TRAVIS COUNTY
EMERGENCY SERVICES DISTRICT 5
665 W. FM 1626, Austin, TX 78748
TEL: 512-640-8273
crr@tcesd5.org

NATHAN MENDENHALL
Fire Code Official / Risk Reduction Officer

TO: Travis County ESD 5 Customers

SUBJECT: **INFORMATION BULLETIN 009**
Fire Protection Water Supply
Acceptable Alternatives for Fire Protection Water

DATE: October 1, 2025

CREATED BY: Travis County ESD 5 Fire Code Official

Purpose:

The Fire Code Official for Travis County ESD 5 (TCESD5) has created this bulletin as a customer service initiative regarding Acceptable Alternatives to Fire Hydrants for Fire Protection Water Supplies. Water Tanks for Fire Protection Water Supplies require a plan review through our Third-Party Review process described in IB 001. Permit submittals for tanks are done per the IFC as a Group U building permit, and submittals are done electronically through www.tcesd5permits.com

Code References:

2021 Fire Code of Travis County Emergency Services District 5 / Manchaca Fire Rescue, published by the ICC (Section 104.1, Section 507, Appendix B and C);
Travis County ESD 5 Ordinances 2025-08-14-01; 2025-08-14-02; 2025-09-11-01

Scope:

The following information is provided as a resource to developers, engineers, and the general public concerning fire protection water supply options within Travis County ESD 5 when a publicly maintained hydrant is unavailable. This information is intended to assist in the development process and addresses requirements specific to fire protection water supply. It is not intended for the information that follows to be the design standard for every project. Modification to these general guidelines may be necessary depending upon the individual conditions and circumstances associated with the project. Although it is intended to maintain consistency and fairness in the review process, the District's fire code official reserves the right

to require modifications not addressed in this Information Bulletin in order to ensure adequate fire protection water is provided.

Fire protection water is generally required for all new commercial and public buildings. There may be instances where a new fire protection water supply delivery system is required where it previously was not. These situations could be, but not limited to, existing buildings undergoing modifications in size, interior finish-out, or use. Contact the District's fire code official for more information. Projects under the jurisdiction of Travis County ESD 5 are also under the jurisdiction of the Travis County Fire Marshal. Properties within Travis County ESD 5 are under two authorities having jurisdiction (TCESD 5 and the Travis County Fire Marshal's Office).

The requirement for fire protection water supply can be met by one of the following applications listed in order of preference:

1. An approved private water supply system with a reliable pressurized water main ending at an approved hydrant capable of meeting fire flow requirements (Municipal-type System).

2. An approved independent water storage draft tank with a sidewall fire department connection or dry yard hydrant with underground pipes/connections (Water Storage Tank System).

3. A dry hydrant used for drafting and attached to a reliable static source other than a water storage tank (Dry Hydrant System).

4. A combination system, utilizing an NFPA 22-compliant water tank, a fire pump, and fire hydrants (a pressurized water system with a water tank as a static water source).

Municipal-type System

The following information pertains to the general requirements for a municipal-type system for new commercial or public buildings. For information pertaining to fire suppression water requirements for residential subdivisions, please see page 5.

The preferred method of delivering fire protection water is with this type of configuration. While preferred, it may not always be reasonable due to the development's remoteness and distance from utilities. When a new project is found to need fire protection water, and it is determined that there is a water main at any of the proposed development's boundaries or there is a water main provided up to the adjacent property on either side of the proposed development, it will be required for the proposed development to extend the water main to their property. There may be instances where the "adjacent property" is several miles away or some other distance that would make extending the water line unreasonable. In these

circumstances, developers/property owners may be allowed to pursue other approved options and will be examined on a case-by-case basis.

Plan Requirements

In support of this configuration, plans designed and stamped by a state-licensed design professional will need to be submitted to the District's fire code official, including the following information:

- The name of the project
- The name of the owner of project
- The project's 911 street address
- A point of compass
- A scale
- The name of the contractor
- The address of the contractor
- The size, length, location, weight and material of the fire service main
- The size, type, location of all valves
- The size, type, location of all proposed hydrants in relation to buildings (existing and proposed), property lines and fire apparatus access roads
- Details on the connection point to city/utility services
- The depth of the burial of pipe
- The method of joint restraint (mechanical or thrust blocks)
- The required Fire Flow
- The available Fire Flow

Fire Flow

The larger the building, the more water will be needed to suppress a potential fire. The minimum required fire flow and duration of flow is calculated by using the Table(s) in Section B105 of the Adopted Fire Code of Travis County ESD 5: https://codes.iccsafe.org/content/TXTCFC2021P1 . The table uses the building size (square feet) and the type of building construction (Type IA through VB) to determine the fire flow (gallons per minute, "GPM") required for the project and the flow duration (in hours).

Amount and Distribution of Hydrants

The higher the minimum required fire flow, the more hydrants will be needed. The minimum number of hydrants needed will be calculated by using Table C105.1 found at the link above. The table uses the minimum fire flow requirement as determined by the Table(s) in Section B105 and correlates that figure with a minimum number of hydrants available to the proposed building. The average hydrant spacing requirements are also shown based on the minimum fire flow requirements.

Hydrants shall meet the requirements of Section 507 and Appendix C of the Adopted Fire Code of Travis County ESD 5.

