

# UPDATE - FIRE SAFETY PLAN FOR OCCUPANCY PERMIT

CP Program Seminar - October 29, 2020

**Rick Cheung P. Eng., CP, FEC Assistant Chief, UEL/UBC and Public Education**



- Since 2017:
  - FSP must be completed prior to building occupancy, including shell occupancy
    - All persons assigned supervisory duties at the time of occupancy shall be designated by the owner and named and have contact information contained in the FSP
  - Copies of the following to be included in the FSP
    - Building Permit Data Sheet
    - Sprinkler Permit Data Sheet
    - Alternative Solutions Summary Sheet together with Location Drawings
    - Fire Alarm Sequence of Operations

# Fire Safety Plans

- Since 2017
  - Initial approved FSP must be stamped “accepted” by VFRS
  - Hardcopy of stamped FSP to be kept in an acceptable FSP box at the principal entrance of the building.
    - ✓ Box may be padlocked to prevent tampering.

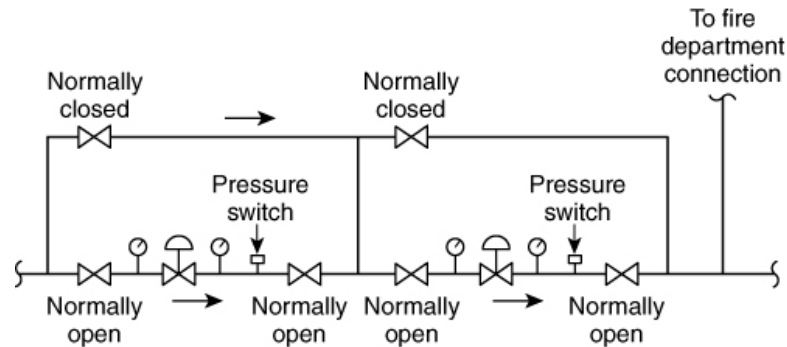


# New Requirements for FSP

- Effective January 1, 2021
- Additional documents required at Occupancy permit stage
  - Sprinkler and standpipe test papers
  - Fire pump test reports
  - Integrated testing plan
  - Radio antenna test documents
- Required as reference documents for subsequent testing, inspection, and maintenance of fire protection systems

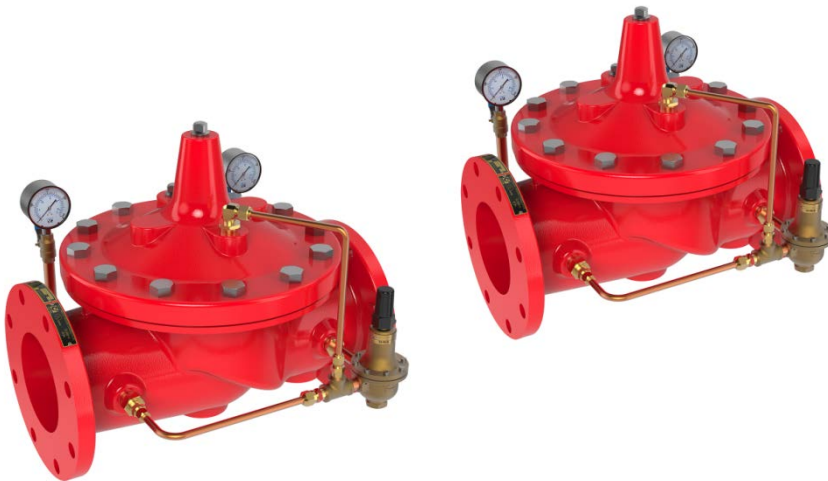


# Master PRV's



Note: FDC required downstream of pressure-regulating device but not required immediately adjacent thereto.

## Dual Pressure-Regulating Device Arrangement.



- NFPA 14 Contractor's M&T Certificate (Underground)
  - Main drain tests, pressures recorded
  - Any private hydrants must be written down
    - Location
    - Hydrostatic tests
    - Flow tests



# CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR ABOVEGROUND PIPING

Standpipe System NFPA 14



## PROCEDURE

Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and the system left in service before the contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, and contractor. It is understood that the owner's representative's signature in no way prejudices any claim against the contractor for faulty material, poor workmanship, or failure to comply with the approving authority's requirements or local ordinances.

