

WATER SUPPLY OPTIONS FOR NEW CONSTRUCTION PROJECTS



Falcon Fire Protection District
7030 Old Meridian Road
Falcon, CO 80831
719-495-4050
www.falconfirepd.org

The follow information has been culminated to assist those involved in new construction and development of properties within in the Falcon Fire District to better understand the requirements and options available to achieve the minimum fire flow as established by the 2003 International Fire Code.

OUR MISSION STATEMENT:

The Falcon Fire Protection District is a public service provider that stands ready to protect and serve our community with pride and respect.

Identify Your Fire Flow Requirements

Refer to **Appendix B, Table B105.5** and **Appendix C, Table C105.1** of the 2003 International Fire Code (IFC), as locally amended to determine the required fire flow and required number of hydrants.

- A 50% reduction in required fire flow may be granted by the Fire Code Official if the structure is equipped throughout with a NFPA compliant fire sprinkler system.

Once the fire flow has been determined, any one of the following fire protection water supply options may be used to achieve the fire flow requirement.

- 1) Utilize an Existing Water District
- 2) Establish a Centralized Water System (Water District)
- 3) Install an Underground Water Cistern
- 4) Contribute to the Rural Water Fund

OPTION 1 – Utilize an Existing Water District

There are currently eleven water service providers within the Falcon Fire Protection District. Tapping into an existing water service main may achieve compliance for the required fire flow.

For details regarding tapping into an existing system, please contact the applicable water service provider below.

WATER PROVIDER	CONTACT TELEPHONE
4-Way Ranch	(719) 495-2500
Bobcat Meadows	(719) 687-2386
Camelot Meadows	(719) 351-7438
Cherokee Metro District	(719) 597-5080
Colorado Springs Utilities	(719) 448-4800
Falcon Heights	(719) 683-4496
Falcon Highlands	(719) 886-4288
Paint Brush Hills Metro District	(719) 495-8188
Meridian Service Metro District	(719) 495-6567
Sage Water Users Association	(719) 660-3076
Woodmen Hills Metro District	(719) 495-2500

OPTION 2 – Establish a Centralized Water System

Although not a common solution to resolve fire flow requirements, establishing a centralized water system may be an option, specifically if you are developing a large commercial or residential project.

OPTION 3 – Underground Fire Protection Cistern

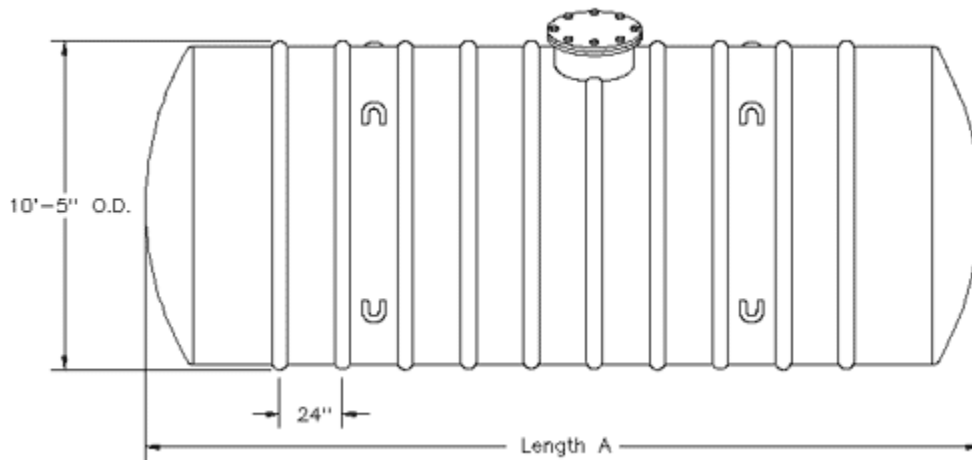
If a centralized water supply is not readily available to tie into, an underground cistern installed on-site may be a suitable option.

- All cisterns shall be installed in accordance with the requirements of the Falcon Fire Protection District (See Appendix A for details).