Underground Piping

All underground piping shall comply with Section 507 and NFPA 24. The highlights of these requirements include:

- Pipe materials are limited to steel, ductile iron, concrete, plastic and copper. *note that the preferred material is C900 PVC
- Pipes shall be 6" or larger
- All tees, plugs, caps, reducers, valves, and hydrant branches shall be provided with either mechanical joint restraint or thrust blocks

Fire Hydrants

Fire hydrants shall be consistent with the City of Austin Water Utilities Standard 511S-17 through 511S-18, depending on the uniqueness of the application (for example, deep water mains or extreme bends).

Hydrants shall meet the requirements of Section 507 and Appendix C of the Adopted Fire Code of Travis County ESD 5.

Fire hydrants shall be placed with the steamer outlet facing the nearest fire apparatus access road and provided with a 3' clear space around the circumference.

Where they are subject to impact damage, vehicle impact protection complying with Section 312 shall be provided.

*Please note that the maintenance of this type of system is the responsibility of the property owner. Please contact the District's fire code official for recommendations and guidelines concerning the maintenance schedule of Private Water Supply systems.

Residential subdivision developments shall comply with the following Travis County Development Regulations Code Chapter 82 requirements. If a conflict exists between the Adopted Fire Code of Travis County ESD 5 and the County's Chapter 82 requirements, then the County's requirements supersede:

Owners of residential subdivisions with 15 or more units supplied by a centralized water system and owners of commercial subdivisions shall provide the subdivision with a water supply, water storage facilities, water lines, and hydrants on fire-fighting apparatus access roads meeting the requirements of this section.

For residential subdivisions:

- The minimum fire flow and flow duration shall be 1000 gallons per minute for one hour at 20 pounds per square inch residual pressure
- The maximum distance from any point on a street or road frontage to a hydrant shall be 250 feet
- The average spacing between hydrants shall not exceed 500 feet.
- Hydrant spacing and minimum fire flow and flow duration for commercial subdivisions shall be calculated as required by Appendix B, of the Adopted Fire Code of Travis County ESD 5.

Hydrant specifications concerning thread count, outlet size, and burial depth of supply piping shall be consistent with the City of Austin standards mentioned above.

Water Storage Tank System

When it is determined that a new project requires a fire protection water supply and no adequate and reliable municipal-type water supply system is available, a water storage tank system consistent with the following information shall be installed:

The water storage tank system consists of a water storage tank that complies with Section 507 and Appendix B of the Adopted Fire Code of Travis County ESD 5, as well as this Information Bulletin.

Plan Requirements

In support of this configuration, plans designed and stamped by a state-licensed design professional will need to be submitted to the District's fire code official that indicates the following information:

- The name of the project
- The name of the owner of project
- The project's 911 street address
- A point of compass
- A scale
- The name of the contractor
- The address of the contractor
- The size, type, location of all valves
- The size (including calculations), type, location of the water storage tank
- The specifications on the tank's water level gauge, anti-vortex assembly, roof hatch, roof vent, roof guardrails and ladders

- The size, type, location of all proposed fire department connections in relation to buildings (existing and proposed), property lines and fire apparatus access roads
- The depth of the burial of pipe
- The method of joint restraint (mechanical or thrust blocks)

The specifications and details for various load requirements (seismic, wind, etc.), foundations, compaction, and backfill need not be shown on the plans. However, a note verifying that these design elements meet NFPA 22 criteria will need to be added to the plans' cover sheet.

Minimum Amount of Water (Tank Sizing)

Establishing the minimum amount of water required for fire suppression operations is critical to successfully containing and extinguishing a fire. The District's fire code official will ensure the water supply gallonage complies with Section 507 and/or Appendix B of the Adopted Fire Code of Travis County ESD 5.

Water Tank Materials

Water tanks must comply with NFPA 22; engineered corrugated metal tanks are allowed.

Connections to Water Tanks

Water tanks shall be designed and engineered to comply with the detail(s) in Exhibit A of this document.

Signage

The water tank shall be labelled "Fire Department Use Only" on the connection side of the tank and in a contrasting color. The amount of fire suppression water in gallons available shall be shown in the same format.

The container holding the Hard Suction Hose shall be labelled "Fire Department Use Only – Hard Suction Hose" in a color contrasting with the container.

The remote dry hydrant shall be labelled "Fire Department Use Only –Draft Hydrant" in an approved method.

Signage shall comply with Section 509 of the Adopted Fire Code of Travis County ESD 5.

Dry Hydrant Systems

When a static source such as a pond, pool, or lake is available for fire suppression water, a dry hydrant system consistent with the following information shall be installed.

This type of system will only be allowed when the aforementioned systems are unavailable or not feasible. These reasons must be documented and submitted to the District's fire code

official for review. This type of system is rarely allowed for properties regulated by the District's fire code.

Plan Requirements

In support of this configuration, plans designed and stamped by a state-licensed design professional will need to be submitted to the District's fire code official that indicates the following information:

- The name of the project
- The name of the owner of project
- The project's 911 street address
- A point of compass
- A scale
- The name of the contractor
- The address of the contractor
- The amount of water in gallons available from the water source
- The size, type, location of all pipes
- The size, type, location of all valves
- The size, type, location of the fire department's connection to the tank
- The location of the water source and connection in relation to buildings (existing and proposed), property lines and fire apparatus access roads
- The depth of the burial of pipe
- The method of joint restraint (mechanical or thrust blocks)

The state licensed design professional submitting the plans shall verify that the system design requirements allow for required fire flow, atmospheric pressure, lift, vapor pressure, length of required pipe run, coefficient of materials, piping configuration, and other design factors that approved engineering practices would necessitate.

