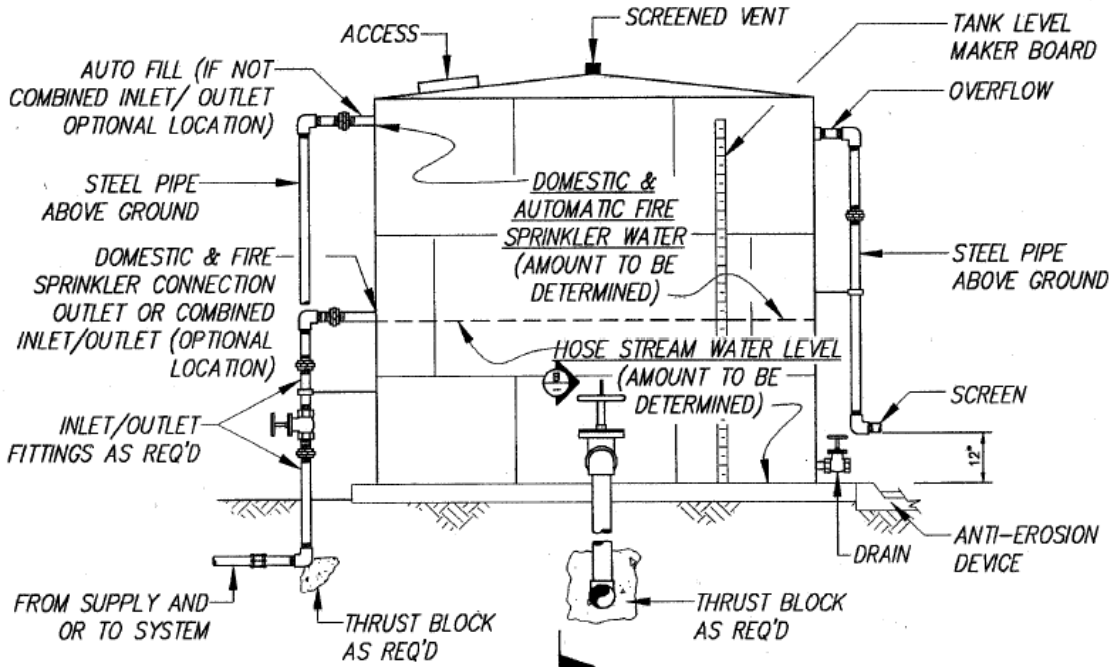


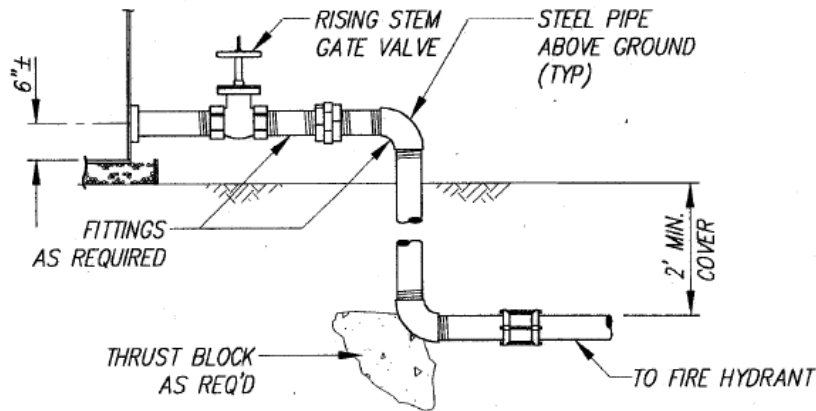
K. Water Tank and Hydrant Diagrams (Ventura County)<sup>1</sup>