The total capacity of the cistern should achieve the requirements of the IFC based upon total square footage, construction type and duration. However, it should be noted that the smallest cistern size recognized by the Insurance Service Organization (ISO) is 30,000 gallons. It is recommended that the developer/builder meet with the Fire Code Official to discuss cistern capacities.

If you choose to install a cistern, any cost associated with purchasing, installing, hauling, filling and maintaining the cistern is the responsibility of the owner.

If a fire sprinkler system is installed, the capacity of the water cistern may need to be increased to accommodate the fire flow requirements as well as the fire sprinkler demand.



OPTION 4 – Rural Water Fund Contribution

For smaller projects, the applicant may request to participate in the Falcon Fire Protection District's Rural Water Fund (RWF).

If accepted, a financial contribution will be made into an account that is utilized to strategically place fire protection cisterns throughout the Fire District. This contribution may also be used to acquire resources to shuttle water from the cistern to a fire incident, for example water tenders, hose, fuel and personnel. By choosing this option the fees associated with purchasing, installing, hauling, and maintaining the cistern would be avoided.

- The contribution amount will be based upon a rate of \$0.75 cents per gallon of required water as calculated in accordance with the most current edition of NFPA Standard 1142, *Standard for Water Supplies for Urban and Rural Fire Fighting*.
- The minimum water supply in gallons, which is determined by the following formula:

$$WS_{\min} = \frac{VS}{OHC}(CC)$$

WS_{min} = Minimum Water Supply in Gallons

VS = Total Volume of Structure in Cubic Feet
(Total Square Footage X Average Height)

OHC = occupancy hazard classification

CC = Construction Classification

Occupancy Hazard Classification (See NFPA 1142 for Details)	Description
3	Severe Hazard Occupancies (Flammable Liquid Spraying – Sawmills – Etc.)
4	High Hazards (Commercial Barns – Department Stores – Theaters – Feed Stores – Mercantile – Repair Garages – Warehouses – Etc.)
5	Moderate Hazard Occupancies (Storage of Combustibles shall not exceed 12-feet) (Amusement Occupancies – Laundries – Machine Shops – Restaurants – Unoccupied Buildings – Etc.)
6	Low Hazard Occupancies (Parking Garages – Bakeries – Barbers Shops – Churches – Doctors Offices – Gas Service Stations – Municipal Buildings – Post Offices – Etc.)
7	Light Hazard Occupancies (Apartments – Dwellings – Fire Stations – Hospitals – Hotels/Motel – Libraries – Nursing Homes – Schools – Etc)

Construction Type (See NFPA 1142 for Details)	Classification Number
Type I (442 or 332)	0.5
Type II (222, 111, or 000)	0.75
Type III (211 or 200)	1.0
Type IV (2HH)	0.75
Type V (111 or 000)	1.5

The Minimum Water Supply figure determined from the above equation is then multiplied by the Rate-per-Gallon of \$0.75.

The sum of this equation provides the required contribution to the Rural Water Fund.

Example:

12,000 square ft, Type V with an average height of 10 ft.

Assume a hazard classification of 7 and that the current rate per gallon of required water is \$0.75.