Minimum Amount of Water

The minimum amount of water available from the static source will be calculated by using the same equation used for tank sizing.

Connections to Water Source

A dry hydrant affixed with a 5" Storz connection with suction gaskets is required for this application.

All fire hydrants shall be provided with a minimum 3 foot of clearance around the circumference of the hydrant. All fire hydrants shall be provided with impact protection in compliance with Section 312.

All underground piping associated with the dry hydrant connection shall comply with the NFPA 24 requirements previously mentioned in the Municipal-type System requirements.

A strainer capable of filtering sediment and debris from the water source will be required at the intake opening of the supply line within the water source. The strainer shall not impede fire flow requirements. The strainer shall also be located so that there is at least two feet of water above the top of the strainer.

The location of the dry hydrant shall be consistent with the requirements previously mentioned in the Water Storage Tank requirements.

Two 10' sections of Hard Suction Hose with suction gaskets must be installed in an approved location and stored in an all-weather container consistent with the Water Storage Tank requirements.

Signage

The container holding the Hard Suction Hose shall be labelled "Fire Department Use Only – Hard Suction Hose" in a color contrasting with the container.

The remote dry hydrant shall be labelled "Fire Department Use Only –Draft Hydrant" in an approved method.

This policy is effective on the date of this bulletin and will remain in effect until further notice. Your cooperation in implementing this policy is greatly appreciated. Should you have any questions on this policy, please call the TCESD5 Fire Code Official's office at 512-640-8273.

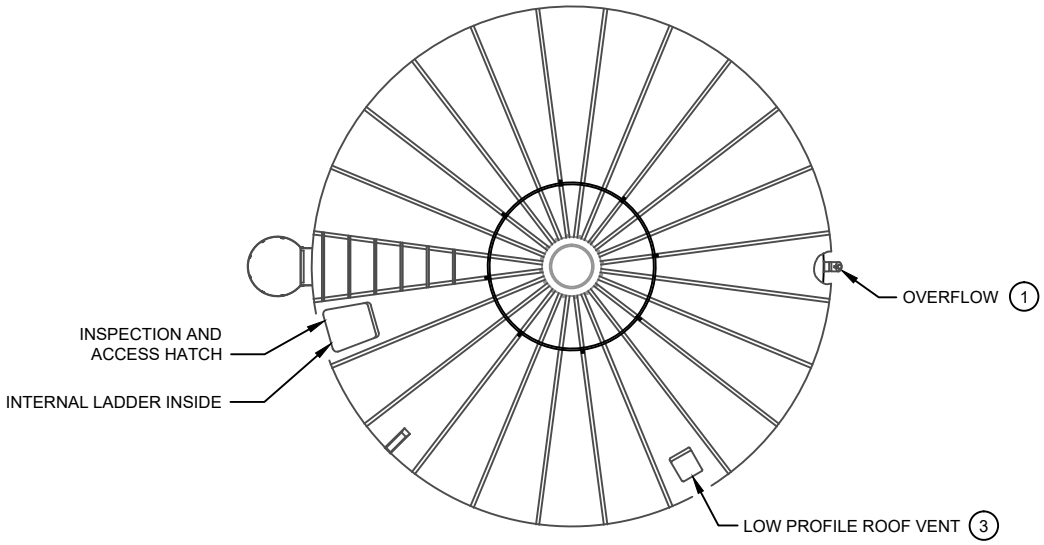
Summary:

This Information Bulletin is for informational purposes only.

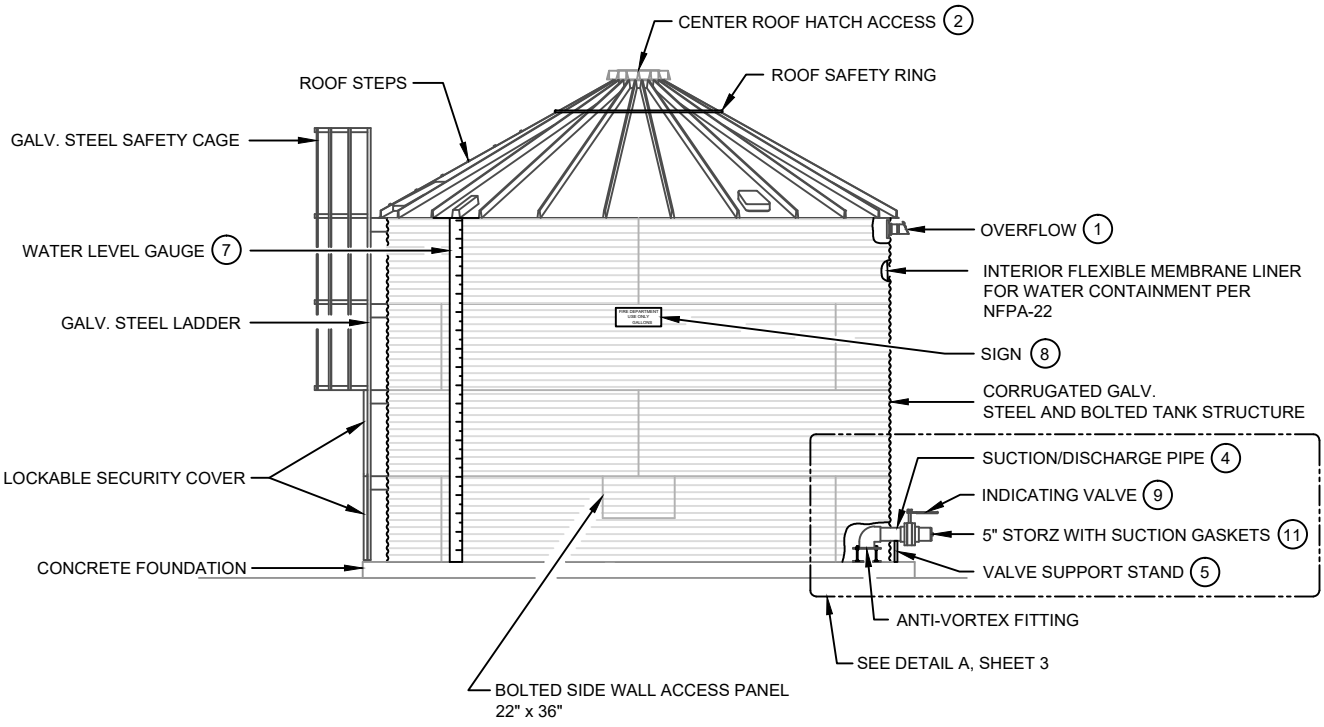
Prepared by: Nathan Mendenhall, Risk Reduction Officer/TCESD 5 Fire Code Official

