BETTER PLACE FORESTS

**Date:** 12/19/19
**Re:** Plan of Public Service/Fire Consultation

---

**Plan of Public Service**

Better Place Forests plans to utilize an on-site well for water and on-site septic for sewage. For electricity, we intend to connect to the power line transecting the site. We will reach out to PG&E to confirm that this is a possibility in the coming months. If utility provided electricity is not an option we could alternatively utilize a propane tank and on-site generator for electricity.

**Fire Consultation**

On July 16, 2019, Better Place Forest's consulting civil engineer Keith Palmer had a phone call with Mariposa County Fire Department Battalion Chief John Morgan during which he determined a width of 12 feet would be sufficient for our proposed driveway in regards to fire access requirements. Keith also consulted with Darrin McCully of CAL FIRE who agreed with John's determination. See the attached phone record with John (Attachment A), attached phone record with Darrin (Attachment B), and email correspondence (Attachment C).

During the same phone call, John advised Keith to generate a minimum water tank storage requirement based on the *California Wildland-Urban Interface Code*. Applying this section of the code, Keith determined that the minimum water storage for this project is 3,279 gallons and a 5,000 gallon tank is proposed. See the attached phone record with John (Attachment A) and attached annotated County code document (Attachment D).

Attachment A

# PHONE RECORD

**Date:** 7/16/2019
**Call To:** John Morgan
**Call By:** Keith Palmer

**BKF Job Number:** 20190975
**Copy To:**

**Subject:** BPF-Mariposa, Dexter Rd

**SUMMARY:**

Use California Fire Code for access in Chapter 5
Section 4290 of public resource code
Fire access:

- 20' wide which is two 10' lanes.
- 16% max grade, 10% max grade if over 5000' elevation
- Driveways are 12' wide
- Need a traffic statement to determine requirements
- Commercial use requires 20' width but they may give flexibility if the use is small.
- We need to provide a traffic summary to determine width requirements.
- Also see Mariposa County road standards published in 90's or 2000's

Water supply:

- Per NFPA 1142 with a 2500 gallon minimum per Cal Fire.
- Tank shall be per NFPA 20 – lighting, ladders, etc may be required.

Attachment B

# PHONE RECORD

**Date:** 12/09/2019
**Call To:** Darrin McCully
**Call By:** Keith Palmer

**BKF Job Number:** 20190975
**Copy To:**

**Subject:** Fire requirements for driveway width

**SUMMARY:**

Darrin reviewed the site plan and said he would defer to John's determination on the reduced driveway width so we should proceed with the plans showing 12' width with turnouts.

Attachment C

**Keith Palmer**

---

**From:** Scott Roycroft <scott@betterplaceforests.com>
**Sent:** Monday, December 09, 2019 3:34 PM
**To:** Keith Palmer
**Cc:** Eric Swanson; Liam McNally; Morgan, John@CALFIRE; McCully, Darrin@CALFIRE; Lauren Ewald
**Subject:** Re: Better Place Forests at

Thanks Darrin, John, and Keith. We will include a note of this in our upcoming CUP application.

On Mon, Dec 9, 2019 at 3:27 PM Keith Palmer <kpalmer@bkf.com> wrote:

> Scott,
>
> Darrin said he would defer to John's determination on the reduced driveway width so we should proceed with the plans showing 12' width with turnouts.
>
> **KEITH PALMER, PE**
>
> Project Engineer
>
> **BKF ENGINEERS** Delivering Inspired Infrastructure
>
> 1646 N. California Blvd., Suite 400, Walnut Creek, CA 94596
>
> d 925.940.2232 kpalmer@bkf.com BKF.com
>
> **From:** Scott Roycroft [mailto:scott@betterplaceforests.com]
> **Sent:** Monday, December 09, 2019 2:58 PM
> **To:** Keith Palmer <kpalmer@bkf.com>
> **Cc:** Eric Swanson <eswanson@bkf.com>; Liam McNally <liam@betterplaceforests.com>
> **Subject:** Re: Better Place Forests at
>
> Keith - Have you gotten the chance to call Darrin yet? Please update us when you do.
>
> On Wed, Dec 4, 2019 at 2:09 PM Keith Palmer <kpalmer@bkf.com> wrote:

No response yet. I think Darrin's phone number is 209-966-3622. Do you want me to call?