$$\frac{120,000}{7}(1.5) = 25,714 \text{ (minimum water supply)}$$

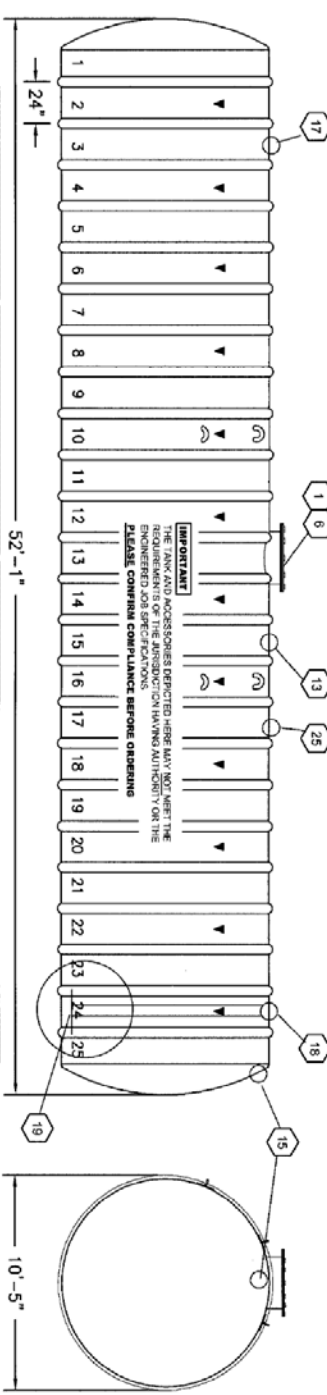
$$25,714 \times \$0.75 = \mathbf{\$19,285.50 = Rural Water Fund Contribution}$$

References & Additional Resources:

- National Fire Protection Association - Standard 1142 – www.nfpa.org
- 2003 International Fire Code – www.iccsafe.org
- 2003 International Fire Code - Local Amendments of the Falcon Fire Protection District – www.falconfirepd.org
- El Paso County Development Services Office - http://adm.elpasoco.com/Development_Services
- Darco Inc. - <http://www.darcoinc.com/fire-cisterns.html>

APPENDIX A

TO _____ FIRM Falcon Fire Protection District PROJECT Falcon FD Minimum Draft QUOTE # A07205-R2 DATE 09.18.08 PHONE _____ FAX _____ EMAIL _____ STANDARD D-5 NOM. CAPACITY 30,000 NOM. WEIGHT 8,000# POTABLE _____ NON-POTABLE <input checked="" type="checkbox"/> USE Fire Cistem SITE LOCATION Falcon Fire District COUNTY El Paso INCLUDED WITH THIS FIBERGLASS UNDERGROUND TANK QUOTATION	PREPAID PRICE _____ TAX ADD 2.9% DEPOSIT 33% with order FREIGHT DETAILS ESTIMATED to Falcon, CO DELIVERY: 8-10 WEEKS FROM ORDER ACCEPTANCE EXCLUDED IN THIS PRICE QUOTATION	1 - 30"Dx36" T manway-hinged or bolted cover 6 - 4" lockable inspection hatch on manway 13 - 6" PVC vent head-screamed 15 - High water level control assembly 17 - Stormse refill w/2-2.5" NST-FS connections 18 - 6" NST-F dry hydrant head BURY DETAILS 36" typical-rated for 60" bury depth WATER SOURCE _____ ANTI-BUOYANCY _____ APPROVALS Local Fire District COMMENTS: Minimum draft design.
NOTES: ANCHOR STRAPS (IF USED)  DEADMAN ANCHORS, 4 EACH SIDE (IF USED)  12" 	IMPORTANT: REVIEW DARCO STRUCTURAL SPECIFICATIONS AND LIMITED WARRANTY BEFORE APPROVAL / GRAVEL BED AND 100% GRAVEL ENCAPSULATION REQUIRED / MAXIMUM BURY DEPTH FOR STANDARD FIBERGLASS VESSELS IS 5 FEET / SEE DARCO WEB SITE FOR INSTALLATION DETAILS AND APPROVED MATERIALS / FIRE SERVICE DESIGNS MUST HAVE PRIOR FIRE DEPARTMENT APPROVAL / DARCO FACTORY QUOTES ARE HONORED FOR 30 DAYS ONLY. APPROVED: _____ DATE: _____ <input type="checkbox"/> PAID <input type="checkbox"/> MANUAL RELEASE	DARCO FIBERGLASS TANK - 10D - 30K (30,000 Gal.) Rev Date 12/12/06  980 Darco Drive, Bennett, Colorado 80102 800-232-8660 (phone) 303-644-5001 (fax) www.darcoinc.com Rev. No. G



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