**FIGURE 1**  
**TANK INSTALLATION GUIDELINE FOR RESIDENTIAL**  
**AND MINOR ACCESSORY USE BUILDINGS**



**A FIRE HYDRANT TANK OUTLET**

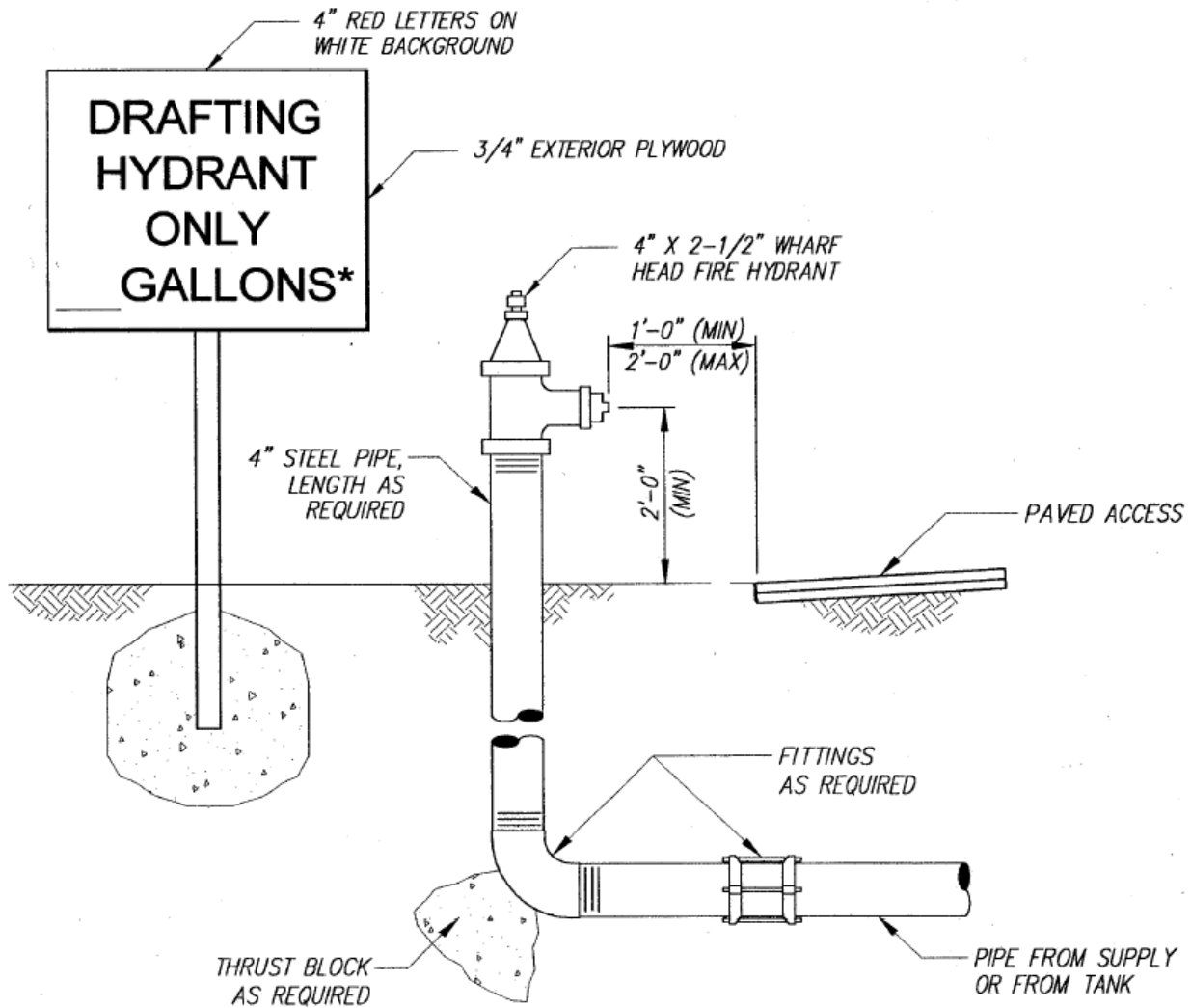
NOTES: 1. CERTAIN ITEMS MAY BE ROTATED FOR CLARITY. NOT TO SCALE  
 2. WATER TANKS 5000 GALLONS AND GREATER REQUIRE BUILDING PERMITS AND COULD REQUIRE ADDITIONAL AGENCY APPROVALS.