**KEITH PALMER, PE**

Project Engineer

**BKF ENGINEERS** Delivering Inspired Infrastructure

1646 N. California Blvd., Suite 400, Walnut Creek, CA 94596

d 925.940.2232 kpalmer@bkf.com BKF.com

**From:** Scott Roycroft [mailto:scott@betterplaceforests.com]
**Sent:** Wednesday, December 04, 2019 1:08 PM
**To:** Keith Palmer <kpalmer@bkf.com>
**Cc:** Liam McNally <liam@betterplaceforests.com>
**Subject:** Re: Better Place Forests at

Any response from Darrin? If not, either you or I should reach out over the phone.

On Mon, Dec 2, 2019 at 10:33 AM Keith Palmer <kpalmer@bkf.com> wrote:

Darrin,

Can you take a few minutes to review the access for this commercial project. We are requesting a narrower access road as outlined in the first email in this string. You should be able to download the conceptual site plan from the link in that email.

**KEITH PALMER, PE**

Project Engineer

**BKF ENGINEERS** Delivering Inspired Infrastructure

1646 N. California Blvd., Suite 400, Walnut Creek, CA 94596

d 925.940.2232 kpalmer@bkf.com BKF.com

**From:** Morgan, John@CALFIRE [mailto:John.Morgan@fire.ca.gov]
**Sent:** Tuesday, November 19, 2019 4:42 PM
**To:** Keith Palmer <kpalmer@bkf.com>
**Cc:** 'Scott Roycroft' <scott@betterplaceforests.com>; Eric Swanson <eswanson@bkf.com>; 'Gia DeBartolo' <gia@betterplaceforests.com>; 'Mark Forster' <mark@betterplaceforests.com>; 'Lauren Ewald' <lewald@fletcherstudio.com>; McCully, Darrin@CALFIRE <Darrin.McCully@fire.ca.gov>
**Subject:** Re: Better Place Forests at

Keith,

Thank you for the reminder. I've included Darrin McCully with CAL FIRE to assist with this being that he would typically be the one to write the CAL FIRE comments. From a County Fire perspective, I have reviewed the site plan and would recommend approval.


*John Morgan*

***CAL FIRE***

**Battalion Chief**

**Mariposa County Fire Department**

**Madera-Mariposa-Merced**

**4802 Hwy 140**

**Mariposa, CA 95338**

**(209)966-4330 Office**

**(209)347-6242 Cell**

**john.morgan@fire.ca.gov**


---

**From:** Keith Palmer <kpalmer@bkf.com>
**Sent:** Tuesday, November 19, 2019 3:58 PM
**To:** Morgan, John@CALFIRE <John.Morgan@fire.ca.gov>
**Cc:** 'Scott Roycroft' <scott@betterplaceforests.com>; Eric Swanson <eswanson@bkf.com>; 'Gia DeBartolo' <gia@betterplaceforests.com>; 'Mark Forster' <mark@betterplaceforests.com>; 'Lauren Ewald'

<lewald@fletcherstudio.com>
**Subject:** RE: Better Place Forests at

**Warning:** this message is from an external user and should be treated with caution.

John,

Have you had a chance to review the site plan in regards to the email below?

**KEITH PALMER, PE**

Project Engineer

**BKF ENGINEERS** Delivering Inspired Infrastructure

1646 N. California Blvd., Suite 400, Walnut Creek, CA 94596

d 925.940.2232 kpalmer@bkf.com BKF.com


**From:** Keith Palmer
**Sent:** Tuesday, November 12, 2019 10:52 AM
**To:** 'john.morgan@fire.ca.gov' <john.morgan@fire.ca.gov>
**Cc:** Scott Roycroft <scott@betterplaceforests.com>; Eric Swanson <eswanson@bkf.com>; 'Gia DeBartolo' <gia@betterplaceforests.com>; 'Mark Forster' <mark@betterplaceforests.com>; 'Lauren Ewald' <lewald@fletcherstudio.com>
**Subject:** Better Place Forests at

John,

We spoke in July about design requirements for an upcoming construction project. There was one question you were not prepared to answer which is driveway width. You said that the requirement for commercial access is 20' but that a reduced width may be approved due to the limited development and use of the site but that you would need to review a traffic statement. We have prepared the following description of site visitation and use for this purpose. Also see the attached preliminary site plan.

