. Site plan must indicate the location of breeching inlets, fire engine access and hardstanding, fire pump room & fire tank outline, breeching inlets and other fire safety feature of the building area as per CDD standard requirement. Ensure that Breeching Inlet of a Rising Main shall be located within 18m of the adjacent fire appliance road or			

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	hardstanding.			
	b.) For multiple buildings being served by a single fire water source, show in the site plan the fire water pipe network including the interfacing of the buildings and location of the fire pump room. For stand alone, declaration on the location of the fire pump and fire water source.			
	c.) Grid Line References (x, y) and shall be same with other floor plan drawings.			
6.0	**FLOOR PLANS (BASEMENT/S, GROUND, MEZZANINE, TYPICAL FLOORS, ROOF/SERVICE FLOOR)** ***- The proposed, existing use of every part or modified portions of the plan clearly identified and provided with a narrative description of the scope of work/activity. (Hatch existing part of the plan for modifications / fit outs).***			
	a.) Landing Valve (Wet/Dry Riser) for fire fighting operations shall have coverage of 930M2, installed in order of priority : (1) fire fighting lobby (2) smoke stop lobby (3) inside staircase and comply with NFPA 14.			
	b.) Ensure that the fire fighting system is in compliance to QCD Requirements, NFPA 13(Sprinkler System), NFPA 14(Stand Pipe System), NFPA 20(Fire Pump Installation), NFPA 22(Fire Water Storage Tank), etc. (Latest Edition). - Provision of sprinklers on the lowest point of the elevator shaft (elevator pit). - The sprinkler location, spacing, distances from walls and obstruction, clearance from the top of storage, clearance from slab/roof & distance/height from finish floor level shall be checked by the Consultant. - Check if flushing connection is provided per level. Sprinkler systems shall have Inspector Test Connections fitted to the most remote sprinkler(s) on each floor/zone. An orifice to simulate a single sprinkler operation shall be fitted to the end of it. - Location of hose reels shall be clearly shown in the plans. The number and location of fire hose reels must be such that the most remote section of the building is able to be reached by a hose reel discharging a 6 m stream of water.			
	c.) Provision of sprinklers inside the fire pump room (if installed below ground level) and shall be rated as Extra Hazard Group 1.			
	d.) Identification of the floor/zone control valve assembly including total area and total sprinkler being supplied			
	e.) Cloud/shade those remotest/demanding sprinklers with reference nodes corresponding to the hydraulic calculation/ analysis report as required by NFPA 13 latest edition.			
	f.) Location and size of Riser Nipple and flushing provision.			
	g.) Legend and symbols used in the plan to verify the type of fire fighting equipment being installed and shall be consistent with the mounting details			
	h.) Location. listing, rating and the type of portable fire extinguishers shall be shown in compliance with NFPA 10.			

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	i.) Floor control valves / zone valves shall be located in acceptable locations. They can be located inside staircase, valve room, above the ceiling of smoke-stop/fire-fighting lobbies, above ceiling along corridors to be protected & accessible to maintenance.			
	k.) Fire department connections (on wet systems) shall be tapped after the system check valve. Where a PRV is installed on the main fire line, FDC should be tapped downstream of the PRV but not required immediately adjacent thereto.			
7.0	**ELEVATION & SECTIONAL DRAWINGS** ***Drawings shall be scaled to fit an A0 or A1 drawing sheet and shall indicate the following:***			
	a.) Full height of each floor/storey and the depth of void spaces (raised floor or ceiling void) with respect to the Level of Exit Discharge (LED) incorporating the necessary fire safety equipment.			
	b.) Indicate the habitable height of each floor to be consistent with the building plan approval.			
	c.) For sloped/pitched roof, show the orientation in relation to the sprinkler system (as applicable). Dimension / distance of sprinklers shall be measured along the slope of the ceiling / roof.			
8.0	**SCHEMATIC DIAGRAMS**			
	a.) Riser diagram showing the location of the fire pump room, fire water storage, breaching inlet connection, standpipes supplying the landing valves, automatic fire sprinkler system and related fire fighting equipment.			
	b.) Pressure settings for each floor provided with Pressure Reducing/Restricting Valves as determined in the hydraulic calculation report/analysis.			
9.0	**FIRE PUMP ROOM, FIRE WATER STORAGE (BLOW UP PLANSS REQUIRED)**			
	a.) Sequence of operations for the fire pump and Schedule of Equipment			
	b.) Dimension of the room to verify adequate housing of the fire pump and related fittings, valves, headers and related equipment complying to NFPA 20 & 22. Fire tanks shall be provided with complete appurtenances for maintenance purposes, drains, overflow pipe, water level indicator, tank access, vents, etc. Ensure the tank has two equal compartments, all pumps are taking suction from both tank and each pump can be isolated for testing. A testing line shall be provided with flow meter and isolating valve. Provide details of each component. Fire water tanks inside the building shall be RCC or Steel construction (please indicate in the plan), means of access, proper ventilation, equalizing valves, overflow pipe, vents, water level indicator and drainage system. Please provide a pump room layout with section and elevation detail relative to the fire water tank. Pump room area is inadequate. Ensure at least 0.8 meter clearance in every side of the pumps for maintenance work space. The OS & Y valve provided with tamper switch located in the suction side of the fire pump.			
	c.) Dimension of the fire water storage with section elevation details (show effective height capacity) to verify with the discharge duration.			

