Stationary Fire Pumps and Standpipe Systems Handbook

Sixth Edition

Edited by

Chad R.W. Duffy, P.E.
Senior Fire Protection Engineer, NFPA

Janna E. Shapiro
Fire Protection Engineer, NFPA

With the complete text of the following:
2019 edition of NFPA® 20, *Standard for the Installation of Stationary Pumps for Fire Protection*
2016 edition of NFPA® 14, *Standard for the Installation of Standpipe and Hose Systems*
2019 edition of NFPA® 291, *Recommended Practice for Fire Flow Testing and Marking of Hydrants*
2019 edition of NFPA® 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*

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Links to other sections of the document are colored red. When you click on a link and are directed to another page, use the following keyboard shortcut to return to the original page: ALT + <left arrow> for PC; COMMAND + <left arrow> for Mac.

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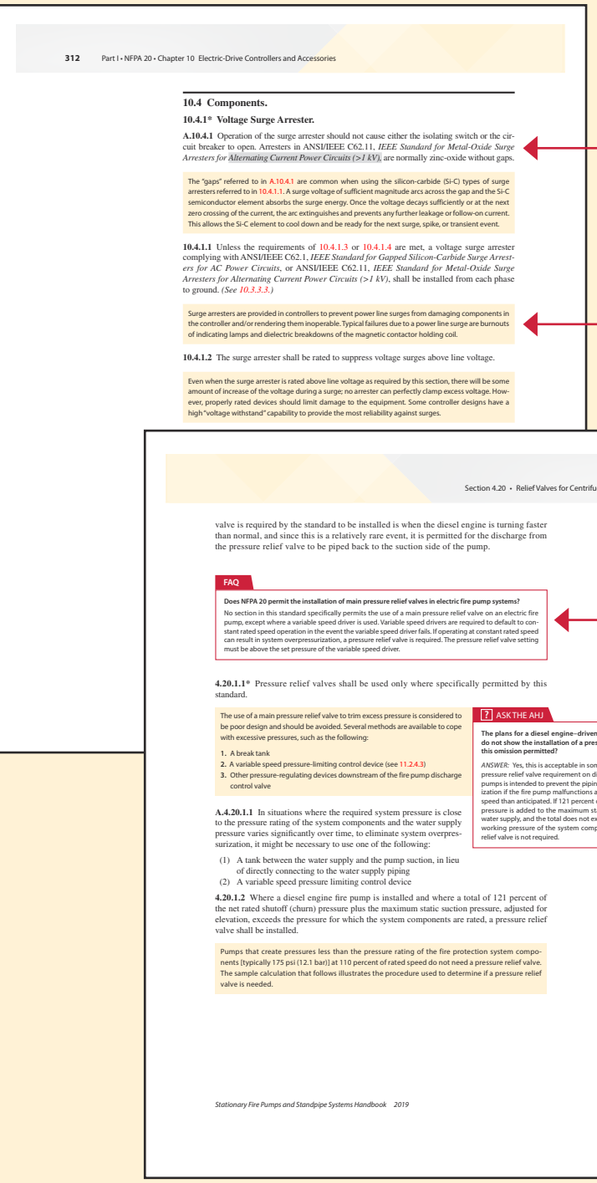

312 Part I • NFPA 20 • Chapter 10 Electric-Drive Controllers and Accessories

10.4 Components.

10.4.1* Voltage Surge Arrester.

A.10.4.1 Operation of the surge arrester should not cause either the isolating switch or the circuit breaker to open. Arresters in ANSI/IEEE C62.11, *IEEE Standard for Metal-Oxide Surge Arresters for Alternating Current Power Circuits (>1 kV)*, are normally zinc-oxide without gaps.

The "gaps" referred to in A.10.4.1 are common when using the silicon-carbide (Si-C) types of surge arresters referred to in 10.4.1.1. A surge voltage of sufficient magnitude arcs across the gap and the Si-C semiconductor element absorbs the surge energy. Once the voltage decays sufficiently or at the next zero crossing of the current, the arc extinguishes and prevents any further leakage or follow-on current. This allows the Si-C element to cool down and be ready for the next surge, spike, or transient event.

10.4.1.1 Unless the requirements of 10.4.1.3 or 10.4.1.4 are met, a voltage surge arrester complying with ANSI/IEEE C62.1, *IEEE Standard for Gapped Silicon-Carbide Surge Arresters for AC Power Circuits*, or ANSI/IEEE C62.11, *IEEE Standard for Metal-Oxide Surge Arresters for Alternating Current Power Circuits (>1 kV)*, shall be installed from each phase to ground. *(See 10.3.3.3.)*

Surge arresters are provided in controllers to prevent power line surges from damaging components in the controller and/or rendering them inoperable. Typical failures due to a power line surge are burnouts of indicating lamps and dielectric breakdowns of the magnetic contactor holding coil.

10.4.1.2 The surge arrester shall be rated to suppress voltage surges above line voltage.

Even when the surge arrester is rated above line voltage as required by this section, there will be some amount of increase of the voltage during a surge; no arrester can perfectly clamp excess voltage. However, properly rated devices should limit damage to the equipment. Some controller designs have a high "voltage withstand" capability to provide the most reliability against surges.

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Section 4.20 • Relief Valves for Centrifugal Pumps 117

valve is required by the standard to be installed is when the diesel engine is turning faster than normal, and since this is a relatively rare event, it is permitted for the discharge from the pressure relief valve to be piped back to the suction side of the pump.

FAQ

Does NFPA 20 permit the installation of main pressure relief valves in electric fire pump systems?