EXHIBIT A

Corrugations on roof panels are not shown for clarity.



PLAN



ELEVATION

WATER TANK STRUCTURE AND FOUNDATION SHALL BE DESIGNED BY A TEXAS LICENSED ENGINEER

	BY	DATE
DWN	IU	2021 IFC
CKD	JH	2021 IFC
ENG	JH	2021 IFC

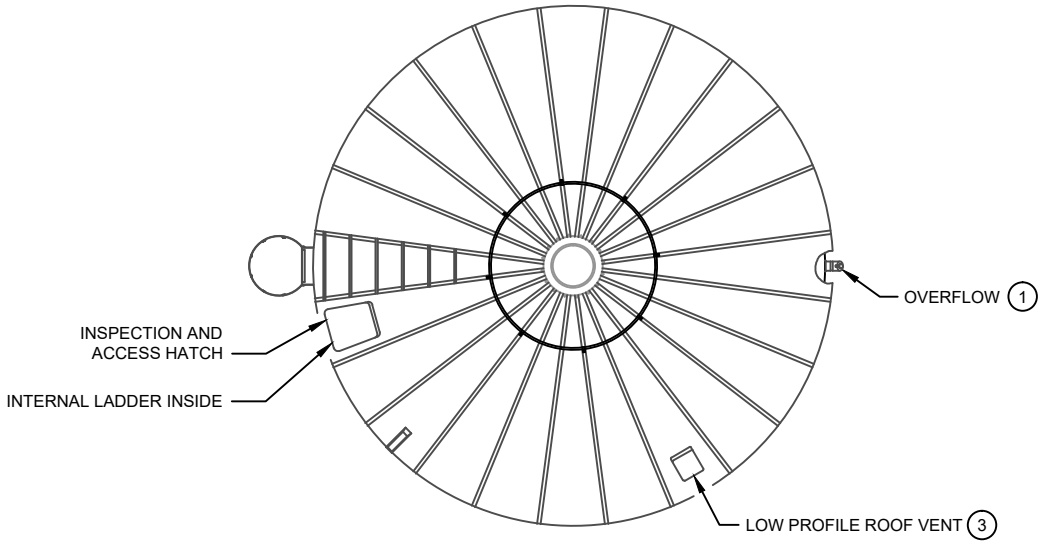
TCESD 5
TCFMO

TITLE: NFPA 22 COMPLIANT
TCESD 5 / TCFMO WATER STORAGE TANK
SIDE WALL CONNECTION

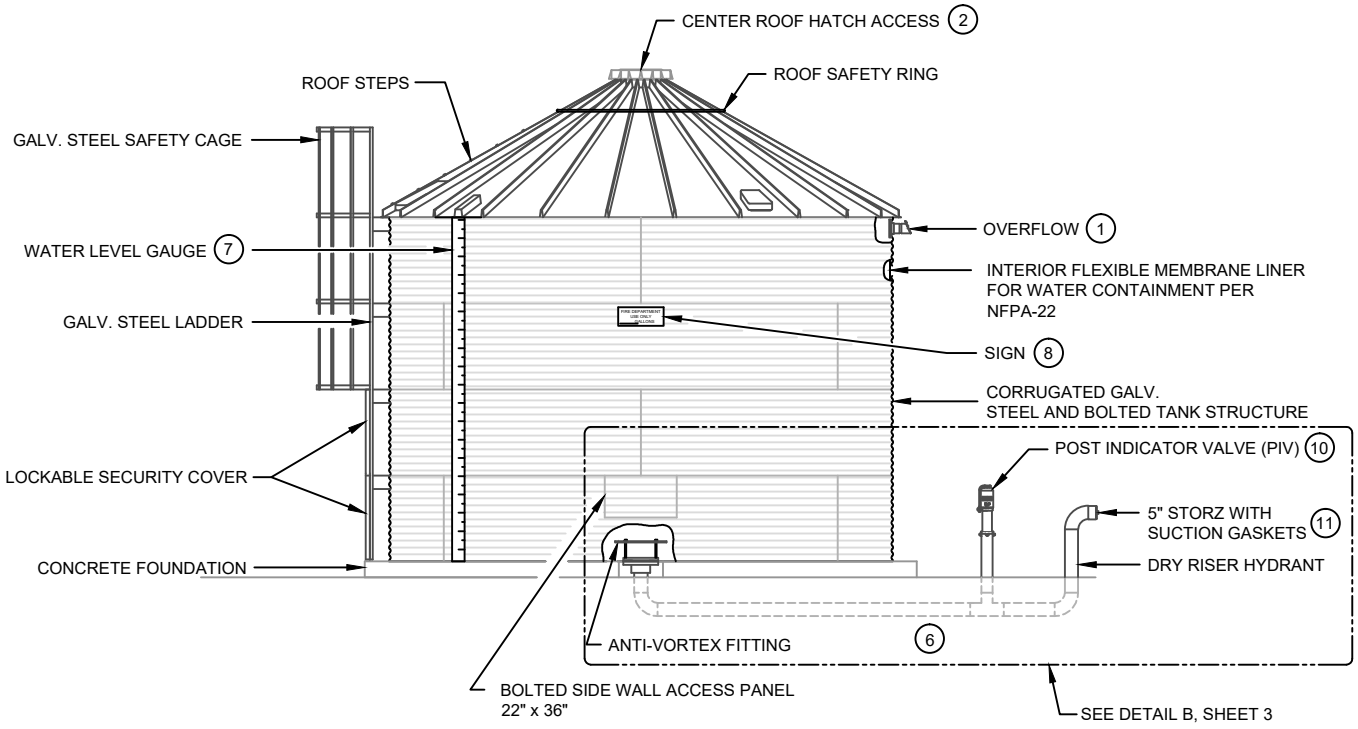
DWG. NO.	REV. NO.
WATER TANK-1	C

SIZE	SCALE	SHEET	OF
A	1/8"=1'-0"	1	4

