

# INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

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No. 0580001084(2)

# **Model 8760**

Skid-Mounted Emergency Tempered Shower and Eyewash System
Area Classification – Ordinary



#### **DISCLAIMER**

#### **IMPORTANT**

Read this installation manual completely to ensure proper installation, then file it with the owner or maintenance department. Compliance and conformity to drain requirements and other local codes and ordinances is the responsibility of the installer.

Separate parts from packaging and make sure all parts are accounted for before discarding any packaging material. If any parts are missing, do not begin installation until you obtain the missing parts.

Flush the water supply lines before beginning installation and after installation is complete. Test the unit for leaks and adequate water flow. Main water supply to the emergency fixture should be "ON" at all times. Provisions shall be made to prevent unauthorized shutoff. Please refer to the enclosed instructions for flushing the unit prior to use.

The ANSI Z358.1 standard requires an uninterrupted supply of potable water. Water supply must be capable of providing specified capacity (GPM) and water pressure range (PSI) at all flow rates.

The inspection and testing results of this equipment should be recorded weekly to verify proper operation. This equipment should be inspected annually to ensure compliance with ANSI Z358.1.

Installation and maintenance of this system must be completed by a qualified plumber and electrician in accordance with the information contained in this installation manual and in compliance with all national and local codes. When making electrical connections, be sure to follow all lockout-tag out safety procedures.

It is recommended that all water supply and electrical connections be made at temperatures above freezing (32°F (0°C)). Failure to do so may result in product and or property damage.

# For technical support, contact:

Haws Services | (800) 766-5612 | www.hawsco.com/solutions-services/services/

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#### **DESCRIPTION OF PRODUCT**

Haws Corporation Model 8760 Tempered Water Shower Skid is a welded aluminum skid with a HDPE deck. The green powder-coat is waterproof, chemically resistant, and UV resistant. Large graphics identify the equipment as an emergency shower/eyewash station and assist in guiding the user to the shower and eyewash.

Hot water generated via an immersion heater is stored in the water tank. Hot and cold water are mixed with an engineered blending system to provide tepid water for the specified number of combination shower/eyewash operations. Typical flow rate of a combination shower/eyewash is 30 GPM. The ASSE 1071 certified blending system is a safe, prepackaged, fully engineered and tested system for blending large volumes of hot and cold water specifically designed for emergency showers and eyewashes. The system provides multiple levels of protection to prevent scalding, including a high temperature shutoff valve. Also included is a pressure relief cold-water bypass that allows full cold flow in the event of a hot water shut off. There are no electrical components in the blending system.

The 8760 skid includes a Haws® combination shower and eyewash that is protected with a scald valve. Optional alarms are activated by a flow switch when the shower and/or eyewash are in use. Dry contacts can be provided for remote alarm notification and/or both visual and audible alarms with a silencing circuit that auto resets can be provided.

APPLICATION

Tank temperatures are set at 165°F for USA and 145°F for Canada.

TANK	TANK	SHOWER	MINIMUM INLET
SIZE	TEMPERATURE	CAPACITY (15 Min.)	TEMPERATURE
119G	145°F	1	62°F
119G	165°F	1	54°F
120G	145°F	1	62°F
120G	165°F	1	54°F
200G	145°F	1	35°F
200G	165°F	1	32°F
318G	145°F	2	50°F
3100	165°F	2	39°F
400G	145°F	2	35°F
400G	165°F	2	32°F

# SHIPPING, HANDLING AND STORAGE

Model	Description	Dimensions W x L x H	Weight	Dimensions W x L x H (Crated)	Weight (Crated)
8760	Outdoor Tempered Water Shower and Eyewash System	60" x 60" x 102"	< 2000 lbs.	69" x 69" x 106"	< 2200 lbs.

## Recommended Equipment, Materials and Supplies to be provided by Installer:

- Concrete slab rated to support a minimum of 6,000-pound load requirement.
- (4) 3/4" minimum diameter by 1-1/2" minimum length anchor bolts with washers.
- A forklift capable of lifting 5,000 lbs. should be utilized to transport the unit from truck to site. The
  unit should be lifted from the rear, or equipment end, and low to the ground.
- Electrical Supply Materials (if applicable).
- Plumbing Supply Materials (if applicable).
- Freeze protection equipment for the water supply leading up to the enclosure (if applicable).

#### **Storage**

The unit should be stored in a clean, dry place until ready for installation unless otherwise specified.

# **INSTALLATION PROCEDURE**

WARNING: DO NOT connect power before supply plumbing. Connections should be performed by a certified electrician and plumber only.