No section in this standard specifically permits the use of a main pressure relief valve on an electric fire pump, except where a variable speed driver is used. Variable speed drivers are required to default to constant rated speed operation in the event the variable speed driver fails. If operating at constant rated speed can result in system overpressurization, a pressure relief valve is required. The pressure relief valve setting must be above the set pressure of the variable speed driver.

4.20.1.1* Pressure relief valves shall be used only where specifically permitted by this standard.

The use of a main pressure relief valve to trim excess pressure is considered to be poor design and should be avoided. Several methods are available to cope with excessive pressures, such as the following:

1. A break tank
2. A variable speed pressure-limiting control device (see 11.2.4.3)
3. Other pressure-regulating devices downstream of the fire pump discharge control valve

ASK THE AHJ

The plans for a diesel engine–driven centrifugal pump do not show the installation of a pressure relief valve. Is this omission permitted?

ANSWER: Yes, this is acceptable in some installations. The pressure relief valve requirement on diesel engine–driven pumps is intended to prevent the piping from overpressurization if the fire pump malfunctions and runs at a higher speed than anticipated. If 121 percent of the pump's churn pressure is added to the maximum static pressure of the water supply, and the total does not exceed the maximum working pressure of the system components, a pressure relief valve is not required.

A.4.20.1.1 In situations where the required system pressure is close to the pressure rating of the system components and the water supply pressure varies significantly over time, to eliminate system overpressurization, it might be necessary to use one of the following:

(1) A tank between the water supply and the pump suction, in lieu of directly connecting to the water supply piping
(2) A variable speed pressure limiting control device

4.20.1.2 Where a diesel engine fire pump is installed and where a total of 121 percent of the net rated shutoff (churn) pressure plus the maximum static suction pressure, adjusted for elevation, exceeds the pressure for which the system components are rated, a pressure relief valve shall be installed.

Pumps that create pressures less than the pressure rating of the fire protection system components (typically 175 psi (12.1 bar)) at 110 percent of rated speed do not need a pressure relief valve. The sample calculation that follows illustrates the procedure used to determine if a pressure relief valve is needed.

Frequently asked questions (FAQs) are based on the most commonly asked questions of the NFPA 20 and NFPA 14 staff.

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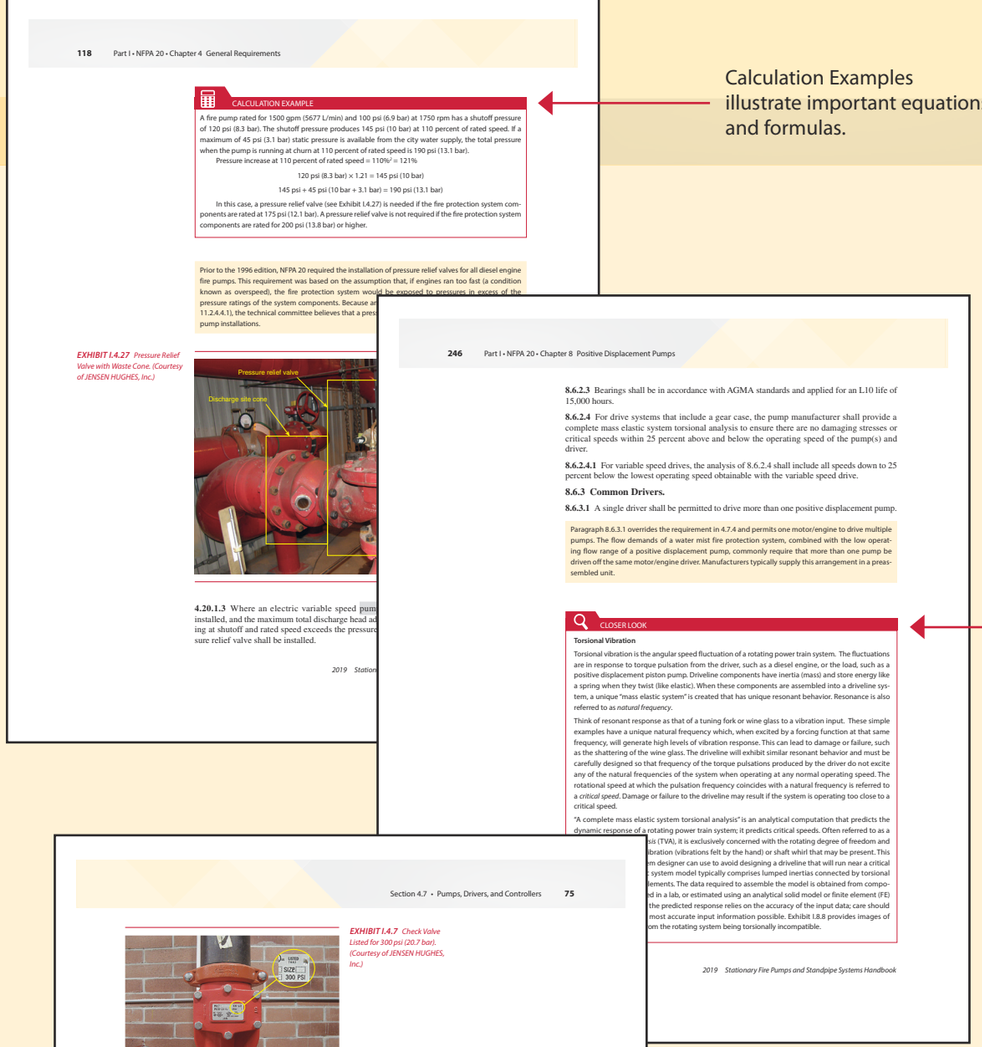


118 Part I • NFPA 20 • Chapter 4 General Requirements

CALCULATION EXAMPLE

A fire pump rated for 1500 gpm (5677 L/min) and 100 psi (6.9 bar) at 1750 rpm has a shutoff pressure of 120 psi (8.3 bar). The shutoff pressure produces 145 psi (10 bar) at 110 percent of rated speed. If a maximum of 45 psi (3.1 bar) static pressure is available from the city water supply, the total pressure when the pump is running at churn at 110 percent of rated speed is 190 psi (13.1 bar).

