SECTION 21 1200

FIRE-SUPPRESSION STANDPIPES

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LANL MASTER SPECIFICATION SECTION

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| Rev. 0: New specification section adopting content aligned with commercial industry practice. |

Word file at <http://engstandards.lanl.gov>

This template must be edited for each project.  In doing so, specifier must add job-specific requirements.  Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.  Once the choice is made or text supplied, remove the brackets.  The specification section must also be edited to delete requirements for processes, items, or designs that are not included in the project -- and specifier’s notes such as these.  This template is tailored to meet requirements contained in the LANL Engineering Standards Manual (ESM). To seek a variance from requirements in this section that are applicable, contact the Engineering Standards Manual Fire [POC](http://engstandards.lanl.gov/POCs.shtml#fire). Please contact POC with suggestions for improvement as well.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Note that DOE-STD-1066 Appendices A and B are not applicable to the Work specified herein. Consider the scope and purpose of DOE documents as pertains to commercial construction before editing such requirements into this specification section.

Standpipe systems will typically be delegated designs. This template is written as such. If the design is provided by LANL ES, revise accordingly.

This template is developed for ML-4 projects.  For ML-1, 2, and 3 applications, additional requirements and independent reviews should be added if increased confidence in procurement or execution is desired; see ESM Chapter 1 Section Z10 Specifications and Quality sections.
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PART 1 GENERAL

* 1. SECTION INCLUDES

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Class 2 and Class 3 standpipes are intentionally not specified for commercial construction projects at LANL. Both Class 2 and Class 3 standpipes require occupant training, permanent hoses and hose maintenance regimens.

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1. Hydraulically designed Class 1 [combined; automatic wet; manual wet; automatic dry; manual dry] standpipe system.
2. Specialty Valves for standpipe systems.
3. Fire Department Connections for standpipes.
	1. RELATED SECTIONS
4. Section 01 2500, *Substitution Procedures*
5. Section 01 3300, *Submittal Procedures*
6. Section 01 3545, *Water Discharge Requirements*
7. Section 01 4000, *Quality Requirements – Non-Nuclear*
8. Section 01 6000, *Product Requirements*
9. Section 01 7700, *Closeout Procedures*
10. Section 01 7839, *Project Record Documents*
11. Section 21 0500, *Common Work Results for Fire Suppression*
12. Section 21 0523, *General-Duty Valves for Water-Based Fire-Suppression Piping*
13. Section 21 1300, *Fire-Suppression Sprinkler Systems*
	1. REFERENCES
14. ASTM A536 – Standard Specification for Ductile Iron Castings
15. ASTM A795/A795M – Standard Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Fire Protection Use
16. ASTM B61 – Standard Specification for Steam or Valve Bronze Castings
17. NFPA 14 – Standard for the Installation of Standpipe and Hose Systems
18. NFPA 25 – Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
19. NFPA 1963 – Standard for Fire Hose Connections
20. UL 405 – Standard for Safety Fire Department Connection Devices
21. UL (DIR) – Online Certifications Directory.
	1. DELEGATED DESIGN SUBMITTALS
22. Submit shop drawings, corresponding hydraulic calculations and product data to the LANL Fire Marshal’s office for approval.
23. Product Data: Provide manufacturer's catalog data for equipment indicating rough-in size, finish, and accessories.
24. Shop Drawings: Indicate supports, components, accessories, and sizes.
25. Hydraulic Calculations.
	1. INFORMATIONAL SUBMITTALS
26. Completed “Contractor’s Materials and Test Certificate for Aboveground Piping”.
27. Project Record Documents: Record Documents reflecting final installed conditions. Include Drawings [and 3D model] and the corresponding Hydraulic Calculations.
28. Operation and Maintenance Data: Manufacturer’s data including parts diagrams, lists of spare parts, and service requirements.
	1. QUALITY ASSURANCE
29. Perform Work in accordance with [NFPA 14](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=NFPA%2014). One bound copy of the applicable edition of NFPA 14 shall remain on site and accessible while work is being performed.
30. Designer Qualifications: Design system under direct supervision of a [Professional Fire Protection Engineer experienced in fire suppression design and licensed in NM state; NICET Level III certified technician “Water-Based Systems Layout”]. Drawings and calculations shall be sealed by NICET Level III or Professional Engineer.
31. Installer Qualifications: Company specializing in performing the Work of this section [with documented experience; with minimum \_\_\_ years documented experience; \_\_\_\_\_; or None - N/A].
	1. DELIVERY, STORAGE AND HANDLING
32. Deliver and store products in shipping packaging until installation.
	1. WARRANTY
33. See Section 01 7700, *Closeout Procedures* for additional warranty requirements*.*
34. Correct defective Work within one year following the date of Substantial Completion.