We are proposing a 1500 sf visitor center for a business that will sell the right to scatter cremated remains next to trees on the site. Existing operations at other properties operated by Better Place Forests rarely see more than 10 visitors a day. Occasionally a large crowd comes for a spreading ceremony where 20 people are on site at one time for a few hours. The desire is for this site is to be capable of accommodating occasional groups up to 30 people and an average of 15 to 30 person visits spread out over the day. The average group size would probably remain about 2 people for 2 hours each. At least half of the time is spent outdoors, away from the visitor center. Visitation of the site typically involves gathering at the visitor center and a hike around the property. Mobility quads are used to transport visitors with limited mobility on the trails so cars will not be parked outside designated spaces.

Better Place Forests has relayed that they have counted vehicle occupancy for their existing sites and found 2 people per car is the average vehicle occupancy for tree selection and return visits. They do not have data for ceremonies but believe that assuming 3 people per car is about right. Ceremonies are larger events which would commonly include extended family and friends. Typically peak event visitation would include 2 staff vehicles and 10 visitor vehicles. Disabled visitors are common so there will likely be 2 ADA compliant spaces instead of one at the visitor center and some additional parking near some of the most appealing points of interest. This site will be over parked for the expected 12 used spaces in order to provide an improved visitor experience. This should also avoid parking within the fire access. Visitation of all of the Better Place Forest sites is by appointment only. Appointments are used to improve visitor experience by limiting the number of vehicles at any one time and insure sufficient staff are available to help each group.

The visitor center is not intended to seat 30 people but would serve as a gathering point for groups entering or leaving the site. Design of the buildings have typically included a one person office, two bathrooms, a closet, a meeting room with seating for 6 to 8 people and a sheltered but open to the outdoors gathering area. One or more larger outdoor gathering areas will be located adjacent to the building.

We would like to upgrade the existing dirt/gravel road to 12' wide gravel surface with turnouts and a turnaround. Can you tell us if 12' width is going to be acceptable based on this project description?

**KEITH PALMER, PE**

Project Engineer

**BKF ENGINEERS** Delivering Inspired Infrastructure

1646 N. California Blvd., Suite 400, Walnut Creek, CA 94596

d 925.940.2232 kpalmer@bkf.com BKF.com

**Happy Holidays! Please note that all of our BKF offices will be closed Nov 28,29 and Dec 25 thru Jan 1 2020.
We are open Jan 2nd.

--

SCOTT ROYCROFT

Better Place Forests
+1 415 308 2339

betterplaceforests.com

--

SCOTT ROYCROFT

Better Place Forests
+1 415 308 2339

betterplaceforests.com

--

SCOTT ROYCROFT
Better Place Forests
+1 415 308 2339
betterplaceforests.com

Attachment D

# Fire water supply for Better Place Forests.

Apply Section B103.3 of the California Fire Code which allows use of NFPA 1142 in rural and suburban areas without adequate water supply systems.

California Fire Code Section B103.3:

## SECTION B103
## MODIFICATIONS

**B103.1 Decreases.** The fire chief is authorized to reduce the fire-flow requirements for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire-flow requirements is impractical.

**B103.2 Increases.** The fire chief is authorized to increase the fire-flow requirements where conditions indicate an unusual susceptibility to group fires or conflagrations. An increase shall not be more than twice that required for the building under consideration.

**B103.3 Areas without water supply systems.** For information regarding water supplies for fire-fighting purposes in rural and suburban areas in which adequate and reliable water supply systems do not exist, the fire code official is authorized to utilize NFPA 1142 or the *California Wildland-Urban Interface Code*.

## Chapter 5 Classification of Occupancy Hazard

### 5.1 General.

**5.1.1*** The authority having jurisdiction, in conjunction with the fire department, upon obtaining the information specified in 4.1.1, shall determine the occupancy hazard classification number according to this chapter. These classification numbers shall range from 3 through 7.

**5.1.2** Where more than one occupancy is present in a structure, the occupancy hazard classification number for the most hazardous occupancy shall be used for the entire structure.

### 5.2* Occupancy Hazard Classification Number.

#### 5.2.1* Occupancy Hazard Classification 3.

**5.2.1.1*** Occupancy Hazard Classification 3 shall be used for severe hazard occupancies.

**5.2.1.2** When an exposing structure is of occupancy hazard classification 3, it shall be considered an exposure hazard if within 50 ft (15.24 m), regardless of size.