Pressure increase at 110 percent of rated speed = $110\%^2 = 121\%$

120 psi (8.3 bar) × 1.21 = 145 psi (10 bar)

145 psi + 45 psi (10 bar + 3.1 bar) = 190 psi (13.1 bar)

In this case, a pressure relief valve (see Exhibit I.4.27) is needed if the fire protection system components are rated at 175 psi (12.1 bar). A pressure relief valve is not required if the fire protection system components are rated for 200 psi (13.8 bar) or higher.

Prior to the 1996 edition, NFPA 20 required the installation of pressure relief valves for all diesel engine fire pumps. This requirement was based on the assumption that, if engines ran too fast (a condition known as overspeed), the fire protection system would be exposed to pressures in excess of the pressure ratings of the system components. Because a... 11.2.4.4.1), the technical committee believes that a pres... pump installations.

EXHIBIT I.4.27 Pressure Relief Valve with Waste Cone. (Courtesy of JENSEN HUGHES, Inc.)

4.20.1.3 Where an electric variable speed pum... installed, and the maximum total discharge head ad... ing at shutoff and rated speed exceeds the pressure... sure relief valve shall be installed.

246 Part I • NFPA 20 • Chapter 8 Positive Displacement Pumps

8.6.2.3 Bearings shall be in accordance with AGMA standards and applied for an L10 life of 15,000 hours.

8.6.2.4 For drive systems that include a gear case, the pump manufacturer shall provide a complete mass elastic system torsional analysis to ensure there are no damaging stresses or critical speeds within 25 percent above and below the operating speed of the pump(s) and driver.

8.6.2.4.1 For variable speed drives, the analysis of 8.6.2.4 shall include all speeds down to 25 percent below the lowest operating speed obtainable with the variable speed drive.

8.6.3 Common Drivers.

8.6.3.1 A single driver shall be permitted to drive more than one positive displacement pump.

Paragraph 8.6.3.1 overrides the requirement in 4.7.4 and permits one motor/engine to drive multiple pumps. The flow demands of a water mist fire protection system, combined with the low operating flow range of a positive displacement pump, commonly require that more than one pump be driven off the same motor/engine driver. Manufacturers typically supply this arrangement in a preassembled unit.

CLOSER LOOK

Torsional Vibration

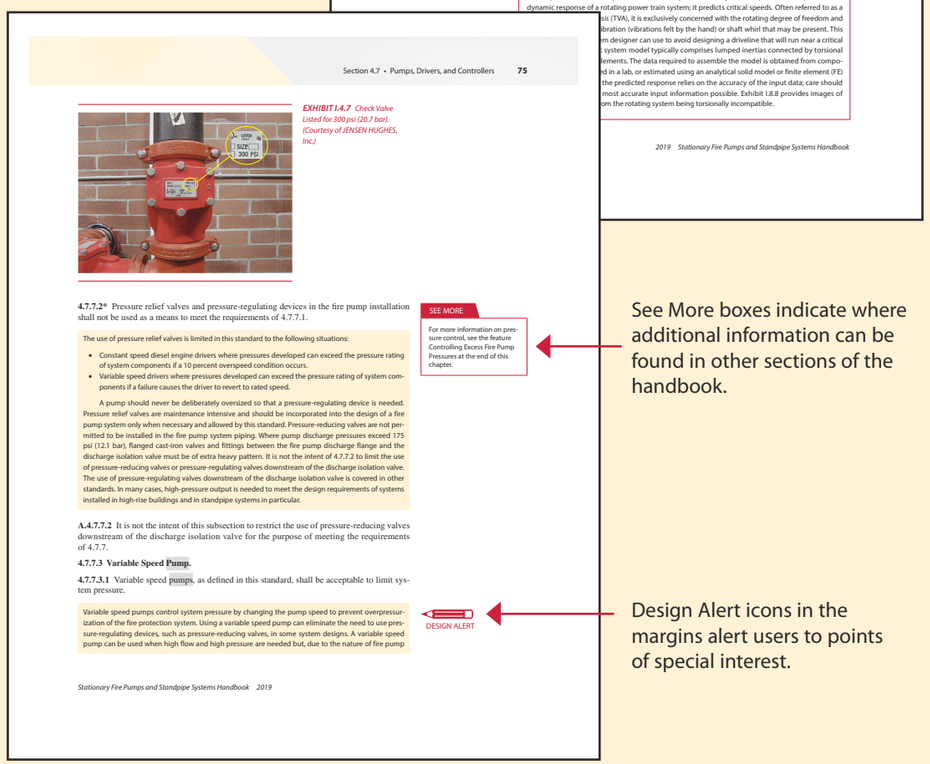
Torsional vibration is the angular speed fluctuation of a rotating power train system. The fluctuations are in response to torque pulsation from the driver, such as a diesel engine, or the load, such as a positive displacement piston pump. Driveline components have inertia (mass) and store energy like a spring when they twist (like elastic). When these components are assembled into a driveline system, a unique "mass elastic system" is created that has unique resonant behavior. Resonance is also referred to as *natural frequency*.