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Select galvanized pipe and fittings for MANUAL AND DRY standpipe systems.

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PART 2 PRODUCTS

1. 1. PIPE AND FITTINGS
2. For pipe and fittings, refer to Section 21 0500, *Common Work Results for Fire Suppression*.
	1. VALVES
3. General Duty Valves: Refer to Section 21 0523, General**-**Duty Valves for Water**-**Based Fire**-**Suppression Piping.
4. Specialty Valves:
5. Hose Connection Valve:

a. Manufacturers:

1. Elkhart Brass [U-30-2.5]
2. Potter Roemer [4060; 4065; 4080; 4085]
3. Reliable [model HV].
4. Zurn [F100G]
5. \_\_\_\_\_\_\_\_\_\_.
6. Substitutions: [Alternate products may be accepted, follow Section 01 2500, *Substitution Procedures*; or Not permitted – No substitutions].

b. Angle type: [brass; chrome plated] finish; [2-1/2 inch NPS], thread to match fire department hardware, [300 psi; \_\_\_\_ psi] working pressure, with threaded cap and chain of same material and finish.

1. Pressure Reducing Valve:

a. Manufacturers:

1. Elkhart Brass [UP-35-2.5; UR-35.2.5; URFA-25]
2. Potter Roemer [4023-FA2; 4033; 4035; 4053-FS2]
3. \_\_\_\_\_\_\_\_\_\_*.*
4. Substitutions: [Alternate products may be accepted, follow Section 01 2500, *Substitution Procedures*; or Not permitted – No substitutions].

b. [Angle; Straight] type: [brass; chrome plated] finish with inner hydraulic controls; [2 inch; 2-1/2 inch; 8 inch; \_\_\_\_\_ inch] size, thread to match fire department hardware, [400 psi; \_\_\_\_ psi] inlet pressure, with threaded cap and chain of same material and finish.

1. Pilot Operated Control Valves:

a. Manufacturers:

1. Zurn Industries, LLC [ZW209FP].
2. Cla-Val [90-21]*.*
3. Reliable [model PRV]*.*
4. Substitutions: [Alternate products may be accepted, follow Section 01 2500, *Substitution Procedures*; or Not permitted – No substitutions].

b. Size: [2-1/2 to 8 inch, NPS; 2-1/2 inch, NPS; \_\_\_\_\_ inch, NPS; As indicated on drawings; or \_\_\_\_\_\_\_\_\_\_], [flanged; grooved; threaded; or \_\_\_\_\_\_\_\_\_] end-connections.

c. Type: Field adjustable in-line valve rated for [400 psi; \_\_\_\_ psi] inlet pressure with outlet discharge field-set to system pressure.

d. Construction:

1. Body: [ASTM A536](http://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20A536), ductile iron, grade 65-45-12.
2. Internal Ferrous Materials: Coated with 4 mils of epoxy.
3. External Surface Coating: 4 mils of epoxy and fire red enamel.
4. Main Valve Seat Ring: [ASTM B61](http://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20B61), bronze.
5. Stem: Stainless Steel.
6. Elastomers for Diaphragms, Resilient seats, and O-rings: Buna-N.
7. Pilot Control: [ASTM B61](http://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20B61), bronze with stainless steel trim and pressure gages.
8. [In-line; Angle; or \_\_\_\_\_\_\_\_\_] Floor Control Valves:

a. Manufacturers:

