

SANTA ROSA FIRE DEPARTMENT

FIRE PREVENTION BUREAU INSPECTION CHECKLIST

July 1, 2010



FIRE PUMP INSTALLATION

Address:		Permit #:
Inspector:	Date:	Status:
Inspector:	Date:	Status:
A-Approved, R-Re-inspection Required		

This Checklist outlines general requirements. Information contained herein applies to typical instances and may not address all circumstances.

GENERAL

- | | Y | N | |
|-----|--------------------------|--------------------------|--|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> | Received fire pump system installation and test certification from installer. |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | Received fire pump manufacturer pump curve certification test form. |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> | The pump suction pipe is flushed in accordance with NFPA Table 14.1.1(a) or (b). |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> | After the suction pipe is flushed, a 2 hour hydrostatic test is performed on suction and discharge piping, 200 PSI or 50 PSI above maximum static pressure, whichever is greater, 14.1.2. |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> | Pressure and flush test certification is provided before performing the field acceptance test, 14.1.3. |
| 6. | <input type="checkbox"/> | <input type="checkbox"/> | The approved plan is on site. |
| 7. | <input type="checkbox"/> | <input type="checkbox"/> | Fire pump and controller, piping, gauges, jockey pump, and other component locations and design are the same as shown on the approved set of plans. |
| 8. | <input type="checkbox"/> | <input type="checkbox"/> | Fire pump has name plate. |
| 9. | <input type="checkbox"/> | <input type="checkbox"/> | Wire installation to motor, control inner wiring, and jockey pump wiring is correct. |
| 10. | <input type="checkbox"/> | <input type="checkbox"/> | A pressure gauge not less than 3 ½ in. diameter is near the pump discharge casting, and the pressure range is at least twice the rated working pressure of the pump but not less than 200 PSI, 5.10.1. |
| 11. | <input type="checkbox"/> | <input type="checkbox"/> | A compound pressure/vacuum gauge not less than 3 ½ in. diameter is connected to the suction pipe and the pressure range is twice the rated maximum suction pressure of the pump but not less than 100 PSI, 5.10.2. This does not apply to vertical shaft-turbine pumps taking a water supply from an open pit or well. |
| 12. | <input type="checkbox"/> | <input type="checkbox"/> | When provided, all valves (suction valve, discharge valve, bypass valves, backflow prevention device or assembly isolation valves) shall be supervised open by an off-site monitoring company, a local signal, locked open, or by seals, 5.16. |

Inspection Checklist
Fire Pump acceptance Test

- | Y | N | |
|-----|--------------------------|--|
| 13. | <input type="checkbox"/> | <input type="checkbox"/> Pump room has lighting, emergency lighting, heat, ventilation, and floor drain, 5.12.2 through 5.12.6. |
| 14. | <input type="checkbox"/> | <input type="checkbox"/> A circulation relief valve is provided on the pump of at least, ¾ in. for less than 2,500 GPM and 1 in. for 3,000 to 5,000 GPM, and it discharges to a drain, 5.11.1. This does not apply to pumps providing cooling water from its discharge to the engine driver. |
| 15. | <input type="checkbox"/> | <input type="checkbox"/> Coupling guards are provided for driver to pump connecting flexible couplings or flexible connecting shafts, 5.12.7. |
| 16. | <input type="checkbox"/> | <input type="checkbox"/> The operating angle of a flexible connecting shaft does not exceed the manufacturer listing requirements, 7.5.1.7.2. |
| 17. | <input type="checkbox"/> | <input type="checkbox"/> When installed, the eccentric taper reducer for suction has the taper on the bottom, 5.14.6.4. |
| 18. | <input type="checkbox"/> | <input type="checkbox"/> Suction screening is provided for open source water supplies, verify that its size matches what is detailed on the approved set of plans, 5.14.8. |
| 19. | <input type="checkbox"/> | <input type="checkbox"/> When a vortex plate is provided for taking suction from stored water supply, verify that it size and location matches what is detailed on the approved set of plans, 5.14.10. |
| 20. | <input type="checkbox"/> | <input type="checkbox"/> A check valve is installed in pump discharge assembly, 5.15.6. |
| 21. | <input type="checkbox"/> | <input type="checkbox"/> An indicating gate or butterfly valve is installed on fire protection system side of the check valve, 5.15.7. |
| 22. | <input type="checkbox"/> | <input type="checkbox"/> For a centrifugal pump and when provided a pressure relief valve is located between the pump and pump discharge check valve, verify that its location matches what is on the approved set of plans, 5.18.3. |
| 23. | <input type="checkbox"/> | <input type="checkbox"/> The test header and the number of hose valves are provided, in accordance with Table 5.25 and their location matches the approved set of plans, 5.19.3. |
| 24. | <input type="checkbox"/> | <input type="checkbox"/> The construction of the fire pump room (1 or 2 hour fire-resistive) matches the approved set of plans, 5.12.1, 5.12.2. |
| 25. | <input type="checkbox"/> | <input type="checkbox"/> The pressure maintenance (jockey) pump has a check vane in its discharge piping and isolation valves (indicating butterfly or gate) location match the approved set of plans, 5.24.4. |