- a. Remove unit from crate.
- b. The unit should be secured on a level site, using the supplied brackets and suitable anchoring devices. Suggested anchoring devices are 3/4" minimum diameter by 1-1/2" minimum length anchor bolts with washers.
- c. If the skid is to be placed over a drain, the drain should be able to handle a flow of 35 GPM; otherwise, the slab should be made to allow the water to drain out the sides and away from the skid (see Figure 1). The unit discharges hundreds of gallons of water, which can cause significant property damage and a potential hazard if not drained properly.

WARNING: Drainage means shall not create an obstruction or tripping hazard.

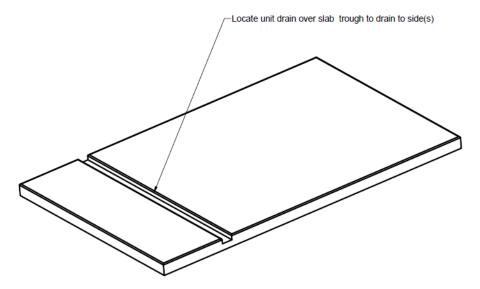


Figure 1. Example of Slab with Drain Trough

WARNING: Failure to allow water to drain may result in premature failure of skid, voiding of product warranty, property damage, and hazard to personnel. (See System Drain and Check Procedure)

d. The connection provided for the water supply is a 1-1/2" NPT union. Water supply lines are required to be capable of supplying the required pressure and flow as stated in the Application Section. The

water supply line should run for a few minutes prior to connection to eliminate any debris before it enters the equipment.

e. Connect electrical supply to the Power Disconnect Switch (see Figure 2).

NOTICE: All Power Connections must be made according to local codes and standards using components which are compliant with the area the unit is being installed in.



Figure 2. Disconnect Switch Junction Box

CAUTION: Do not apply power to the unit until all water connections are made and the tank and piping are full of water.

- f. Once all water and power connections are made, open the supply water inlet valve and fill the system. While water is flowing into the system, open the emergency shower to facilitate air removal from the system. After water flows freely from the shower for several minutes, turn the shower off. Inspect plumbing for leaks and repair as necessary. During transit, some plumbing may have become loose, allowing water to leak from the threads.
- g. The expansion tank should be charged with compressed air to a pressure equal to the water supply pressure. An air fitting (Schrader valve) is accessible on the top of the expansion tank, under the plastic cap (see Figure 3).



Figure 3. Top of Expansion Tank

#### CAUTION: Before turning on the power, close all electrical boxes.

h. At this point the power can be turned on. The tank water must be allowed to heat up before the blending system will function properly. Heating can take up to 12 hours, depending on supply water temperature and the size of immersion heater and tank.

NOTE: The emergency shower or eyewash (see Figure 4) should be utilized for testing of the blending system. Refer to the Maintenance, Testing, and Repair section of the TWBS.HF Blending System Manual document for proper adjustment and operation.



Figure 4. Eyewash

WARNING: Unit includes a freeze protection valve which may help prevent damage in the event of accidental short-term exposure to low temperatures. This unit is not designed for exposure to freezing conditions. It is recommended that installation be indoors in a non-freezing location.

# **Checklist for start-up**

CHECKLIST	Complete OK	Inspector Initials
Pre-connection Check	-	
Check all components for any connections or connectors that may have loosened during		
shipping.		
System Flush (All Electrical Power off for System Flush)		
Verify that the required water supply pressure is available at the Cold-Water Inlet.		
Water is clear and free of any contamination, particles, or discoloration.		
Connections		
System is charged with water and all air is evacuated from the system.		
Expansion tank Schrader valve is charged with air equal to water static inlet pressure.		
Connect remote monitoring via plant control system (if applicable).		
Applying Power to the System	L	
Verify that the proper voltage is present.		
Verify that equipment ground is properly connected.		
Apply power to the system.		
Verify that the tank heater thermostat is set to 165° F (74°C) for US applications and 145°F		
(63°C) for Canada applications. Increase the thermostat set point and verify that the heater		
is producing heat. Return the thermostat to original setpoint.		
Verify that area light is illuminated (if equipped).		
HAWS® Shower and Eye/Facewash		
Flow water through an eyewash or shower.		
Verify that the area light flashes at 1 second intervals and that the audible alarm sounds (if		
equipped).		
Press the alarm silence button and verify that the exterior light is flashing, and the audible		
alarm is silent (if equipped).		
Deactivate the shower or eyewash that is active, verify that the area light is not flashing,		
and that the audible alarm is silent (if equipped).		
Blending Valve	T	
When shower is activated read the center temperature gauge directly above the blending		
valve to ensure to the readout is 84°F (29°C) ± 5°.		

# PROGRAMMABLE CONTROLLER

The programable controller executes the following functions:

- Deactivates the tank heater when the tank level is low.
- Switches the alarm light from steady to flashing when eyewash/shower is in use.
- Opens dry contacts for Common alarm when tank level is low.
- Opens dry contact for In Use alarm when eyewash/shower is in use.