1. Reliable [FCA].
2. Potter Roemer [4032-FA1].
3. Zurn [ZW5004].
4. \_\_\_\_\_\_\_\_\_\_.
5. Substitutions: [Alternate products may be accepted, follow Section 01 2500, Substitution Procedures; or Not permitted – No substitutions].

b. Cast bronze, [2-1/2 inch, NPS], [handwheel operated; bonnet operated; or \_\_\_\_\_\_\_\_\_\_] globe valve with [grooved; threaded; or \_\_\_\_\_\_\_\_\_] end connections, rated for [400 psi; \_\_\_\_ psi] maximum inlet pressure with outlet discharge [factory; field; or \_\_\_\_\_\_\_\_\_]-set to system inlet pressure. Provide [integral normally-closed supervisory switch; integral normally-open supervisory switch; cap; chain; and \_\_\_\_\_\_\_\_\_].

* 1. FIRE DEPARTMENT CONNECTIONS
1. Type: [Free standing; Flush, wall mount; Exposed, projected wall mount] made of corrosion resistant metal[ complying with UL 405].
2. Manufacturers:
	1. Elkhart Brass Manufacturing Company.
	2. Fire End & Croker Corporation*.*
	3. Potter Roemer.
	4. \_\_\_\_\_\_\_\_\_\_*.*
	5. Substitutions: [Alternate products may be accepted, follow Section 01 2500, *Substitution Procedures*; or Not permitted – No substitutions].
3. Inlets: [Two; Three; Four; or \_\_\_\_\_]-way, [2-1/2 inch] swivel fittings, internal threaded. Brass caps with gaskets, chains, and lugs.
4. Configuration: [Horizontal; Vertical; Square; or \_\_\_\_\_\_].
5. Outlet: [With pipe threads; Back with pipe threads; Bottom with pipe threads; or \_\_\_\_\_], [4 inch NPS; 5 inch NPS; 6 inch NPS; \_\_\_\_\_ inch NPS].
	1. Location: [Back; Bottom; Left; Right; or \_\_\_\_\_].
6. Rated Working Pressure: [175 psi].
7. Finish: [Chrome; Polished chrome; Brass or bronze; Polished brass; or \_\_\_\_\_].
8. Sleeve: [Brass; \_\_\_\_\_; or None - N/A], [18 inches] height.
9. Signage: Raised or engraved lettering [1 inch] minimum indicating system type.

PART 3 EXECUTION

1. 1. INSTALLATION
2. Install in accordance with manufacturer's instructions and [NFPA 14](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=NFPA%2014).
3. Connect standpipe system to water source ahead of domestic water connection.
4. Where static pressure exceeds [100 psi; \_\_\_\_ psi] but is less than [100 psi; \_\_\_\_ psi] at any hose station, provide pressure orifice disc in discharge of hose station valve to prevent pressure on hose exceeding [90 psi; \_\_\_\_ psi].
5. Where static pressure exceeds [100 psi; \_\_\_\_ psi] at any hose station, provide pressure reducing valve to prevent pressure on hose exceeding [90 psi; \_\_\_\_ psi].
6. Flush entire system of foreign matter.
	1. FIELD QUALITY CONTROL
7. Perform field [inspection and; \_\_\_\_\_\_\_\_\_\_\_; or None - N/A] testing*.*
8. Test entire system and document in accordance with [NFPA 14](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=NFPA%2014).
9. Test shall be witnessed by a representative of the LANL Fire Marshal.
10. An executed Contractor’s Materials and Test Certificate for Aboveground Piping shall be signed by the installing subcontractor and a representative of the LANL Fire Marshal.

END OF SECTION

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Do not delete the following reference information:

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THE FOLLOWING STATEMENT IS FOR LANL USE ONLY

This project specification section is based on LANL Master Specification Section 21 1200 Rev. 0, dated December 5, 2024.