Think of resonant response as that of a tuning fork or wine glass to a vibration input. These simple examples have a unique natural frequency which, when excited by a forcing function at that same frequency, will generate high levels of vibration response. This can lead to damage or failure, such as the shattering of the wine glass. The driveline will exhibit similar resonant behavior and must be carefully designed so that frequency of the torque pulsations produced by the driver do not excite any of the natural frequencies of the system when operating at any normal operating speed. The rotational speed at which the pulsation frequency coincides with a natural frequency is referred to a *critical speed*. Damage or failure to the driveline may result if the system is operating too close to a critical speed.

"A complete mass elastic system torsional analysis" is an analytical computation that predicts the dynamic response of a rotating power train system; it predicts critical speeds. Often referred to as a ...sis (TVA), it is exclusively concerned with the rotating degree of freedom and ...ibration (vibrations felt by the hand) or shaft whirl that may be present. This ...m designer can use to avoid designing a driveline that will run near a critical ...system model typically comprises lumped inertias connected by torsional ...lements. The data required to assemble the model is obtained from compo... ...d in a lab, or estimated using an analytical solid model or finite element (FE) ...the predicted response relies on the accuracy of the input data; care should ...most accurate input information possible. Exhibit I.8.8 provides images of ...om the rotating system being torsionally incompatible.

Calculation Examples illustrate important equations and formulas.

Closer Look features provide further information on selected topics from the standards.



Section 4.7 • Pumps, Drivers, and Controllers 75

EXHIBIT I.4.7 Check Valve Listed for 300 psi (20.7 bar). (Courtesy of JENSEN HUGHES, Inc.)

4.7.7.2* Pressure relief valves and pressure-regulating devices in the fire pump installation shall not be used as a means to meet the requirements of 4.7.7.1.

The use of pressure relief valves is limited in this standard to the following situations:

- Constant speed diesel engine drivers where pressures developed can exceed the pressure rating of system components if a 10 percent overspeed condition occurs.
- Variable speed drivers where pressures developed can exceed the pressure rating of system components if a failure causes the driver to revert to rated speed.

A pump should never be deliberately oversized so that a pressure-regulating device is needed. Pressure relief valves are maintenance intensive and should be incorporated into the design of a fire pump system only when necessary and allowed by this standard. Pressure-reducing valves are not permitted to be installed in the fire pump system piping. Where pump discharge pressures exceed 175 psi (12.1 bar), flanged cast-iron valves and fittings between the fire pump discharge flange and the discharge isolation valve must be of extra heavy pattern. It is not the intent of 4.7.7.2 to limit the use of pressure-reducing valves or pressure-regulating valves downstream of the discharge isolation valve. The use of pressure-regulating valves downstream of the discharge isolation valve is covered in other standards. In many cases, high-pressure output is needed to meet the design requirements of systems installed in high-rise buildings and in standpipe systems in particular.

A.4.7.7.2 It is not the intent of this subsection to restrict the use of pressure-reducing valves downstream of the discharge isolation valve for the purpose of meeting the requirements of 4.7.7.

4.7.7.3 Variable Speed Pump.

4.7.7.3.1 Variable speed pumps, as defined in this standard, shall be acceptable to limit system pressure.

Variable speed pumps control system pressure by changing the pump speed to prevent overpressurization of the fire protection system. Using a variable speed pump can eliminate the need to use pressure-regulating devices, such as pressure-reducing valves, in some system designs. A variable speed pump can be used when high flow and high pressure are needed but, due to the nature of fire pump

SEE MORE

For more information on pressure control, see the feature Controlling Excess Fire Pump Pressures at the end of this chapter.

DESIGN ALERT

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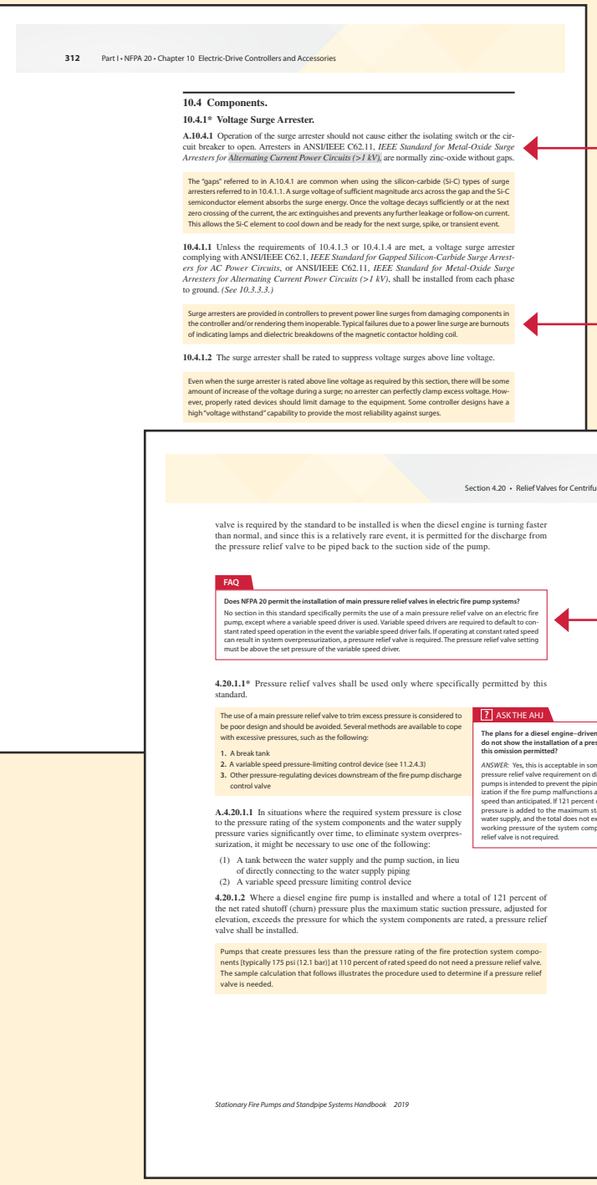