**5.2.1.3** This classification shall include occupancies with operations or functions similar to the following:

(1) Cereal or flour mills
(2) Combustible hydraulics
(3) Cotton picker and opening operations
(4) Die casting
(5) Explosives and pyrotechnics manufacturing and storage
(6) Feed and gristmills
(7) Flammable liquid spraying
(8) Flow coating/dipping
(9) Linseed oil mills
(10) Manufactured homes/modular building assembly
(11) Metal extruding
(12) Plastic processing
(13) Plywood and particle board manufacturing
(14) Printing using flammable inks
(15) Rubber reclaiming
(16) Sawmills
(17) Solvent extracting
(18) Straw or hay in bales
(19) Textile picking
(20) Upholstering with plastic foams

#### 5.2.2* Occupancy Hazard Classification 4.

**5.2.2.1*** Occupancy Hazard Classification 4 shall be used for high hazard occupancies.

**5.2.2.2** When an exposing structure is of occupancy hazard classification 4, it shall be considered an exposure hazard if within 50 ft (15.24 m), regardless of size.

**5.2.2.3** This classification shall include occupancies having conditions similar to the following:

(1) Barns and stables (commercial)
(2) Building materials supply storage
(3) Department stores
(4) Exhibition halls, auditoriums, and theaters
(5) Feed stores (without processing)
(6) Freight terminals
(7) Mercantiles
(8) Paper and pulp mills
(9) Paper processing plants
(10) Piers and wharves
(11) Repair garages
(12) Rubber products manufacturing and storage
(13) Warehouses, such as those used for furniture, general storage, paint, paper, and woodworking industries

#### 5.2.3* Occupancy Hazard Classification 5.

**5.2.3.1** Occupancy Hazard Classification 5 shall be used for moderate hazard occupancies, in which the quantity or combustibility of contents is expected to develop moderate rates of spread and heat release. The storage of combustibles shall not exceed 12 ft (3.66 m) in height.

**5.2.3.2** This classification shall include occupancy locations similar to the following:

(1) Amusement occupancies
(2) Clothing manufacturing plants
(3) Cold storage warehouses
(4) Confectionery product warehouses
(5) Farm storage buildings, such as corn cribs, dairy barns, equipment sheds, and hatcheries
(6) Laundries
(7) Leather goods manufacturing plants
(8) Libraries (with large stockroom areas)
(9) Lithography shops
(10) Machine shops
(11) Metalworking shops
(12) Nurseries (plant)
(13) Pharmaceutical manufacturing plants
(14) Printing and publishing plants
(15) Restaurants
(16) Rope and twine manufacturing plants
(17) Sugar refineries
(18) Tanneries
(19) Textile manufacturing plants
(20) Tobacco barns
(21) Unoccupied buildings

#### 5.2.4* Occupancy Hazard Classification 6.

**5.2.4.1** Occupancy Hazard Classification 6 shall be used for low hazard occupancies, in which the quantity or combustibility of contents is expected to develop relatively low rates of spread and heat release.

**5.2.4.2** This classification shall include occupancy locations similar to the following:

(1) Armories
(2) Automobile parking garages
(3) Bakeries
(4) Barber or beauty shops
(5) Beverage manufacturing plants/breweries
(6) Boiler houses
(7) Brick, tile, and clay product manufacturing plants
(8) Canneries
(9) Cement plants
(10) Churches and similar religious structures
(11) Dairy products manufacturing and processing plants
(12) Doctors' offices
(13) Electronics plants
(14) Foundries
(15) Fur processing plants
(16) Gasoline service stations
(17) Glass and glass products manufacturing plants
(18) Horse stables
(19) Mortuaries
(20) Municipal buildings
(21) Post offices
(22) Slaughterhouses
(23) Telephone exchanges
(24) Tobacco manufacturing plants
(25) Watch and jewelry manufacturing plants
(26) Wineries

**5.2.5* Occupancy Hazard Classification 7.**

**5.2.5.1** Occupancy Hazard Classification 7 shall be used for light-hazard occupancies, in which the quantity or combustibility of contents is expected to develop relatively light rates of spread and heat release.

**5.2.5.2** This classification shall include occupancy locations similar to the following:

(1) Apartments
(2) Colleges and universities
(3) Clubs
(4) Dormitories
(5) Dwellings
(6) Fire stations
(7) Fraternity or sorority houses
(8) Hospitals
(9) Hotels and motels
(10) Libraries (except large stockroom areas)
(11) Museums
(12) Nursing and convalescent homes
(13) Offices (including data processing)
(14) Police stations
(15) Prisons
(16) Schools
(17) Theaters without stages

While this project is for the disposal of human remains and includes gatherings of people, the structure does not include fire or embalming liquids and is generally for smaller numbers of people than a church for a very limited period of time and therefore falls more closeley in the Office Occupancy Hazard Classification. The Classification number of 7 will be used.