Property name		Date	
Property address			
Plans	Accepted by approving authorities (names)		
	Address		
	Installation conforms to accepted plans? <input type="checkbox"/> Yes <input type="checkbox"/> No		
	Equipment used is approved or listed? <input type="checkbox"/> Yes <input type="checkbox"/> No		
If no, explain deviations.			
Type of System	<input type="checkbox"/> Automatic dry <input type="checkbox"/> Automatic wet <input type="checkbox"/> Semiautomatic dry <input type="checkbox"/> Manual dry <input type="checkbox"/> Manual wet <input type="checkbox"/> Combination standpipe/sprinkler If other, explain.		
Water Supply Data Used for Design and As Shown on Plans	Fire pump data		
	Manufacturer _____ Model _____ Type: <input type="checkbox"/> Electric <input type="checkbox"/> Diesel <input type="checkbox"/> Other (explain) _____ Rated, gpm _____ Rated, psi _____ Shutoff, psi _____		
Water Supply Source Capacity, Gallons	<input type="checkbox"/> Public waterworks system _____ (gal) <input type="checkbox"/> Storage tank _____ (gal) <input type="checkbox"/> Gravity tank _____ (gal) <input type="checkbox"/> Open reservoir _____ (gal) <input type="checkbox"/> Other (explain) _____		
If Public Waterworks System:	Static, psi _____ Residual, psi _____ Flow, gpm _____		
Have Copies of the Following Been Provided to the Owner or Owner's Representative?	<input type="checkbox"/> System components instructions <input type="checkbox"/> Care and maintenance of system <input type="checkbox"/> NFPA 25 <input type="checkbox"/> Copy of accepted plans <input type="checkbox"/> Hydraulic data/calculations		
Supplies Building(s)	Main waterflow shutoff location _____		
	Number of standpipe risers _____ Do all standpipe risers have base of riser shutoff valves? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Valve Supervision	<input type="checkbox"/> Locked open <input type="checkbox"/> Sealed and tagged <input type="checkbox"/> Tamperproof switch <input type="checkbox"/> Other If other, explain.		
Pipe and Fittings	Type of pipe _____		
	Type of fittings _____		
Hose Threads	Hose threads have been verified for compliance with local fire department <input type="checkbox"/> Yes <input type="checkbox"/> No		
Backflow Preventor	<input type="checkbox"/> Double check assembly Size _____ Make and model _____ <input type="checkbox"/> Reduced-pressure device		



# CONTROL VALVE DEVICE

Type	Size	Make	Model

Time to trip through remote hose valve \_\_\_\_\_ Min \_\_\_\_\_ Sec      Water pressure \_\_\_\_\_ Air pressure \_\_\_\_\_  
 Time water reached remote hose valve outlet \_\_\_\_\_ Min \_\_\_\_\_ Sec      Trip point air pressure \_\_\_\_\_ psi  
 Alarm operated properly? ☐ Yes ☐ No If no, explain. \_\_\_\_\_

Time water reached remote hose valve outlet \_\_\_\_\_ Min \_\_\_\_\_ Sec  
 Hydraulic activation ☐ Yes  
 Electric activation ☐ Yes  
 Pneumatic activation ☐ Yes  
 Make and model of activation device \_\_\_\_\_  
 Each activation device tested? ☐ Yes ☐ No If no, explain. \_\_\_\_\_

Each activation device operated properly? ☐ Yes ☐ No If no, explain. \_\_\_\_\_

# PRESSURE-REGULATING DEVICE

Location & Floor	Model	Nonflowing (psi)		Flowing (psi)		gpm
		Inlet	Outlet	Inlet	Outlet	

All hose valves on system operated properly? ☐ Yes ☐ No If no, explain. \_\_\_\_\_



## Contractor's Material and Test Certificate for Fire Pump Systems

**PROCEDURE** Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, and contractor. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances.