312 Part I • NFPA 20 • Chapter 10 Electric-Drive Controllers and Accessories

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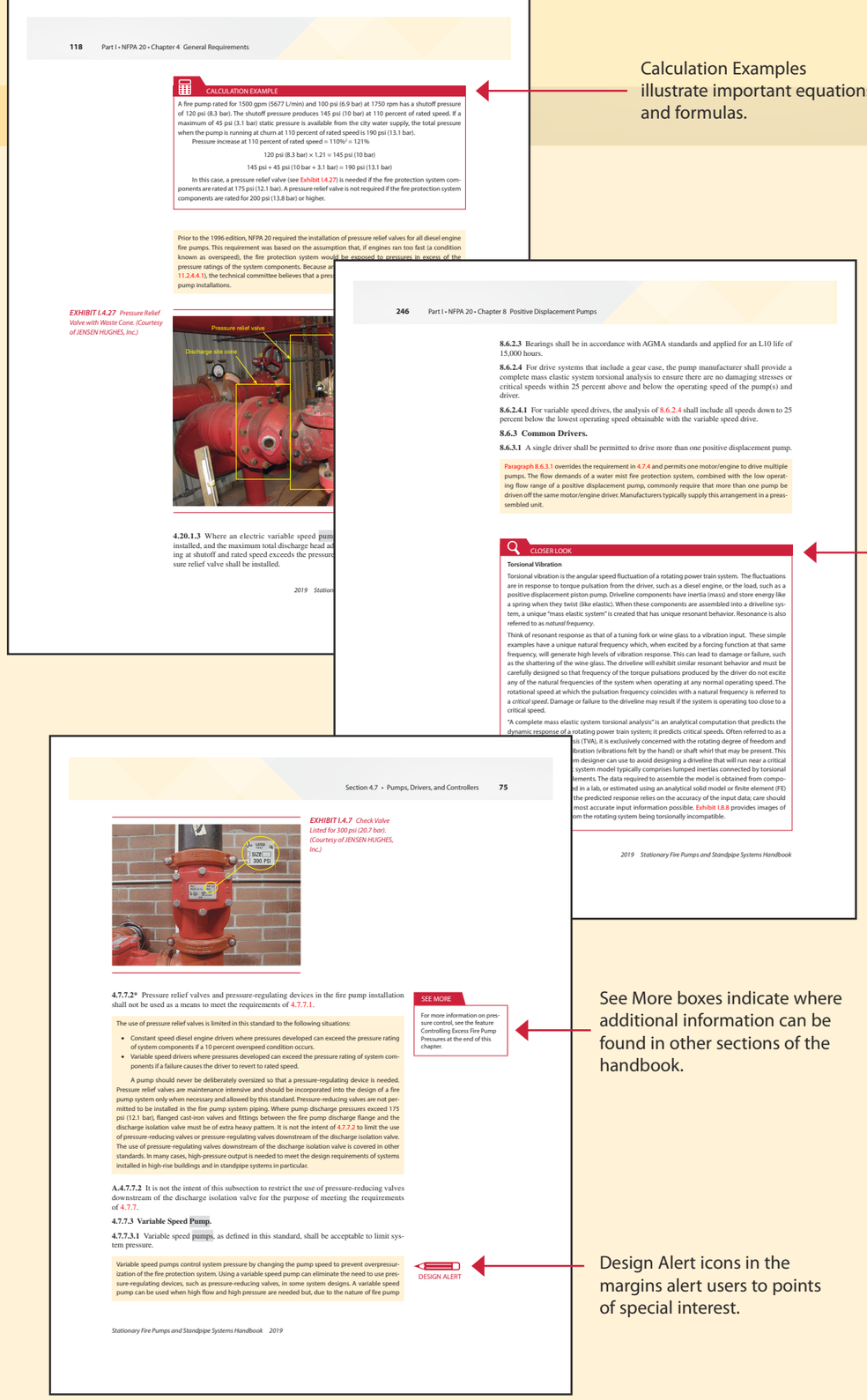

118 Part I • NFPA 20 • Chapter 4 General Requirements

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2019 Station...

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246 Part I • NFPA 20 • Chapter 8 Positive Displacement Pumps

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8.6.2.4 For drive systems that include a gear case, the pump manufacturer shall provide a complete mass elastic system torsional analysis to ensure there are no damaging stresses or critical speeds within 25 percent above and below the operating speed of the pump(s) and driver.

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CLOSER LOOK

Torsional Vibration

Torsional vibration is the angular speed fluctuation of a rotating power train system. The fluctuations are in response to torque pulsation from the driver, such as a diesel engine, or the load, such as a positive displacement piston pump. Driveline components have inertia (mass) and store energy like a spring when they twist (like elastic). When these components are assembled into a driveline system, a unique "mass elastic system" is created that has unique resonant behavior. Resonance is also referred to as *natural frequency*.

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2019 Stationary Fire Pumps and Standpipe Systems Handbook

Closer Look features provide further information on selected topics from the standards.