**6.2* Construction Classification Number.**

**6.2.1* Guide to Classification of Types of Building Construction.** Classification of types of building construction shall be in accordance with NFPA 220, *Standard on Types of Building Construction.*

**6.2.2 Type I (443 or 332) Construction [Construction Classification Number 0.5].** Type I construction shall be that type in which the structural members, including walls, columns, beams, girders, trusses, arches, floors, and roofs, are of approved noncombustible or limited-combustible materials and shall have fire resistance ratings not less than those specified in Table 6.2.2 (Table 3.1 in NFPA 220).

**6.2.3 Type II (222, 111, or 000) Construction [Construction Classification Number 0.75].** Type II construction shall be that type not qualifying as Type I construction in which the structural members, including walls, columns, beams, girders, trusses, arches, floors, and roofs, are of approved noncombustible or limited-combustible materials and shall have fire resistance ratings not less than those specified in Table 6.2.2. [**220:**3.2]

**6.2.4* Type III (211 or 200) Construction [Construction Classification Number 1.0].** Type III construction shall be that type in which exterior walls and structural members that are portions of exterior walls are of approved noncombustible or limited-combustible materials, and interior structural members, including walls, columns, beams, girders, trusses, arches, floors, and roofs, are entirely or partially of wood of smaller dimensions than required for Type IV construction or of approved noncombustible, limited-combustible, or other approved combustible materials. In addition, structural members shall have fire resistance ratings not less than those specified in Table 6.2.2. [**220:**3.3]

**6.2.5 Type IV (2HH) Construction [Construction Classification Number 0.75].** Type IV construction shall be that type in which exterior and interior walls and structural members that are portions of such walls are of approved noncombustible or limited-combustible materials. Other interior structural members, including columns, beams, girders, trusses, arches, floors, and roofs, shall be of solid or laminated wood without concealed spaces and shall comply with the provisions of 6.2.5.1 through 6.2.5.5. In addition, structural members shall have fire resistance ratings not less than those specified in Table 6.2.2.

*Exception No. 1: Interior columns, arches, beams, girders, and trusses of approved materials other than wood shall be permitted, provided they are protected to provide a fire resistance rating of not less than 1 hour.*

*Exception No. 2: Certain concealed spaces shall be permitted by the exception to 6.2.5.3.* [**220:**3.4.1]

**6.2.5.1** Wood columns supporting floor loads shall be not less than 8 in. (203 mm) in any dimension; wood columns supporting roof loads only shall be not less than 6 in. (152 mm) in the smallest dimension and not less than 8 in. (203 mm) in depth. [**220:**3.4.2]

**6.2.5.2** Wood beams and girders supporting floor loads shall be not less than 6 in. (152 mm) in width and not less than 10 in. (254 mm) in depth; wood beams and girders and other roof framing, supporting roof loads only, shall be not less than 4 in. (102 mm) in width and not less than 6 in. (152 mm) in depth. [**220:**3.4.3]

**6.2.5.3** Framed or glued laminated arches that spring from grade or the floor line and timber trusses that support floor loads shall be not less than 8 in. (203 mm) in width or depth. Framed or glued laminated arches for roof construction that spring from grade or the floor line and do not support floor loads shall have members not less than 6 in. (152 mm) in width and not less than 8 in. (203 mm) in depth for the lower half of the member height and not less than 6 in. (152 mm) in depth for the upper half of the member height. Framed or glued laminated arches for roof construction that spring from the top of walls or wall abutments and timber trusses that do not support floor loads shall have members not less than 4 in. (102 mm) in width and not less than 6 in. (152 mm) in depth.