Corrugations on roof panels are not shown for clarity.



PLAN



ELEVATION

WATER TANK STRUCTURE AND FOUNDATION
SHALL BE DESIGNED BY A TEXAS LICENSED ENGINEER

	BY	DATE
DWN	IU	2021 IFC
CKD	JH	2021 IFC
ENG	JH	2021 IFC

TCESD 5
TCFMO

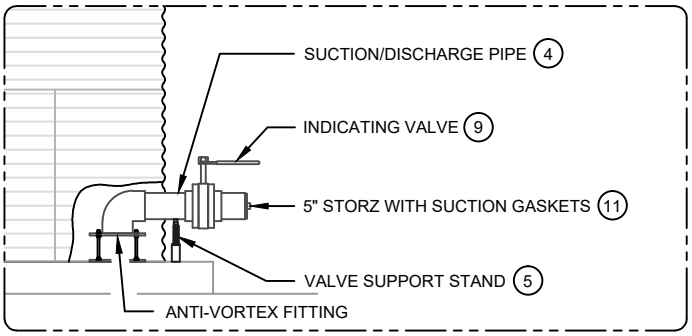
TITLE: NFPA 22 COMPLIANT
TCESD 5 / TCFMO WATER STORAGE TANK
BOTTOM OUTLET WITH DRY HYDRANT

DWG. NO.: WATER TANK-2
REV. NO.: C

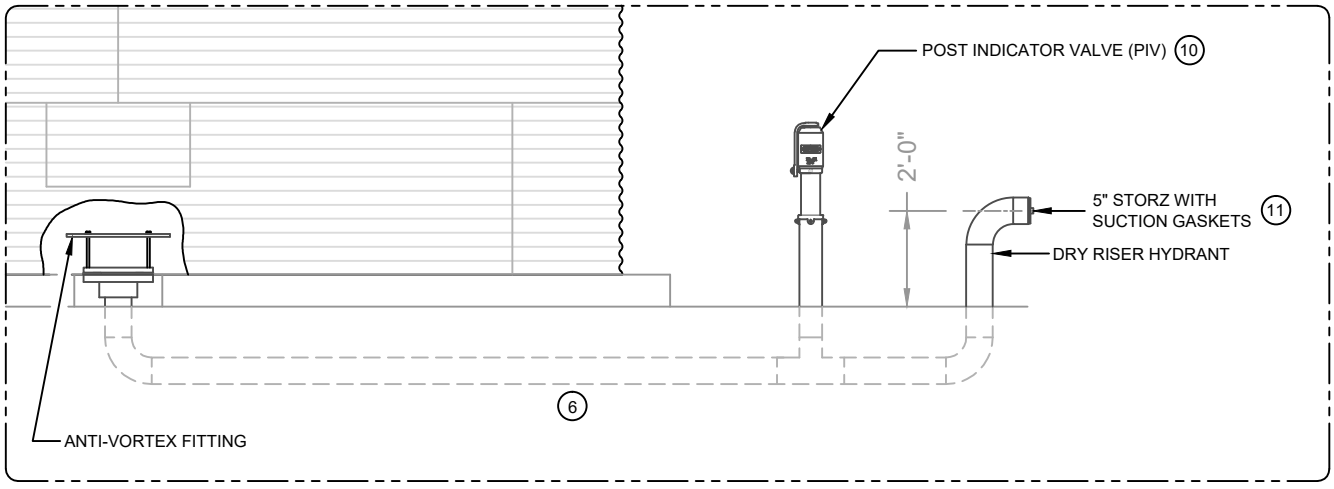
SIZE: A
SCALE: 1/8"=1'-0"
SHEET: 2 OF 4

N0TES:

1. OVERFLOW TO BE ONE PIPE SIZE LARGER THAN INFLOW OR MAKE-UP WATER PIPE. OVERFLOW EQUIPPED WITH HINGED FLAP CLOSURE AND BUG SCREEN.
2. CENTER ROOF ACCESS AND VENTILATION OPENING.
3. AREA OF SCREENED OPENING IN ROOF VENT TO BE LARGER THAN AREA OF TANK WATER DISCHARGE PIPE.
4. DISCHARGE PIPE FROM TANK TO BE SCHEDULE 40 GALVANIZED STEEL WITH VICTAULIC (GROOVED) NIPPLE.
5. VALVE SUPPORT STAND.
6. UNDERGROUND PIPING SHALL MEET NFPA-24 REQUIREMENTS.
7. WATER LEVEL GAUGE APPROVED BY THE TCFMO.
8. EACH TANK SHALL HAVE AN ALL WEATHER SIGN PERMANENTLY AFFIXED TO THE TANK STATING "FIRE DEPARTMENT USE ONLY" ALONG WITH THE AMOUNT OF WATER AVAILABLE, LISTED IN GALLONS.
9. VALVE ON DISCHARGE SHALL BE SUCTION RATED.
10. POST INDICATOR VALVE (PIV).
11. STORZ.
12. ALL METAL OR PLASTIC PIPE SURFACES SHALL BE PRIMED AND PAINTED TO PREVENT DETERIORATION.
13. ALL TANKS SHALL BE INSPECTED, TESTED AND MAINTAINED IN ACCORDANCE WITH NFPA 25, REFER TO THE ATTACHED TABLE FOR DETAILS ON THESE REQUIRED INSPECTIONS, TESTS AND MAINTENANCE ITEMS.



DETAIL A-SIDE WALL DISCHARGE
FOR FIRE DEPARTMENT CONNECTION



DETAIL B-TANK BOTTOM DISCHARGE
FOR DRY HYDRANT FIRE DEPARTMENT CONNECTION

TCESD 5
TCFMO

	BY	DATE
DWN	IU	2021 IFC
CKD	JH	2021 IFC
ENG	JH	2021 IFC

TITLE: NFPA 22 COMPLIANT
TCESD 5 / TCFMO WATER STORAGE TANK DETAIL

DWG. NO.: TCFMO-WATER TANK-3
REV. NO.: C
SIZE: A
SCALE: 1/4"=1'-0"
SHEET: 3 OF 4

EXHIBIT B

ADOPTED FIRE CODE OF TRAVIS COUNTY ESD 5 SECTION 507 AND 509

SECTION 507
FIRE PROTECTION WATER SUPPLIES

507.1 Required water supply. An *approved* water supply capable of supplying the required fire flow for fire protection shall be provided to premises on which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction.

507.2 Type of water supply. A water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.

507.2.1 Private fire service mains. Private fire service mains and appurtenances shall be installed in accordance with **NFPA 24**.

507.2.2 Water tanks. Water tanks for private fire protection shall be installed in accordance with **NFPA 22**.

507.3 Fire flow. Fire-flow requirements for buildings or portions of buildings and facilities shall be as per **Appendix B** of this code or other *approved* method as determined by the *fire code official*. When utilizing **Table C102.1** to determine number and distribution of fire hydrants, if the flow requirement falls between the values on the table, the flow requirement shall be rounded up to meet the higher value.

507.3.1 Fire flow for rural and isolated areas. For rural, isolated structures in areas where there is no developed fire protection water supply system, the *fire code official* may modify the minimum fire flow requirements of this code under the following conditions:

a. When a building is required to have an *automatic sprinkler system* – an onsite water storage tank shall be provided with a quantity of water sufficient to provide a minimum of 20 minutes of fire sprinkler coverage for the largest design remote area per 2019 Edition of **NFPA 13**/**13R**; or
b. When a building is not required to have an *automatic sprinkler system*, an onsite water storage tank, meeting the requirements of **NFPA 22**, is provided, with a quantity of water sufficient to provide the responding fire department a minimum of 20 minutes of firefighting water supply at a rate of 1,500 gpm; and
c. A *fire alarm system* is installed throughout the structure; and
d. The required Fire Resistance construction rating is increased by one level (i.e., nonrated is increased to one-hour, one-hour is increased to two-hour, etc.); and
e. The *means of egress* system corridors and exits are increased by a design factor of 1.5; and
f. A minimum of a 60-foot yard is provided on all sides and between other buildings and property lines.
g. When the required fire flow is available at the property line, the owner shall connect to the water supply system and provide on-site fire hydrants and water supply as required by this code.

h. The *fire code official* is authorized to accept a performance-based fire protection design from a licensed fire protection engineer as per Section 104.2.3 as an alternative to **Sections 507.3.1(d-f)**.

507.4 Water supply test. *Approved* documentation of the water supply test shall be provided to the *fire code official* prior to final approval of the water supply system as follows: Adequacy of the water supply shall be determined by an *approved* flow test that is conducted on the fire hydrants nearest the project site unless otherwise approved by the *fire code official* and shall be as follows:

1. The flow test shall have been conducted no more than six (6) months prior to the date of construction document submittal;
2. The flow test shall be conducted in accordance with the 2025 edition of **NFPA 291**, Recommended Practice for Fire Flow Testing and Marking of Hydrants, and any other applicable local, state, or national standards and/or requirements;
3. The flow test results shall be submitted with the construction documents;
4. If the water supply piping is not yet constructed, hydraulic calculations for the proposed piping design shall be submitted to the *fire code official*. The calculations shall be based on the flow test conducted on the fire hydrants nearest the project site and shall verify that the piping design provides the minimum required fire flow at no less than 25 psi residual. Upon completion of construction and prior to final certificate of occupancy, a flow test shall be conducted to verify the results of the calculations.