PROPERTY NAME		DATE	
PROPERTY ADDRESS			
ACCEPTED BY APPROVING AUTHORITIES (NAMES)			
ADDRESS			
PLANS	INSTALLATION CONFORMS TO ACCEPTED PLANS	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	ALL EQUIPMENT USED IS APPROVED FOR FIRE SYSTEM SERVICE IF NO, STATE DEVIATIONS	<input type="checkbox"/> YES	<input type="checkbox"/> NO
INSTRUCTIONS	HAS PERSON IN CHARGE OF FIRE PUMP EQUIPMENT BEEN INSTRUCTED AS TO LOCATION OF SYSTEM CONTROL VALVES AND CARE AND MAINTENANCE OF THIS NEW EQUIPMENT? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	HAVE COPIES OF APPROPRIATE INSTRUCTIONS AND CARE AND MAINTENANCE CHARTS BEEN LEFT ON PREMISES? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
LOCATION	SUPPLIES BUILDING(S) (CAMPUS, WAREHOUSE, HIGH RISE) EXPLAIN		
	IS THE PUMP ROOM EQUIPMENT PER THE PLANS AND SPECS?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PUMP ROOM EQUIPMENT	IS THE FIRE PUMP PROPERLY MOUNTED AND ANCHORED TO THE FOUNDATION? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE FIRE PUMP BASE PROPERLY GROUTED? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	DOES THE PUMP ROOM HAVE THE PROPER FLOOR DRAINS? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE SUCTION AND DISCHARGE PIPING PROPERLY SUPPORTED?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE PUMP ROOM HEATED AND VENTILATED PER NFPA 20?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PIPES AND FITTINGS	PIPE TYPES AND CLASS		
	PIPE CONFORMS TO _____ STANDARD	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	FITTINGS CONFORM TO _____ STANDARD IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
PRE-PACKAGED PUMP HOUSE	SUCTION AND DISCHARGE PIPING ANCHORED OR RESTRAINED?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THIS A PACKAGE OR SKID MOUNTED PUMP?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THE PACKAGE/SKID PROPERLY ANCHORED TO A CONCRETE FOUNDATION? IF NO, EXPLAIN	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	IS THERE A FLOOR DRAIN INSTALLED?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
TEST DESCRIPTION	HYDROSTATIC: Hydrostatic tests shall be made at not less than 200 psi (13.8 bar) for 2 hours or 50 psi (3.4 bar) above static pressure in excess of 200 psi (13.8 bar) for 2 hours.		
	HYDROSTATIC TEST: ALL NEW PIPING HYDROSTATICALLY TESTED AT: _____ PSI/BAR FOR _____ HOURS	NO LEAKAGE ALLOWED	
FLUSHING TESTS	FLUSHING: Flow the required rate until water is clear as indicated by no collection of foreign material in burlap bags at outlets such as hydrants and blowoffs. Flush at flows not less than 390 gpm (1476 L/min) for 4 in. pipe, 610 gpm (2309 L/min) for 5 in. pipe, 890 gpm (3331 L/min) for 6 in. pipe, 1560 gpm (5905 L/min) for 8 in. pipe, 2440 gpm (9235 L/min) for 10 in. pipe, and 3520 gpm (13,323 L/min) for 12 in. pipe. When supply cannot produce stipulated flow rates, obtain maximum available.		