**B FIRE HYDRANT TANK OUTLET**  
 NOT TO SCALE

<sup>1</sup> <http://fire.countyofventura.org/LinkClick.aspx?fileticket=0DzHf1sWaDY%3d&tabid=58>

FIGURE 2



NOTES:

1. SIGN FOR DRAFTING HYDRANT REQUIRED IF RESIDUAL PRESSURE AT DESIGN FLOW IS LESS THAN 20 PSI
2. AMOUNT OF WATER RESERVED FOR HOSE STREAM. EXAMPLE: 5,000 GALLONS



**TYPICAL "WHARF" FIRE HYDRANT INSTALLATION**

NOT TO SCALE

**FIGURE 3**

**CALCULATING TANK LEVELS**

EXAMPLE: - 3000 square foot dwelling, using a 10 foot diameter tank

Requirements from Fire Prevention Standard 14.5.1, Table A:

Minimum Tank Size	Reserved for Hose	Automatic Fill Level
4750 gallons	2500 gallons	4000 gallons

**DETERMINING HEIGHTS WHEN DESIGNING PRIVATE WATER SYSTEMS:**

Formula:  $A = \pi R^2$

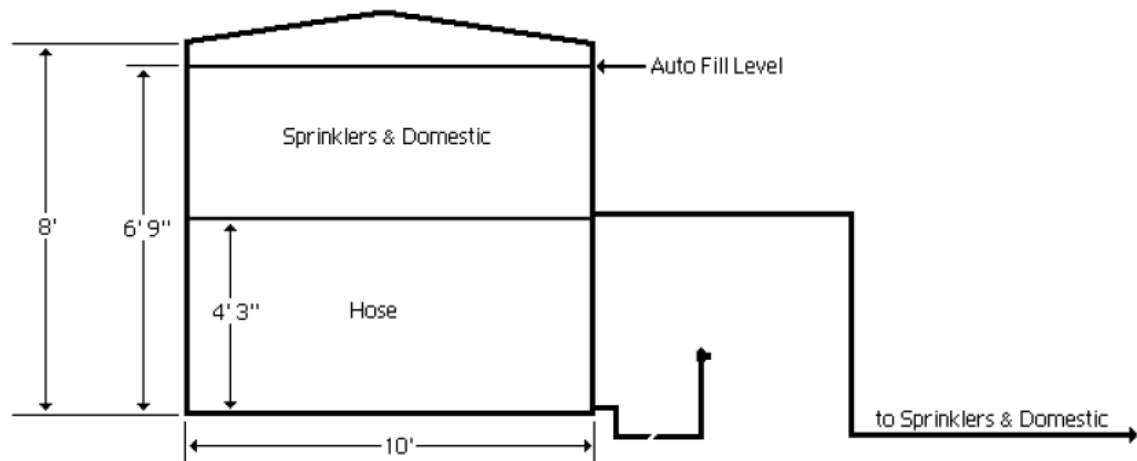
$$3.1416 \times 25 = 78.54 \text{ cu. ft. (per ft. of height)}$$

There are 7.48 gallons per cubic ft.:

$$7.48 \times 78.54 = 587.47 \text{ gallons per ft. of height}$$

Minimum water heights:

Tank	Sprinkler/Domestic Connection	Auto Fill Height
$4750 \div 587 = 8$	$2500 \div 587 = 4.25$	$4000 \div 587 = 6.8$
8'	4' 3"	6' 9"



**DETERMINING GALLONS WHEN INSPECTING:**

Formula:  $A = \pi R^2$

$$3.1416 \times 25 = 78.54 \text{ cu. ft. (per ft. of height)}$$

There are 7.48 gallons per cubic ft.:

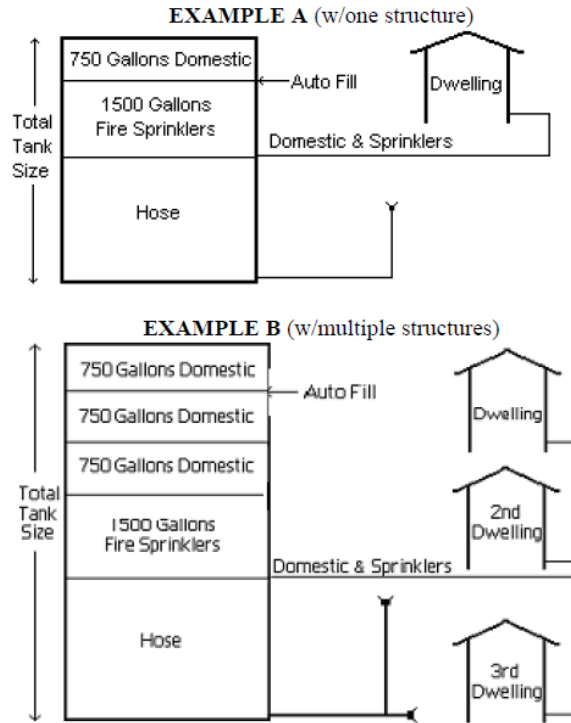
$$7.48 \times 78.54 = 587.47 \text{ gallons per ft. of height}$$

$$8' \times 587 = 4696 \text{ gallons} \quad 4.25' \times 587 = 2494 \text{ gallons} \quad 6.8' \times 587 = 3991 \text{ gallons}$$