Section 4.7 • Pumps, Drivers, and Controllers 75

EXHIBIT I.4.7 Check Valve Listed for 300 psi (20.7 bar). (Courtesy of JENSEN HUGHES, Inc.)

4.7.7.2* Pressure relief valves and pressure-regulating devices in the fire pump installation shall not be used as a means to meet the requirements of 4.7.7.1.

The use of pressure relief valves is limited in this standard to the following situations:

- Constant speed diesel engine drivers where pressures developed can exceed the pressure rating of system components if a 10 percent overspeed condition occurs.
- Variable speed drivers where pressures developed can exceed the pressure rating of system components if a failure causes the driver to revert to rated speed.

A pump should never be deliberately oversized so that a pressure-regulating device is needed. Pressure relief valves are maintenance intensive and should be incorporated into the design of a fire pump system only when necessary and allowed by this standard. Pressure-reducing valves are not permitted to be installed in the fire pump system piping. Where pump discharge pressures exceed 175 psi (12.1 bar), flanged cast-iron valves and fittings between the fire pump discharge flange and the discharge isolation valve must be of extra heavy pattern. It is not the intent of 4.7.7.2 to limit the use of pressure-reducing valves or pressure-regulating valves downstream of the discharge isolation valve. The use of pressure-regulating valves downstream of the discharge isolation valve is covered in other standards. In many cases, high-pressure output is needed to meet the design requirements of systems installed in high-rise buildings and in standpipe systems in particular.

A.4.7.7.2 It is not the intent of this subsection to restrict the use of pressure-reducing valves downstream of the discharge isolation valve for the purpose of meeting the requirements of 4.7.7.

4.7.7.3 Variable Speed Pump.

4.7.7.3.1 Variable speed pumps, as defined in this standard, shall be acceptable to limit system pressure.

Variable speed pumps control system pressure by changing the pump speed to prevent overpressurization of the fire protection system. Using a variable speed pump can eliminate the need to use pressure-regulating devices, such as pressure-reducing valves, in some system designs. A variable speed pump can be used when high flow and high pressure are needed but, due to the nature of fire pump

SEE MORE

For more information on pressure control, see the feature Controlling Excess Fire Pump Pressures at the end of this chapter.

DESIGN ALERT

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New to this edition, supplementary topic-focused features can be found at the end of selected chapters in Part I.

CHAPTER 4

Controlling Excess Fire Pump Pressures

Fire pumps can produce excess pressures that are detrimental to overall fire protection system performance. NFPA 20 includes provisions to minimize the likelihood of this occurrence. Paragraph 4.7.7 and its subsections provide the basic details on how such overpressures are to be addressed. The core requirement specifies that the net pump shutoff (churn) pressure plus the maximum static suction pressure from the water supply, adjusted for elevation, is not to exceed the pressure rating of system components. This rather concise statement speaks to a number of technical issues that need to be well understood and taken into consideration. Other sections of NFPA 20, such as 4.17.3, 4.17.11, and 4.20, as well as some key terminology, also need to be consulted when considering excess pump pressures.

Addressing and effectively controlling excess pump pressures presents one of the more complex aspects of designing and laying out fire pump installations. A couple of fundamental questions come to mind when considering excess pump pressures. First, what is an excess pump pressure? Second, why would a fire pump produce excess pressures?

1. What is an excess pump pressure?

As alluded to in paragraph 4.7.7.1, fire protection system components such as sprinklers, piping, fittings, and so forth, are commercially available with maximum pressure ratings. Standard components are typically rated up to a maximum operating pressure of 175 psi (12.1 bar). A fire pump, therefore, creates an "excess pressure" condition when it produces pressures greater than the rating of the fire protection system components.

Higher-rated components, for example up to 350 psi (24 bar), are available and can be specified by system designers. Using higher-pressure-rated components provides an option for dealing with or, in certain cases, avoiding excess pump pressures, albeit at higher costs than standard-rated components. Hydraulic analysis and project budgets inform the decision as to whether high-pressure-rated components should be considered. Higher-rated components could be used without pressure relief valves, pressure-regulating devices, variable speed pumps, or break tanks, which present other options for addressing excess pump pressures.

Although not specifically addressed by NFPA 20, other types of excess pressure situations not related to the rating limits of system piping components can occur. One such situation pertains to standpipe systems in multi-story buildings. Standpipe systems are addressed by NFPA 14. See Part II of this handbook for NFPA 14.

Standpipe outlets located towards the bottom of the building closer to the pump can experience pressures in excess of 175 psi (12.1 bar). While appropriately rated system components can be specified and installed, operating pressures in excess of 175 psi (12.1 bar) produce hose streams that become difficult to safely manage by responding fire-fighting personnel. NFPA 14 provides additional provisions on how to address this type of excess pressure situation at the valve outlets.

2. Why would a fire pump produce excess pressures?

When considering why a fire pump installation would develop excess pressures, three major factors can come into play.