The following table lists the inputs and outputs available with the system. System may not contain all components.

Input	Function	Output	Function
I-01	Horn Silence Button	Q-01	Tank Heater Contactor
I-02	Flow Switch or Proximity Switch	Q-02	Area/ Alarm Light
I-03	Proximity Switch	Q-03	Alarm Horn
I-04	Level Switch	Q-01 (Exp. Mod.)	Customer Contact (Common)
I-05	Door Proximity Switch	Q-02 (Exp. Mod.)	Customer Contact (In Use)
I-06	Tank Temperature Switch	Q-03 (Exp. Mod.)	Interior Light (Green/White)

NOTE: For model specific program, please contact Haws Services at 1-800-766-5612.

## PREVENTIVE MAINTENANCE

Note: These are general instructions applicable to all Haws Model 8760 Tempered Shower Skids.

Additional maintenance activities may apply to particular configurations/options supplied.

#### Weekly

- Verify the tank temperature gauge reads  $165^{\circ}F \pm 2^{\circ}F (74^{\circ}C \pm 1^{\circ}C)$  and  $145^{\circ}F \pm 2^{\circ}F (63^{\circ}C \pm 1^{\circ}C)$  for Canada.
- Verify area light is operational.
- Verify shower and eyewash flow per ANSI requirements.
- Verify temperature gauge on center pipe of blending valve (see Figure 5) reads 84°F ± 5°F (29°C ± 2°C) flowing.



Figure 5. Blending Valve

#### Monthly

- Verify eyewash flows. Optional Alarm light and horn should activate when water is flowing. Verify that remote alarms connected to plant controls are functioning.
- Verify shower flow. Optional Alarm light and horn should activate when water is flowing. Verify that remote alarms connected to plant controls are functioning.
- Check for evidence of leakage on freeze and scald valves.
- Verify correct operation of Blending valve. See Maintenance, Testing, and Repair section.

#### Quarterly

• Flush Y-strainers (if installed)

#### **Annually**

- Check tank heater for excessive mineral build up on heating coils. Clean or replace if necessary.
- Check condition of tank anode(s). Replace if necessary.
- Drain tank and verify level switch operation (see Figure 6).



Figure 6. Level Switch

All emergency showers and eye/face washes shall be inspected annually to assure conformance
of ANSI Z358.1. This includes, but not limited to, proper installation, accessible locations, proper
flow rate and temperature of flushing fluid. Please refer to the most current standards document
for more information.

NOTE: If the blending valve temperature reading is incorrect, adjust the blending valve by turning the socket head cap screw located on the bottom of the center section of the valve body. Turning the screw clockwise will lower the outlet temperature, while counterclockwise will raise the outlet temperature (see Figure 7). Maximum outlet temperature is approximately 84°F. Outlet temperature will be measured most accurately by the temperature gauge when water is flowing through the valve.



Figure 7. Blending Valve

## **SYSTEM DRAIN AND CHECK PROCEDURE:**

WARNING! System contains HOT water! Failure to DISCONNECT POWER AND ALLOW WATER IN HOT WATER TANK TO COOL sufficiently prior to draining may cause SEVERE INJURY OR DEATH! Always follow safe Lock Out – Tag Out procedures.

- 1. Turn off power at system disconnect switch. Lock Out and Tag Out according to your company's procedures.
- 2. Allow system hot water tank to cool below 100°F. Cooling could take many hours depending on the ambient temperature. This process can be sped up by opening the shower and allowing the blending valve to consume the hot water from the tank in the blending process. While the shower is running, monitor the blending valve hot water inlet mechanical temperature gauge. When the blending valve hot water inlet temperature gauge drops below 100°F WHILE FLOWING, the tank temperature will be low enough to facilitate safe system draining.
  - a. If you will be running the shower to drop the tank temperature, this may be an appropriate opportunity to also perform an annual test of the shower for ANSI Z358.1 compliance for flow and pattern.
- 3. When the hot water tank has cooled sufficiently, shut off the shower if it has been activated, and turn off the main inlet water supply ball valve located on the water supply line. This is a lockable ball valve and Haws recommends locking this valve in the off position any time the system is to be drained.
- 4. If necessary, connect a drain hose to the drain connection and route to a safe drain location (or to the shower drain if unit is connected to a drainpipe). Do not open drain valve until step 8.
- 5. Confirm that the power is disconnected.
- 6. Unscrew and remove the cover on the Level Switch (Figure 9).
- 7. Using a multimeter, check continuity across the wired terminal block between the pin labeled "C" and the pin labeled "NC". If the tank is full, as it should be at this point, the multimeter should indicate electrical continuity exists between these two pins. (Note this Double Pole, Double Throw switch has two identical terminal blocks and testing should be done on the one that is wired.) If the tank has been heating properly, this test SHOULD be positive. If not, check the connections and confirm the tank is full.