*Exception: Spaced members shall be permitted to be composed of two or more pieces not less than 3 in. (76 mm) in thickness where blocked solidly throughout their intervening spaces or where such spaces are tightly closed by a continuous wood cover plate not less than 2 in. (51 mm) in thickness, secured to the underside of the members.* [**220:**3.4.4]

**6.2.5.3.1** Splice plates shall be not less than 3 in. (76 mm) in thickness. [**220:**3.4.4]

**6.2.5.4** Floors shall be constructed of splined or tongue-and-groove plank not less than 3 in. (76 mm) in thickness that is covered with 1-in. (25-mm) tongue-and-groove flooring, laid crosswise or diagonally to the plank, or with ½-in. (12.7-mm) plywood; or they shall be constructed of laminated planks not less than 4 in. (102 mm) in width, set close together on edge, spiked at intervals of 18 in. (457 mm), and covered with 1-in. (25-mm) tongue-and-groove flooring, laid crosswise or diagonally to the plank, or with ½-in. (12.7-mm) plywood. [**220:**3.4.5]

**6.2.5.5** Roof decks shall be constructed of splined or tongue-and-groove plank not less than 2 in. (51 mm) in thickness; or of laminated planks not less than 3 in. (76 mm) in width, set close together on edge, and laid as required for floors; or of 1⅛-in. (28.6-mm) thick interior plywood (exterior glue); or of approved noncombustible or limited-combustible materials of equivalent fire durability. [**220:**3.4.6]

**6.2.6 Type V (111 or 000) Construction [Construction Classification No. 1.5].** Type V construction shall be that type in which exterior walls, bearing walls, columns, beams, girders, trusses, arches, floors, and roofs are entirely or partially of wood or other approved combustible material smaller than material required for Type IV construction. In addition, structural members shall have fire resistance ratings not less than those specified in Table 6.2.2. [**220:**3.5]

WOOD FRAME

## Chapter 7 Calculating Minimum Water Supplies

**7.1 General.**

**7.1.1** After completing the structure survey and determining the construction classification number and the occupancy hazard classification number, the authority having jurisdiction shall compute the required minimum water supply.

**7.1.2** A structure shall be considered an exposure hazard if it is 100 ft$^2$ (9.29 m$^2$) or larger in area and is within 50 ft (15.24 m) of another structure. However, if a structure, regardless of size, is of occupancy hazard classification number 3 or 4, it shall be considered an exposure hazard if within 50 ft (15.24 m) of another structure.

STRUCTURE > 100 SF
SEPARATION < 50'
THEREFORE EXPOSURE HAZARD

**7.2 Structures Without Exposure Hazards.** For structures with no exposure hazards, the minimum water supply, in gallons, shall be determined by the total cubic footage of the structure, including any attached structures, divided by the occupancy hazard classification number as determined from Chapter 5, and multiplied by the construction classification number as determined from Chapter 6. *(See Annex H for sample calculations for structures without exposure hazards.)*

$$\text{minimum water supply} = \frac{\text{total volume of structure}}{\text{occupancy hazard classification number}} \times \text{construction classification number} =$$

**7.2.1** The minimum water supply required for any structure without exposure hazards shall not be less than 2000 gal (7570 L). *[See Table H.1.4(b).]*

MINIMUM WATER SUPPLY = 2000 GALLONS

TABLE H.1.4(b).

**7.2.2** The minimum water supply, as determined for any structure that is specified in Section 7.2 and 7.2.1, shall be provided for emergency operations.

**7.3 Structures with Exposure Hazards.**

**7.3.1** For structures with unattached structural exposure hazards, the minimum water supply, in gallons, shall be determined by the cubic footage of the structure, divided by the occupancy hazard classification number as determined from Chapter 5, multiplied from the construction classification number as determined from Chapter 6, and multiplied by 1.5. *(See Annex H for sample calculations for structures with exposure hazards.)*

STRUCTURE VOLUME = 1020SF x 10' HEIGHT = 10,200 CF

$$\text{minimum water supply} = \frac{\text{total volume of structure}}{\text{occupancy hazard classification number}} \times \text{construction classification number} \times 1.5$$

$\frac{10200}{7}$ X 1.5 X 1.5 = 3,279 GALLONS

**7.3.2** The minimum water supply required for structure with exposure hazards specified in 7.3.1 shall not be less than 3000 gal (11,355 L). *[See Table H.1.4(b).]*

MINIMUM NFPA WATER SUPPLY = 3,000 GALLONS
MINIMUM MARIPOSA WATER SUPPLY = 2,500 GAL

**7.4 Structures with Automatic Sprinkler Protection.**

**7.4.1** The authority having jurisdiction shall be permitted to waive the water supply required by this standard when a structure is protected by an automatic sprinkler system that fully meets the requirements of NFPA 13, *Standard for the Installation of Sprinkler Systems*; NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*; or NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height. (See Annex F.)*

THE MINIMUM WATER STORAGE FOR THIS PROJECT IS 3,279 GALLONS. A 5,000 GALLON TANK IS PROPOSED.