- One factor deals with the operating range of the pump coupled with the range of hydraulic demands of the fire protection system (e.g., the sprinkler system or standpipe system). This factor becomes especially noteworthy for systems installed in tall multi-story buildings.
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the range of pressu
source.
- The third factor co
(e.g., an overspeed
faster than its rated

Pump Operating Range

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permitted for centrifugal

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rated pressure will be pro
excess of the pump's flo
pressures less than the r
assume the pump driver
speed, such as the rated
pumps, some other pred
caused either intention
malfunction, would furth
fluctuations of the pump

Pumps operating at
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system or from a test he
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6.2 limits maximum chu
pressure of the pump wh
Therefore, a fire pump r
a pressure greater than 1

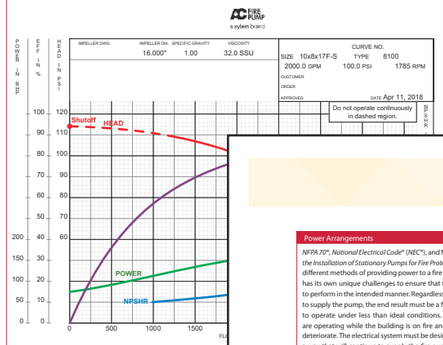
CHAPTER 6

Fire Pump Curves

Many characteristics of fire pump curves must be understood in order to properly size, test, and evaluate a fire pump's performance. These curves are influenced by impeller construction, such as the number of vanes, angle of vanes, and eye size; pump configuration, such as horizontal split-case, vertical inline, or vertical turbine; and motor or engine characteristics, such as horsepower. These distinct features influence the performance of the fire pump and thus the characteristics of the fire pump curve. An example of a manufacturer's fire pump curve can be seen in Curve 1.

Fire pump curves consist of several different curves that provide information such as the pressure (head) produced at various flows, the brake horsepower (bhp), efficiency, and net positive suction head (NPSH). These wcurves can be used for a multitude of reasons. The head curve is used when determining whether a fire pump will provide sufficient flow and pressure to meet the fire protection system demand. Evaluating the bhp curve will aid in properly selecting or verifying the appropriate driver for a fire pump. The NPSH curve is important in determining how much suction pressure is required to avoid cavitation. The efficiency curve is vital at the design phase to ensure that the pump being selected will operate at or near peak performance.

Once a fire pump has been selected, it must be tested to ensure that it is operating as expected. Under certain conditions, corrections to the field test data might be required for an accurate analysis. The affinity laws are often used to make corrections to speed, flow, and pressure. These corrections can be used to



CURVE 1 *Manufacturer's Fire Pump Curve.*

CHAPTER 9

Power Arrangements

NFPA 70®, National Electrical Code® (NEC®), and NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*, both allow for different methods of providing power to a fire pump. Each method has its own unique challenges to ensure that the fire pump is able to perform in the intended manner. Regardless of the method used to supply the pump, the end result must be a fire pump that is able to operate under less than ideal conditions. Often these pumps are operating while the building is on fire and conditions quickly deteriorate. The electrical system must be designed and installed in a way that will continue to supply the fire pump so that the sprinkler system can mitigate the damage to the building and provide occupants the necessary time to evacuate. The combination of the *NEC* and NFPA 20 provides the performance and installation requirements for the electrical system to deliver power in a way that ensures the reliability of the fire pump.

Several considerations need to be made when a building project requires the installation of an electric fire pump, one of which is the power arrangement. This review will identify and explain the power arrangements and requirements of NFPA 20 and the *NEC*. It will provide guidance on determining the answers to common questions such as the following: what is the power source; where is the power source coming from; is the power source reliable; can a generator be used as a primary source of power; what are the power arrangement options; will auxiliary power be needed; and what are the auxiliary power options? It will also explain overcurrent protection and transformers as they relate to the power supply for a fire pump.

PERMISSIBLE POWER ARRANGEMENTS

Where does the user begin in order to determine acceptable power arrangements for electric-driven fire pump installations? Power arrangements for fire pump installations are covered in Chapter 9 of NFPA 20 and Article 695 of the *NEC*. NFPA 20 provides three power arrangements: Arrangement A, Arrangement B, and Arrangement C (see Figure A.9.2 of NFPA 20). The following paragraphs will discuss some of the unique nuances of these arrangements and how NFPA 20 and the *NEC* tie together.

Arrangement A

Arrangement A is the first power supply arrangement referenced in Figure A.9.2 of NFPA 20 and shows a fire pump controller connected directly to the utility service. This means there are no disconnects, OCPDs, or transformers between the utility and the fire pump controller. For example, if a fire pump motor is rated for 480V three-phase power, the fire pump would be connected to a service with the same voltage characteristics, meaning that the utility would have to have 480V three-phase power available at the point where the service conductor supplying the fire pump controller connects to the utility. In general, most electric-driven fire pumps require three-phase power. This can cause complications where a utility provider only has single-phase power available and often raises the question, "Can a phase converter be used on a fire pump installation?" It is important to note that if a utility only provides single-phase service it is not permissible to use a phase converter to run a three-phase fire pump motor, in accordance with 9.1.7 of NFPA 20. Subsection 9.1.7 simply states that phase converters shall not be used to supply power to a fire pump. This means that where a single-phase power source is available, a single-phase fire pump motor must be installed.