FLUSHING TESTS (continued)	NEW PIPING FLUSHED ACCORDING TO _____ STANDARD	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	BY (COMPANY) _____ IF NO, EXPLAIN _____		
	HOW FLUSHING FLOW WAS OBTAINED <input type="checkbox"/> PUBLIC WATER <input type="checkbox"/> TANK OR RESERVOIR <input type="checkbox"/> OTHER (EXPLAIN) _____	THROUGH WHAT TYPE OPENING <input type="checkbox"/> TEST HEADER <input type="checkbox"/> OPEN PIPE	
	LEAD-INS FLUSHED ACCORDING TO _____ STANDARD	<input type="checkbox"/> YES	<input type="checkbox"/> NO
FIELD ACCEPTANCE TEST	BY (COMPANY) _____ IF NO, EXPLAIN _____		
	HOW FLUSHING FLOW WAS OBTAINED <input type="checkbox"/> PUBLIC WATER <input type="checkbox"/> TANK OR RESERVOIR <input type="checkbox"/> OTHER (EXPLAIN) _____	THROUGH WHAT TYPE OPENING <input type="checkbox"/> Y CONNECTION TO FLANGE & SPIGOT <input type="checkbox"/> OPEN PIPE	
	ALL EQUIPMENT APPROVED?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	ALL REQUIRED REPRESENTATIVES PRESENT FOR TEST	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	AHJ AND OWNER'S REPRESENTATIVE PRESENT FOR TEST IF NO, EXPLAIN _____	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
	ALL ELECTRICAL WIRING COMPLETE AND PER NFPA 70 AND NFPA 20 IF NO, EXPLAIN _____	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	CALIBRATE TEST EQUIPMENT USED CALIBRATION DATE _____	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	FLOW TESTS PUMP DESIGN _____ GPM _____ PSI		
	DOES THE PUMP MEET OR EXCEED THE CERTIFIED CURVE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
	PUMP TYPE <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL TURBINE	OTHER _____	
	PUMP MAKE _____ MODEL # _____ SERIAL # _____		
	COMMENTS _____		
	ELECTRIC DRIVER OPERATIONAL TEST SATISFACTORY ELEC. DRIVER _____ MODEL # _____ SERIAL # _____	<input type="checkbox"/> YES <input type="checkbox"/> NO	
	VOLTAGE _____ VAC @ _____ HP _____ RPM _____ FLA _____		
ENGINE DRIVEN ENGINE MAKE _____ MODEL # _____ SERIAL # _____	<input type="checkbox"/> YES <input type="checkbox"/> NO		
HP _____ RPM SPEED _____			
DEISEL DRIVER OPERATIONAL TEST SATISFACTORY? OTHER EXPLAIN _____	<input type="checkbox"/> YES <input type="checkbox"/> NO		
CONTROL VALVES	CONTROLLER MAKE _____ MODEL # _____ SERIAL # _____		
	VARIABLE SPEED PRESSURE LIMITING CONTROL TESTED AT MINIMUM, RATED, AND PEAK FLOW	<input type="checkbox"/> YES <input type="checkbox"/> NO	
	CONTROLLER TEST: SIX AUTO STARTS _____ SIX MANUAL STARTS _____	<input type="checkbox"/> YES <input type="checkbox"/> NO	
	PHASE REVERSAL TEST PERFORMED (ELECTRIC ONLY)	<input type="checkbox"/> YES <input type="checkbox"/> NO	
	ALTERNATE POWER SOURCE TESTED (ELECTRIC ONLY)	<input type="checkbox"/> YES <input type="checkbox"/> NO	
	ELECTRONIC FUEL MANAGEMENT (ECM) FUNCTION TEST PERFORMED (DIESEL ONLY)	<input type="checkbox"/> YES <input type="checkbox"/> NO	
	SYSTEM CONTROL VALVES LEFT WIDE OPEN IF NO, STATE REASON _____	<input type="checkbox"/> YES <input type="checkbox"/> NO	
	HOSE THREADS OF FIRE DEPARTMENT CONNECTIONS AND HYDRANTS INTERCHANGEABLE WITH THOSE OF FIRE DEPARTMENT ANSWERING ALARM	<input type="checkbox"/> YES <input type="checkbox"/> NO	
	DATE LEFT IN SERVICE _____ ADDITIONAL COMMENTS: _____		
	SIGNATURES	NAME OF INSTALLING CONTRACTOR _____	
TESTS WITNESSED BY FOR PROPERTY OWNER (SIGNED) _____ TITLE _____ DATE _____			
FOR INSTALLING CONTRACTOR (SIGNED) _____ TITLE _____ DATE _____			

ADDITIONAL COMMENTS AND NOTES:



THANK YOU!