**7.4.2** If a sprinkler system protecting a building does not fully meet the requirements of NFPA 13, NFPA 13D, or NFPA 13R, a water supply shall be provided in accordance with this standard.

**7.5 Structures with Other Automatic Fire Suppression Systems.** For any structure fully or partially protected by an automatic fire suppression system other than as specified in Section 7.4, the authority having jurisdiction shall determine the minimum water supply required for fire-fighting purposes.

**Table H.1.4(b) Precalculated Minimum Water Supplies by Occupancy Hazard (5, 6, and 7) and Construction Classification (no exposures)**

| Occupancy Hazard Classification | 5 | | | | 6 | | | | 7 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Construction Classification | 0.5 | 0.75 | 1.0 | 1.5 | 0.5 | 0.75 | 1.0 | 1.5 | 0.5 | 0.75 | 1.0 | 1.5 |
| Volume ($ft^3$) | Gallons | | | | Gallons | | | | Gallons | | | |
| 8,000 | | | | 2,400 | | | | 2,000 | | | | |
| 1,000 | | | 2,400 | 3,600 | | | 2,000 | 3,000 | | | | 2,571 |
| 16,000 | | 2,400 | 3,200 | 4,800 | | 2,000 | 2,667 | 4,000 | | | 2,286 | 3,429 |
| 20,000 | 2,000 | 3,000 | 4,000 | 6,000 | | 2,500 | 3,333 | 5,000 | | 2,143 | 2,857 | 4,286 |
| 24,000 | 2,400 | 3,600 | 4,800 | 7,200 | 2,000 | 3,000 | 4,000 | 6,000 | | 2,571 | 3,429 | 5,143 |
| 28,000 | 2,800 | 4,200 | 5,600 | 8,400 | 2,333 | 3,500 | 4,667 | 7,000 | 2,000 | 3,000 | 4,000 | 6,000 |
| 32,000 | 3,200 | 4,800 | 6,400 | 9,600 | 2,667 | 4,000 | 5,333 | 8,000 | 2,286 | 3,429 | 4,571 | 6,857 |
| 36,000 | 3,600 | 5,400 | 7,200 | 10,800 | 3,000 | 4,500 | 6,000 | 9,000 | 2,572 | 3,857 | 5,143 | 7,714 |
| 40,000 | 4,000 | 6,000 | 8,000 | 12,000 | 3,333 | 5,000 | 6,667 | 10,000 | 2,857 | 4,286 | 5,714 | 8,571 |
| 44,000 | 4,400 | 6,600 | 8,800 | 13,200 | 3,667 | 5,500 | 7,333 | 11,000 | 3,143 | 4,714 | 6,286 | 9,429 |
| 48,000 | 4,800 | 7,200 | 9,600 | 14,400 | 4,000 | 6,000 | 8,000 | 12,000 | 3,429 | 5,143 | 6,857 | 10,286 |
| 52,000 | 5,200 | 7,800 | 10,400 | 15,600 | 4,333 | 6,500 | 8,667 | 13,000 | 3,715 | 5,571 | 7,429 | 11,143 |
| 56,000 | 5,600 | 8,400 | 11,200 | 16,800 | 4,667 | 7,000 | 9,333 | 14,000 | 4,000 | 6,000 | 8,000 | 12,000 |
| 60,000 | 6,000 | 9,000 | 12,000 | 18,000 | 5,000 | 7,500 | 10,000 | 15,000 | 4,286 | 6,429 | 8,571 | 12,857 |
| 64,000 | 6,400 | 9,600 | 12,800 | 19,200 | 5,333 | 8,000 | 10,667 | 16,000 | 4,572 | 6,857 | 9,143 | 13,714 |
| 68,000 | 6,800 | 10,200 | 13,600 | 20,400 | 5,667 | 8,500 | 11,333 | 17,000 | 4,857 | 7,286 | 9,714 | 14,571 |
| 72,000 | 7,200 | 10,800 | 14,400 | 21,600 | 6,000 | 9,000 | 12,000 | 18,000 | 5,143 | 7,714 | 10,286 | 15,429 |