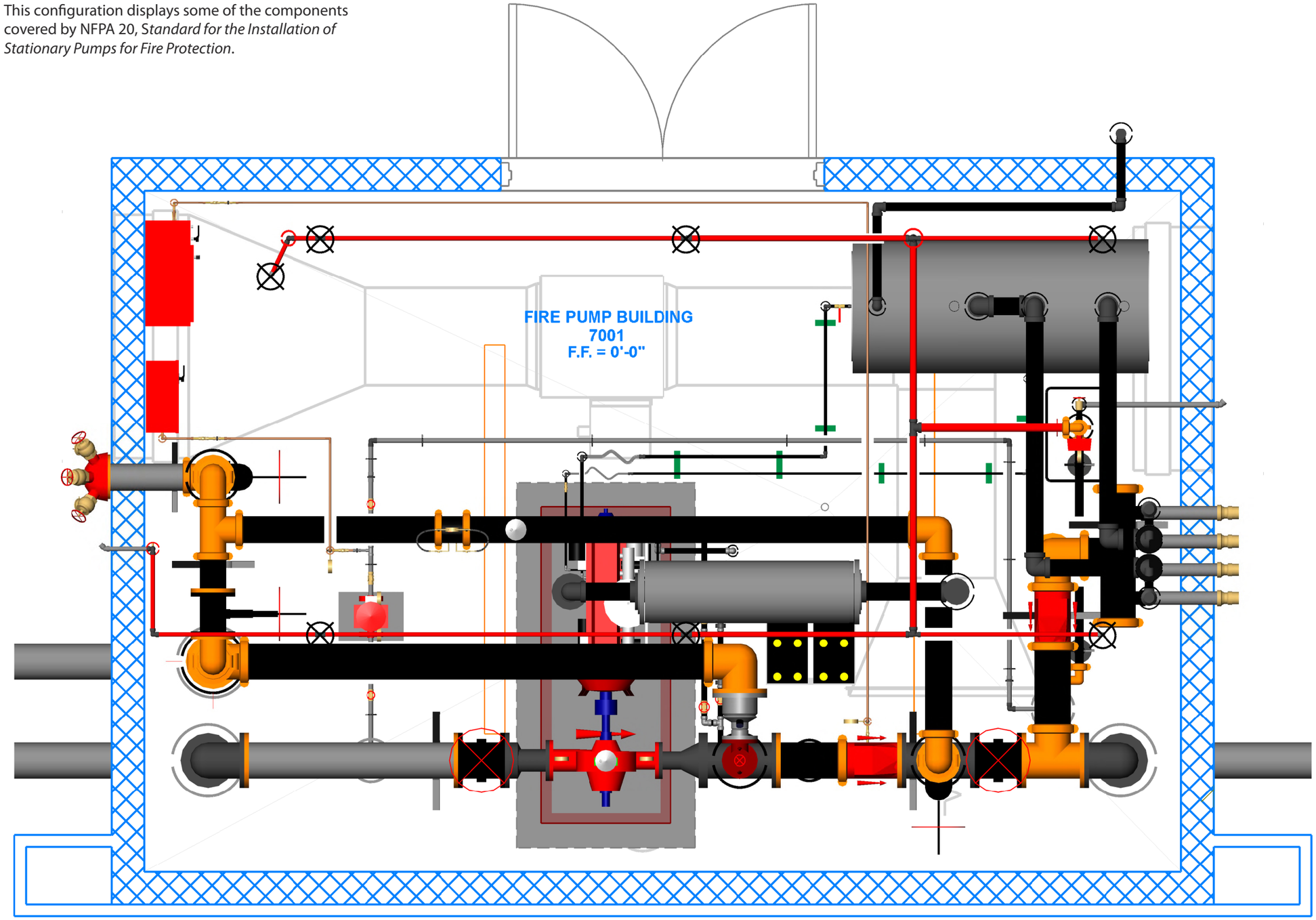
The utility service connection in Arrangement A may be to a transformer owned by the utility (as opposed to a transformer owned by the building owner, as shown in Arrangement B), or to the building service entrance conductors ahead of the building service disconnect. Since there is no OCPD between the utility service connection and the fire pump controller in this arrangement, the controller becomes the fire pump service disconnect and is equipped with the OCPD. This disconnect must be suitable for use as service equipment. It is important to note that this arrangement could present a risk to service personnel. To de-energize the fire pump controller, disconnection of the service by the utility is necessary. Depending on the configuration, the disconnection of power by the utility may or may not disconnect power for the building service as well. Due to the possibility of disconnecting power to the entire building, service work on fire pump controllers is often performed while the controller is energized. Paragraph 14.2.6.1.5 of NFPA 20 requires that personal protective equipment (PPE) be worn in accordance with *NFPA 70E, Standard for Electrical Safety in the Work Place*, or equivalent. Although NFPA 20 applies to new installations, the requirements of *NFPA 70E* or equivalent should be followed whenever necessary energized electrical work is performed.

Arrangement B

Arrangement B is the second power supply arrangement referenced in Figure A.9.2 of NFPA 20 and shows a fire pump controller connected to the utility service via an OCPD and an on-site transformer. Where voltage from the supply is different than the voltage required by the fire pump, the addition of a transformer (owned by the building owner) to step down or up the voltage supplied by the utility is required.

Fire Pump Room Plan

This configuration displays some of the components covered by NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*.



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REMINDER: UPDATING OF NFPA STANDARDS

NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*; NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*; NFPA 291, *Recommended Practice for Fire Flow Testing and Marking of Hydrants*; and NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances,* like all NFPA codes, standards, recommended practices, and guides ("NFPA Standards"), may be amended from time to time through the issuance of Tentative Interim Amendments or corrected by Errata. An official NFPA Standard at any point in time consists of the current edition of the document together with any Tentative Interim Amendment and any Errata then in effect. In order to determine whether an NFPA Standard has been amended through the issuance of Tentative Interim Amendments or corrected by Errata, visit the "Codes & Standards" section on NFPA's website. There, the document information pages located at the "List of NFPA Codes & Standards" provide up-to-date, document-specific information, including any issued Tentative Interim Amendments and Errata. To view the document information page for a specific NFPA Standard, go to *http://www.nfpa.org/docinfo* to choose from the list of NFPA Standards, or use the search feature to select the NFPA Standard number (e.g., NFPA 20). The document information page includes postings of all existing Tentative Interim Amendments and Errata. It also includes the option to register for an "Alert" feature to receive an automatic email notification when new updates and other information are posted regarding the document.

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