**FIGURE 4**

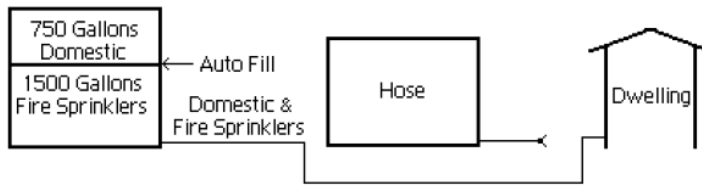
DETERMINING TANK SIZE WHEN SERVING 2 – 4 CONNECTIONS

(Requirements assume only one structure will be on fire at a time)



PRIVATE WATER SYSTEMS SERVING MORE THAN (4) FOUR CONNECTIONS (EACH STRUCTURE SERVED IS A CONNECTION) ARE OUTSIDE THE SCOPE OF STANDARD 14.5.1 AND ARE REQUIRED TO COMPLY WITH THE VENTURA COUNTY WATERWORKS MANUAL AND THE ENVIRONMENTAL HEALTH DEPARTMENT (EHD).

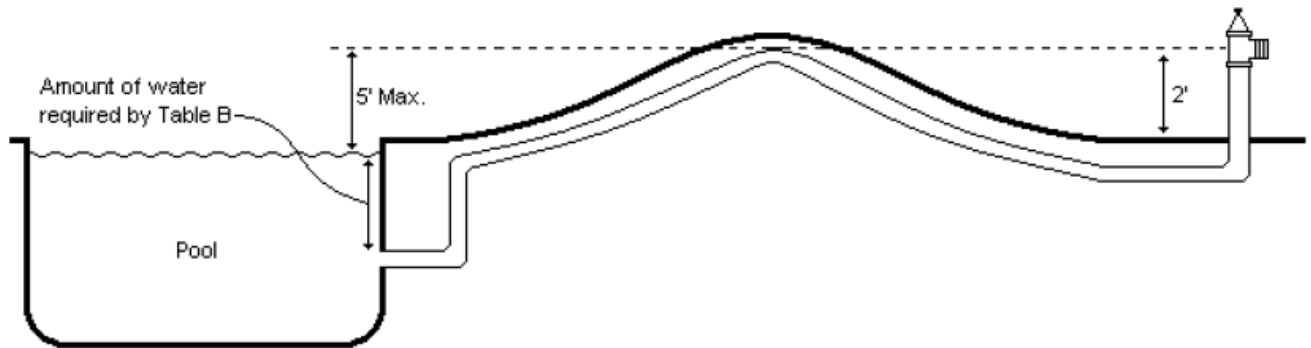
**EXAMPLE C (w/multiple tanks)**



Domestic and sprinkler may come from a purveyor or a tank which includes both the domestic and sprinkler water.  
 Hose supply must come from a tank. (A swimming pool may be used for this tank)

FIGURE 5

## SWIMMING POOL/TANK INFORMATION



- A pool may be used for hose reserve. (Domestic & sprinkler cannot come from a pool)
- Hydrant piping must be a permanent connection to the bottom or side of the pool, such that the required amount of water is available above the connection at the pool.
- The connection and pipe size must be as required in Fire Prevention Standard 14.5.1.
- The hydrant outlet shall be 2 feet above the finished grade at the hydrant location.
- The level of the required amount of water shall not be more than 5 feet below the hydrant outlet.
- The piping from the pool to the hydrant shall not rise above the hydrant outlet.
- The connection may tee off the bottom drain (with the correct pipe size), but must do so before the equipment and must meet the above elevation issues.
- A check valve is not permitted in the piping.
- If water quality is a concern, the line can be flushed as needed.
- If the pool is not completed prior to construction, a temporary water tank must be provided before combustible materials are on site. (This may be the permanent tank to be used ultimately for sprinklers and domestic)
- The temporary tank must be sized to the amount of water required for a structure with sprinklers. Auto-fill is not required for the temporary tank. The pool must be completed at the time of final inspection, or the temporary tank must be retrofitted to comply with all requirements for a permanent tank.