| 76,000 | 7,600 | 11,400 | 15,200 | 22,800 | 6,333 | 9,500 | 12,667 | 19,000 | 5,429 | 8,143 | 10,857 | 16,286 |
| 80,000 | 8,000 | 12,000 | 16,000 | 24,000 | 6,667 | 10,000 | 13,333 | 20,000 | 5,715 | 8,571 | 11,429 | 17,143 |
| 84,000 | 8,400 | 12,600 | 16,800 | 25,200 | 7,000 | 10,500 | 14,000 | 21,000 | 6,000 | 9,000 | 12,000 | 18,000 |
| 88,000 | 8,800 | 13,200 | 17,600 | 26,400 | 7,333 | 11,000 | 14,667 | 22,000 | 6,286 | 9,429 | 12,571 | 18,857 |
| 92,000 | 9,200 | 13,800 | 18,400 | 27,600 | 7,667 | 11,500 | 15,333 | 23,000 | 6,572 | 9,857 | 13,143 | 19,714 |
| 96,000 | 9,600 | 14,400 | 19,200 | 28,800 | 8,000 | 12,000 | 16,000 | 24,000 | 6,857 | 10,286 | 13,714 | 20,571 |
| 100,000 | 10,000 | 15,000 | 20,000 | 30,000 | 8,333 | 12,500 | 16,667 | 25,000 | 7,143 | 10,714 | 14,286 | 21,429 |
| 104,000 | 10,400 | 15,600 | 20,800 | 31,200 | 8,667 | 13,000 | 17,333 | 26,000 | 7,429 | 11,143 | 14,857 | 22,286 |
| 108,000 | 10,800 | 16,200 | 21,600 | 32,400 | 9,000 | 13,500 | 18,000 | 27,000 | 7,715 | 11,571 | 15,429 | 23,143 |
| 112,000 | 11,200 | 16,800 | 22,400 | 33,600 | 9,333 | 14,000 | 18,667 | 28,000 | 8,000 | 12,000 | 16,000 | 24,000 |
| 116,000 | 11,600 | 17,400 | 23,200 | 34,800 | 9,667 | 14,500 | 19,333 | 29,000 | 8,286 | 12,429 | 16,571 | 24,857 |
| 120,000 | 12,000 | 18,000 | 24,000 | 36,000 | 10,000 | 15,000 | 20,000 | 30,000 | 8,572 | 12,857 | 17,143 | 25,714 |
| 124,000 | 12,400 | 18,600 | 24,800 | 37,200 | 10,333 | 15,500 | 20,667 | 31,000 | 8,857 | 13,286 | 17,714 | 26,571 |
| 128,000 | 12,800 | 19,200 | 25,600 | 38,400 | 10,667 | 16,000 | 21,333 | 32,000 | 9,143 | 13,714 | 18,286 | 27,429 |
| 132,000 | 13,200 | 19,800 | 26,400 | 39,600 | 11,000 | 16,500 | 22,000 | 33,000 | 9,429 | 14,143 | 18,857 | 28,286 |
| 136,000 | 13,600 | 20,400 | 27,200 | 40,800 | 11,333 | 17,000 | 22,667 | 34,000 | 9,715 | 14,571 | 19,429 | 29,143 |
| 140,000 | 14,000 | 21,000 | 28,000 | 42,000 | 11,667 | 17,500 | 23,333 | 35,000 | 10,000 | 15,000 | 20,000 | 30,000 |
| 144,000 | 14,400 | 21,600 | 28,800 | 43,200 | 12,000 | 18,000 | 24,000 | 36,000 | 10,286 | 15,429 | 20,571 | 30,857 |
| 148,000 | 14,800 | 22,200 | 29,600 | 44,400 | 12,333 | 18,500 | 24,667 | 37,000 | 10,572 | 15,857 | 21,143 | 31,714 |
| 152,000 | 15,200 | 22,800 | 30,400 | 45,600 | 12,667 | 19,000 | 25,333 | 38,000 | 10,857 | 16,286 | 21,714 | 32,571 |
| 156,000 | 15,600 | 23,400 | 31,200 | 46,800 | 13,000 | 19,500 | 26,000 | 39,000 | 11,143 | 16,714 | 22,286 | 33,429 |
| 160,000 | 16,000 | 24,000 | 32,000 | 48,000 | 13,333 | 20,000 | 26,667 | 40,000 | 11,429 | 17,143 | 22,857 | 34,286 |