507.5 Fire hydrant systems. Fire hydrant systems shall comply with **Sections 507.5.1** through **507.5.7**.

507.5.1 Where required. Where a portion of the *facility* or building hereafter constructed or moved into or within the District is more than 400 feet (122 m) from a hydrant on a *fire apparatus access road*, as measured by an *approved* route around the exterior of the *facility* or building, on-site fire hydrants and mains shall be provided where required by the *fire code official*. Public and/or private fire hydrants are required to be installed where one or more of the following conditions exist:

1. Existing fire hydrants do not meet the required fire hydrant location and spacing criteria defined in **Section 507.5.1**, **507.5.1.2**, **507.5.1.3**, or **Appendix C**.
2. The complexity of the project justifies their installation as determined by the *fire code official*.

Exceptions:

1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).
2. For buildings equipped throughout with an *approved automatic sprinkler system* installed in accordance with **Section 903.3.1.1** or **903.3.1.2**, the distance requirement shall be 600 feet (183 m).

507.5.1.1 Hydrant for automatic sprinkler and standpipe systems. Buildings equipped with an automatic sprinkler system and/or standpipe system installed in accordance with **Section 905** shall have a fire hydrant within 100 feet (30 480 mm) of the fire department connections.

Exception: The distance shall be permitted to exceed 100 feet (30 480 mm) where

approved by the *fire code official*.

507.5.1.2 Fire hydrant location and spacing for occupancies other than single-family developments. Sufficient fire hydrants shall be considered to be provided for a building when:

1. Not more than 500 feet of hose will be required to reach from a fire hydrant to all exterior portions of the first floor of the structures in question; and
2. All fire hydrants required as prescribed by **Appendix C** shall be within 500 feet of a point on the building being protected and said distance is measured per the hose lay criteria in **Section 507.5.1.3**.
3. Hose lay is measured along public streets, *fire lanes*, and *fire apparatus access roads*. This hose lay consists of 350 feet of supply line as deployed by truck, and 150 feet of hose deployed by hand. Unless otherwise increased in this code, where the building is equipped throughout with an *approved automatic sprinkler system* installed in accordance with **Section 903.3.1.1**, **903.3.1.2**, or **903.3.1.3**, the maximum distance from hydrants to furthest point on the building shall be increased to 750 feet (550 foot hose lay by the truck and 200 foot maximum hose lay by hand).
4. No fire flow credit is allowed for hydrants which are so obstructed as to make their use impractical, such as, but not limited to, hydrants across main line railroad tracks that are in heavy use or across limited access highway, expressways, primary thoroughfares, across streams, or walls. Hydrants requiring fire apparatus to drive against oncoming traffic to supply water for fire protection and not in the normal direction of travel on one-way streets or highway access roads shall be considered obstructed unless approved by the *fire code official*.
5. Hydrants required by this code along both public and private water mains shall be spaced no closer than 300 feet with spacing between hydrants not to exceed 600 feet. Additional non-required hydrants may be spaced no closer than 200 feet from required hydrants unless approved by the *fire code official*.
6. Fire hydrants shall be located along the public right-of-way or along the *fire apparatus access roads*, preferably at intersections or on islands separating parking areas which cannot be obstructed by parked vehicles. Hydrants in areas subject to physical damage shall be protected from collision. Fire hydrants across more than four lanes of traffic (including turning lanes) or across medians are not considered accessible.

Exception: Where the building is equipped throughout with an *approved automatic sprinkler system* installed in accordance with **Section 903.3.1.1**, **903.3.1.2**, or **903.3.1.3**, the maximum distance from hydrants to all exterior portions of the building shall be increased to 750 feet as the hose lays. This increase shall not be applicable to Groups H and I Occupancies, buildings with occupancies having High-Piled Combustible Storage, and high-rise buildings. This increase shall apply to all non-combustible Group S-2 open parking garages meeting the requirements of the *International Building Code*, Section 406.5, with or without an *automatic sprinkler system*.

507.5.1.3 Fire hydrant installation criteria. Fire hydrants shall be installed per the following criteria:

1. Fire hydrants shall be a minimum of two (2) feet and a maximum of eight (8) feet from the gutter face of the curb which forms a *public way* or *fire lane*. Fire hydrants in parking lots adjacent to a *fire lane* or *public way* shall meet the same requirement for distance and be located on a curbed island or protected by bollards;
2. The steamer connection (large opening) shall face the nearest *fire apparatus access road* and shall be a minimum of one and one-half (1.5) feet and a maximum of two (2) feet above grade;
3. Fire hydrants shall be painted to comply with the water distribution systems color standards;
4. Fire hydrants shall be right turn only;
5. An unobstructed radius of three (3) feet shall be maintained around the fire hydrant;
6. The steamer (pumper) connection shall have a nominal inside diameter of 4 inches;
7. Fire hydrants shall have two other hose connections with a nominal inside diameter of 2.5 inches in addition to the steamer (pumper) connection;
8. Fire hydrants, public or private, shall be located not less than 40 feet from the building to be protected. The *fire code official* has authority to authorize an alternative placement but location cannot be within the collapse zone (height of building x 1.5) of the building to be protected.
9. All outlets must use National Hose Thread (NHT).
10. Any device that has the appearance of a fire hydrant and that pumps less than 250 gallons per minute or is otherwise nonfunctioning or unavailable for use in a fire emergency shall be painted black per Texas Health and Safety Code 341.0357. A black, heavy duty trash bag may be used instead of black paint if the device is only temporarily nonfunctioning or unavailable for a period not to exceed seven (7) days. A violation of Texas Health and Safety Code 341.0357 is also a violation of this code.

