



Residential Fire Flow Requirements

Wildland Urban Interface



This information publication has been provided in an effort to reduce confusion regarding fire flow requirements for residential structures built within the designated wildland urban interface (<http://adm.elpasoco.com/Development%20Services/Documents/FireHazards.pdf>) of the Falcon Fire Protection District. Per the locally adopted International Fire Code, one- and two-family dwellings shall be provided with fire suppression water further referred to as “fire flow”.

URBAN ENVIRONMENTS WITH CENTRALIZED WATER SYSTEMS (Fire Hydrants)

Appendix B of the International Fire Code, requires a minimum of 1000-gpm for home less than 3,600 square feet, and for homes exceeding 3,600 square feet refers to a table that recognized construction type and square footage to identify a fire flow in gallons-per-minute over a specific duration.

RURAL WATER/WELL AREAS

The adopted fire code allows for National Fire Protection Association (NFPA) Standard 1142 to be utilized in rural areas without a centralized water system (without mains/fire hydrants). This standard bases the required fire flow on the *total cubic volume* of the structure and a *hazard classification*.

ALTERNATIVES TO PROVIDING THE REQUIRED FIRE FLOW (fire sprinklers/cistern/rural water fund)

As an alternative to providing the code required fire flow, the Falcon Fire Department will accept the installation of an NFPA compliant residential fire sprinkler, an approved fire water cistern or a contribution to the Rural Water Fund (RWF).

Be advised that the Insurance Service Office (ISO) has recognized the FFD having a fire flow delivery rate of 300-gpm in non-hydranted areas. The Falcon Fire Department Board of Directors is allowing an increase in this amount to 500-gpm to reduce the burden on construction and development.

PLAN SUBMITTALS & FIRE FLOW OPTIONS

When submitting residential plans located within the wildland urban interface, please document the following information on the construction plans:

- Total cubic volume of entire structure (including all finished and non-finished areas, attached garage and attic space). Be advised if a detached garage/structure is located less than 100 lineal feet from the residence, the volume shall also be added to the total volume.
- If the total cubic volume calculated *exceeds 46,670 cubic feet*, the structure will require more than the 500-gpm delivered to the location. Please indicate how you will achieve the additional fire flow difference (Fire Hydrant, Cistern, Fire Sprinklers or a contribution to the Rural Water Fund).

If you choose the Rural Water Fund contribution, please include the following calculation on the construction plans:

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

Where:

WS_{min} = minimum water supply in gallons

VS_{tot} = total volume of structure in cubic feet

OHC = occupancy hazard classification number (residential in the interface = 7)

CC = construction classification number (wood frame = 1.5)

Table 4.6.1 – NFPA 1142 (2012 Edition)		
Cubic Volume	Required, minimum water supply (WS_{min})	Fire Flow Delivery Rate
0-46,669	2,500-9,999 gallons	500-gpm (This amount will be hauled to the location by the Fire Department as available)
46,670-93,332	10,000-19,999 gallons	750-gpm (This amount exceeds the Fire Departments hauling ability by 250-gpm which will need to be provided by the owner)
93,333 and more	≥ 20,000 gallons	1,000-gpm (This amount exceeds the Fire Departments hauling ability by 500-gpm which will need to be provided by the owner)

Sample 1 (Include this information if the structure requires 500-GPM or LESS by NFPA 1142):

Total cubic volume of structure / 7 X 1.5 = ??? Minimum Water Supply (Rate Flow Delivery = 500 GPM)

The total cubic volume of the proposed structure is ??? and according to NFPA 1142, the required fire flow delivery rate is 500-gpm. Therefore, FFD will haul the required fire flow to this site when available,

NO OWNER ACTION REQUIRED TO PROVIDE THE FIRE FLOW

Sample 2 (Include this information if the structure requires 750-GPM or MORE by NFPA 1142):

Total cubic volume of structure / 7 X 1.5 = ??? Minimum Water Supply (Flow Delivery Rate = 750 GPM)

If the result exceeds 500-gpm, take the difference (either 250 or 500) and plug it into the following equation:

Since FFD provides 500gpm, this structure is 250-GPM short of the NFPA 1142 requirement of 750-gpm.

*250gpm X \$0.75 X 30-minute duration = **\$5625.00 RWF contribution***

The home owner has agreed to make a contribution to the Falcon Rural Water Fund in lieu of meeting the required fire flow identified in the International Fire Code.