OPERATIONAL TESTS ARE PERFORMED BY THE CONTRACTOR OR MANUFACTURER

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|-----|--------------------------|---|
| 26. | <input type="checkbox"/> | <input type="checkbox"/> Flow tests for positive displacement pumps is performed and recorded in accordance with Sections 14.2.7.3.3 and A.14.2.7.3, using a flow meter in a test loop that discharges the flow back to the supply. |
| 27. | <input type="checkbox"/> | <input type="checkbox"/> For the load start test, the fire pump, without interruption, will be brought to rated speed providing a discharge equal to peak load, 14.2.7.4. |

CONTROLLER

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|-----|--------------------------|--|
| 28. | <input type="checkbox"/> | <input type="checkbox"/> The fire pump controller is tested in accordance with the manufacturer's requirements and Section 14.2.8. |
| 29. | <input type="checkbox"/> | <input type="checkbox"/> A minimum 6 manual starts and 6 automatic starts are performed, split the tests between each set of engine batteries and emergency power (only if emergency power is required for operating the pump) and simulate loss of the primary power source to verify the transfer to secondary power source, 14.2.8.2 and 14.2.9 |

Inspection Checklist
Fire Pump acceptance Test

- | Y | N | |
|-----|--------------------------|--|
| 30. | <input type="checkbox"/> | <input type="checkbox"/> Each start is no less than a 5 minute run time, and total pump operation shall not be less than 1 hour, 14.2.8.4 and 14.2.12. |
| 31. | <input type="checkbox"/> | <input type="checkbox"/> Simulate primary power loss and allow automatic transfer to secondary power supply (only if emergency power is required for operating the pump) while pump is operating at peak load, 14.2.9.1. |
| 32. | <input type="checkbox"/> | <input type="checkbox"/> Engines with electronic fuel management control systems will test both primary and alternate control systems, 14.2.13. |
| 33. | <input type="checkbox"/> | <input type="checkbox"/> Pump packing drips. |
| 34. | <input type="checkbox"/> | <input type="checkbox"/> No overheating. |
| 35. | <input type="checkbox"/> | <input type="checkbox"/> No excessive vibration. |
| 36. | <input type="checkbox"/> | <input type="checkbox"/> Pump starts on water flow. |
| 37. | <input type="checkbox"/> | <input type="checkbox"/> Pump starts on pressure drop. |
| 38. | <input type="checkbox"/> | <input type="checkbox"/> Casing relief valve operates. |
| 39. | <input type="checkbox"/> | <input type="checkbox"/> Pressure relief valve operates. |
| 40. | <input type="checkbox"/> | <input type="checkbox"/> Jockey pump stop point pressure is recorded. |
| 41. | <input type="checkbox"/> | <input type="checkbox"/> Jockey pump start point pressure is recorded. |
| 42. | <input type="checkbox"/> | <input type="checkbox"/> Fire pump start point pressure is recorded (usually 5 PSI above jockey stop PSI). |
| 43. | <input type="checkbox"/> | <input type="checkbox"/> Pump flow tests are conducted at churn (no flow), rated (100 percent of rated capacity), and peak (150 percent of rated capacity) loads, 14.2.7.2.1. Additional test points can be taken. |

ELECTRIC DRIVEN PUMP

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| 44. | <input type="checkbox"/> | <input type="checkbox"/> Supervised alarms operate when motor stops running, loss of phase, electric phase reversal and controller trouble. |
| 45. | <input type="checkbox"/> | <input type="checkbox"/> Simulated test for phase reversal is conducted. |
| 46. | <input type="checkbox"/> | <input type="checkbox"/> Switching from normal power to emergency and back to normal at peak load does not trip the breaker. |
| 47. | <input type="checkbox"/> | <input type="checkbox"/> Pump started once from manual emergency handle operation. |
| 48. | <input type="checkbox"/> | <input type="checkbox"/> Pump start up on emergency power occurs automatically. |

DIESEL DRIVEN PUMP

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| 49. | <input type="checkbox"/> | <input type="checkbox"/> Audible alarms operate when over speed (120 percent) causes shutdown, low oil PSI, high temp, battery failure, charger failure, low air or hydraulic PSI, and failure to automatically start. |
| 50. | <input type="checkbox"/> | <input type="checkbox"/> Audible or visual alarms provided at constantly attended location when engine stops running, controller main switch is turned off, or there is trouble on the controller or engine. |

Inspection Checklist
Fire Pump acceptance Test

- | | Y | N | |
|-----|--------------------------|--------------------------|--|
| 51. | <input type="checkbox"/> | <input type="checkbox"/> | Instrumentation panel includes tachometer, oil PSI gauge, and temperature gauge. |
| 52. | <input type="checkbox"/> | <input type="checkbox"/> | Battery chargers and ampmeters function. |
| 53. | <input type="checkbox"/> | <input type="checkbox"/> | Charger listed for fire pump service use, batteries rack is supported and secured at least 12 in. above the floor level. |
| 54. | <input type="checkbox"/> | <input type="checkbox"/> | Timer set for 30 minute each week run time cycle. |
| 55. | <input type="checkbox"/> | <input type="checkbox"/> | For automatic shut down after an automatic start, the shutdown occurs in accordance with Section 12.5.5.2. |

WELL TEST AND INSPECTION FOR VERTICAL TURBINE PUMPS

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|-----|--------------------------|--------------------------|---|
| 56. | <input type="checkbox"/> | <input type="checkbox"/> | The well's production capability is verified by a continuous 8 hour test at 150 percent of the pump rated capacity. Test readings are taken every 15 minutes and the test data provides the static and pumping water levels at 100 and 150 percent of the pump's rated capacity, 7.2.7. |
|-----|--------------------------|--------------------------|---|