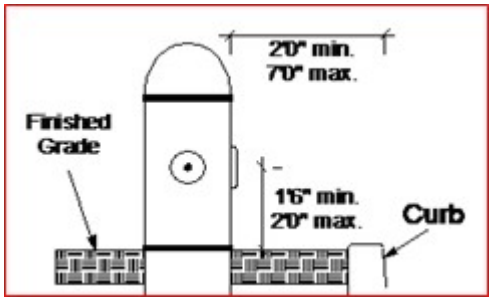


FIGURE 507.5.1.3
FIRE HYDRANT INSTALL DIAGRAM

507.5.2 Inspection, testing and maintenance. Fire hydrant systems shall be subject to periodic tests as required by the *fire code official*. Fire hydrant systems shall be maintained in an operative condition at all times and shall be repaired where defective. Additions, repairs, alterations and servicing shall comply with *approved* standards. Records of tests and required maintenance shall be maintained.

507.5.3 Private fire service mains and water tanks. Private fire service mains and water

tanks shall be periodically inspected, tested and maintained in accordance with **NFPA 25** at the following intervals:

1. Private fire hydrants of all types: Inspection annually and after each operation; flow test and maintenance annually.
2. Fire service main piping: Inspection of exposed, annually; flow test every 5 years.
3. Fire service main piping strainers: Inspection and maintenance after each use.

Records of inspections, testing and maintenance shall be maintained.

507.5.3.1 Private fire service main. Private fire mains as used in this code are the pipe and its appurtenances on a property between a public water system, or other sources of water and the base elbow of private fire hydrants or the riser for *automatic sprinkler or standpipe systems*. When connected to a public water system, the private fire main begins at a point designated by the public water utility. When connected to a gravity tank or pressure tank, the private fire main begins at the inlet side of the tank check valve.

507.5.4 Obstruction. Unobstructed access to fire hydrants shall be maintained at all times. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants.

507.5.5 Clear space around hydrants. A 3-foot (914 mm) clear space shall be maintained around the circumference of fire hydrants, except as otherwise required or *approved*. The clear space around the hydrant and the access to the hydrant shall be no more than an eight (8) percent slope.

507.5.6 Physical protection. Where fire hydrants are subject to impact by a motor vehicle, guard posts or other *approved* means shall comply with **Section 312**.

507.5.7 Design criteria for water mains. Water mains shall meet the following requirements:

1. Where the fire service mains are used to supply required fire hydrants, the mains shall be sized to flow the required fire flow as determined by **Section 507.3**.
2. Where the fire service mains are used to supply required fire hydrants in addition to *automatic sprinkler systems and/or fire standpipe systems*, the mains shall be sized to flow the larger of the fire hydrant flow demand as determined by **Section 507.3**, the fire sprinkler demand as determined by **Section 903.3** or the fire standpipe demand as determined by **Section 905.2**.
3. The required number of fire hydrants for the fire flow determined by **Section 507.3** shall be per **Appendix C, Table C102.1**.
4. When sizing the fire service main, the distribution of the fire flow among the required fire hydrants (as determined by item no. 1 or 2 above) shall be as determined by the *fire code official*, but in most cases shall have no less than 1,000 gpm at the hydraulically remote fire hydrant with the remaining fire flow equally distributed among the remaining required fire hydrants.
5. Water pressure in private fire mains shall not be less than thirty-five pounds per square inch (35 psi) with no hydrants in use. When hydrants are in use supplying the required fire flow, water pressure in the main at the fire hydrant discharge level shall be not less than 25 pounds per square inch (25 psi) residual.
6. Except for specific requirements of this code, all hydrants and mains required for private protection shall be designed, constructed, and operated in conformance with the local water purveyor's criteria, specifications and regulations for public fire hydrants

and mains on public streets and **NFPA 24**.

507.5.7.1 Main size. Minimum diameter for public water mains shall be six inches in single-family residential areas and eight inches in all other areas. Larger mains may be required to accommodate fire flow requirements. Private fire mains shall be hydraulically calculated.

SECTION 509
FIRE PROTECTION AND UTILITY EQUIPMENT IDENTIFICATION AND ACCESS

509.1 Identification. Fire protection equipment shall be identified in an *approved* manner. Rooms containing controls for air-conditioning systems or *fire protection systems* shall be identified for the use of the fire department. *Approved* signs utilizing symbols shall have white reflective symbols on red background per guidelines found in **NFPA 170**. Signs shall be a minimum four (4) inches by six (6) inches, red background with white lettering, and with letters a minimum ½ inch letter stroke. *Approved* signs required to identify fire protection equipment and equipment location shall be constructed of durable materials, permanently installed and readily visible. For exterior signs, heavy-gauge, sign-grade aluminum shall be used. Interior signs shall be constructed of rigid plastic, light-gauge aluminum or other approved, durable, water-resistant material. Signs shall be installed at a location approved by the *fire code official*.