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	d.) Calculation of the water and diesel fuel (as applicable) capacities based from the selected fire pump. Effective capacity of fire water storage tank is the total volume of water that the fire pumps are able to draw from the tanks before vortices form at its suction inlet with adequate freeboard (clearance between water level and under slab of tank roof). - Show that Fuel tank for diesel fire pumps/Emergency Power Source is confined in a bund area and is linked to two batteries with automatic charger. Submit the calculation for the volumetric capacity of the diesel fuel tank and indicate the duration of use.			
	e.) Provide longitudinal and cross section drawings of pump show piping orientation, pump suction and discharge, valve and accessories as per NFPA 20.			
10	**TYPICAL INSTALLATION DETAILS / MISCELLANEOUS DETAILS**			
	a.) Details on the protection of pipes penetrating walls.			
	b.) Submit only the required fire safety equipment details (sprinklers, fire extinguisher mounting details, fire hose reel, landing valves, FDC, etc) that will be installed in the proposed building.			
	c.) Fire pump details, pipe fittings and related equipment arrangement shall comply with the requirements of NFPA 20.			
	d.) Show standard installation detail of piping seismic separation assembly.			
	e.) When 2 or more hoses are used down stream of a PRV. Provide details of PRV (where applicable) see conditions stated in 7.2.4 of NFPA 14 and refer to drawing in the appendix.			
	f.) Provide installation details for garbage / linen chutes (where applicable)			
	g.) Show details for FCV as per NFPA 13. (If it is a combined riser, a separate detail of FCV with check valve shall be provided on the details).			
11	**SUPPORTING DOCUMENTS AND OTHER FIRE SUPPRESSION SYTEMS**			
	a.) FIRE PUMP DATA (SELECTION BASIS) Fire pump equipment design curve, to verify with the hydraulic calculation report and selected fire pumps. Submit catalog / brochure with dimension as basis of pump selection to verify that dimension of pump room is sufficient (with maintenance clearance of 0.8m) and piping configuration complies with NFPA 20.			
	b.) Adequate fire extinguishing system, other than water type. For those extinguishing systems other than water extinguishing system, a separate drawing complete with details capacity calculation shall be submitted and sequence of operation.			
	c.) Check the area of fire pump room and its enclosure provided with dimension. Area must be adequate with respect to size of the pumps. Piping & valve configuration, clearances and maintenance accessibility must be considered. Declare & confirm on plan if the transformer is provided with explosion prevention system.			

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12	**CALCULATION REPORTS**			
	a.) Provide hydraulic calculation reports/analysis for the building being protected by fire sprinkler system in relation to the hazards being declared (ordinary for parking, light for offices or residential for top most floor and those considered as incidental storage , calculation of landing valve requirements on wet system where applicable) complying to NFPA 13 and NFPA 14. - Hydraulic Analysis / Report shall be submitted in the following format: - Cover sheet - Table of contents - Project Description - Design criteria - Introduction of the hydraulic software used to simulate the requirement of the fire protection system of the building. - Summary of hydraulic outputs using demand mode: file name, location, area, flow & pressure heads (for multiple simulations). - Summary of hydraulic outputs using supply mode: file name, location, area & actual flow in the system for selected pump head (for multiple simulations). - Summary, Conclusion & Recommendations. - Final Pump Selection & Pump curves - Software simulation inputs and outputs - Most remote area analysis / report (demand & supply) - Most demanding area analysis / report (demand & supply) - Hydraulic reference points, plan layout & isometric presentation with complete node numbers and identifications. - Characteristic curves - Hydraulic calculation must be check and signed by the engineer For Hydraulic Calculation comply with NFPA 14-7.10.1.2.1.1 Standpipe System & A.7.10.1.2.1.1 see FIGURE A.7.10.1.2.1.1 Standpipe System with Risers Terminating at Different Floor Levels for further explanation.			
	b.) Provide manual calculation / estimates or computer generated reports to justify capacity for clean agents.			
	c.) Provide calculation on water – foam system based on NFPA 16 requirements.			
	Name, Signature & Stamp of Consultant Engineer	**Date**		