- 8. To safely drain tank, relieve system pressure by opening shower then open the ball valve on the y-strainer in the hot water line located between the top of the tank and the hot side of the blending valve. Opening this valve allows air to enter the system when draining. Open the system drain valve to drain the system. Continue until water stops draining.
- 9. Using a multimeter, check continuity across the wired terminal block between the pin labeled "C" and the pin labeled "NC". If the tank is empty (or below the level of the switch), as it should be at this point, the multimeter should indicate NO electrical continuity exists between these two pins. (Note this Double Pole, Double Throw switch has two identical terminal blocks and testing should be done on the one that is wired.) If the multimeter indicates continuity DOES exist when the tank is empty, the float may be stuck in the up position, which would require removal and cleaning and/or replacement of the level switch.
- 10. Remove and inspect the tank "sacrificial" anode rod(s) for condition. These rods are designed to corrode and deteriorate before other less reactive surfaces in the system, so some corrosion is normal. If the stainless-steel core can be seen or the rod is grossly deteriorated, it should be replaced.
- 11. Remove and inspect the tank heater for excessive mineral buildup on the heater coils. In particular, if significant debris is noticed in the drain water, the local water is known to be "hard" or have high mineral content, or tank heater monitoring indicates more and more frequent cycling, consider removing and inspecting/cleaning the immersion heater. (Electrical disconnection and reconnection should be done by a qualified electrician) Contact Haws Services for questions at 1-800-766-5612.
- 12. Open and clean out the Y-strainers (one in the inlet water line and one in the hot water line).
- 13. When maintenance is complete and any components removed have been replaced, close the system drain valve and the ball valve on the hot line Y-strainer if it was opened.
- 14. Unlock and open the inlet water supply valve and allow the system to fill. Opening the shower can facilitate purging of air from the system.
- 15. When the system is full of water, follow appropriate Lock Out, Tag Out procedures to unlock and turn on the system disconnect switch to restore power to the unit.
- 16. Allow time for the system to come up to temperature (up to 24 hours) and ensure that all alarms are clear.

## MAINTENANCE, TESTING, REPAIR

## **Blending Valve System**

The TWBS.HF blending valve system (see Figure 11) should require minimal amount of maintenance. During scheduled testing, the temperature output should be checked for proper adjustment. With the shower or eye/facewash activated the outlet temperature should be approximately 80-85°F.



Figure 11. Blending Valve

NOTE: For more information, refer to TWBS.HF the Blending Valve System O&M manual.

#### **Combination Shower/Eyewash**

Verify shower and eyewash flow per ANSI requirements.

NOTE: If shower and/or eyewash does not flow per ANSI requirements or at all, consult Haws Services.

#### Freeze and Scald Valve

Scald valve is designed to open before internal water temperature exceeds 100°F (37.8°C). Freeze is designed to open before internal water temperature drops below 35°F (1.7°C).

NOTE: If valve does not fully open/close, check valve seat for debris or scale build up. If no debris or scale is present, consult Haws Services at 1-800-766-5612.

CAUTION: Extreme hot/cold temperatures may cause valves to open.

#### **Y-Strainers**

Y-strainers should be blown out at the same time as scheduled testing of showers or monthly.

For technical support, contact: Haws Services | (800) 766-5612 | www.hawsco.com/services

# **TROUBLESHOOTING**

TROUBLE	REPAIR CHECKLIST
Tank temperature too cold (165°F (74°C) for standard or	a) Used recently? Full recovery could take 24 hours.
145°F (63°C) for Canada):	<b>b)</b> Check thermostat setting (165°F/145°F).
	c) Check tank heater circuit fuses F1.
	d) Check control voltage and power supply fuses PFU
	& CFU.
Tank temperature too hot:	a) Check thermostat setting.
Uneven water flow to eyewash:	a) Eyewash must be level.
	b) Clogged flow control. Clean or replace flow control
	in eyewash head.
Insufficient water flow to eyewash or shower:	a) Check water supply dynamic pressure (45-90 PSI).
	b) Check and clean "Y" strainers.
	c) Check ball valves. Must be open and unclogged.
	d) Clogged flow control. Clean or replace flow control
	in either eyewash or shower.
Area light off:	a) Check LED.
	b) Check fuses PFU & CFU.
Area light does not flash, and alarm does not sound	a) Check flow switch or proximity switch actuation.
when shower or eyewash is activated:	b) Check flow switch or proximity switch wiring.
Alarm does not flash, but alarm is sounding when	a) Check LED.
shower or eyewash is activated:	b) Check wiring to light.

If there are any questions that cannot be answered here, please consult:

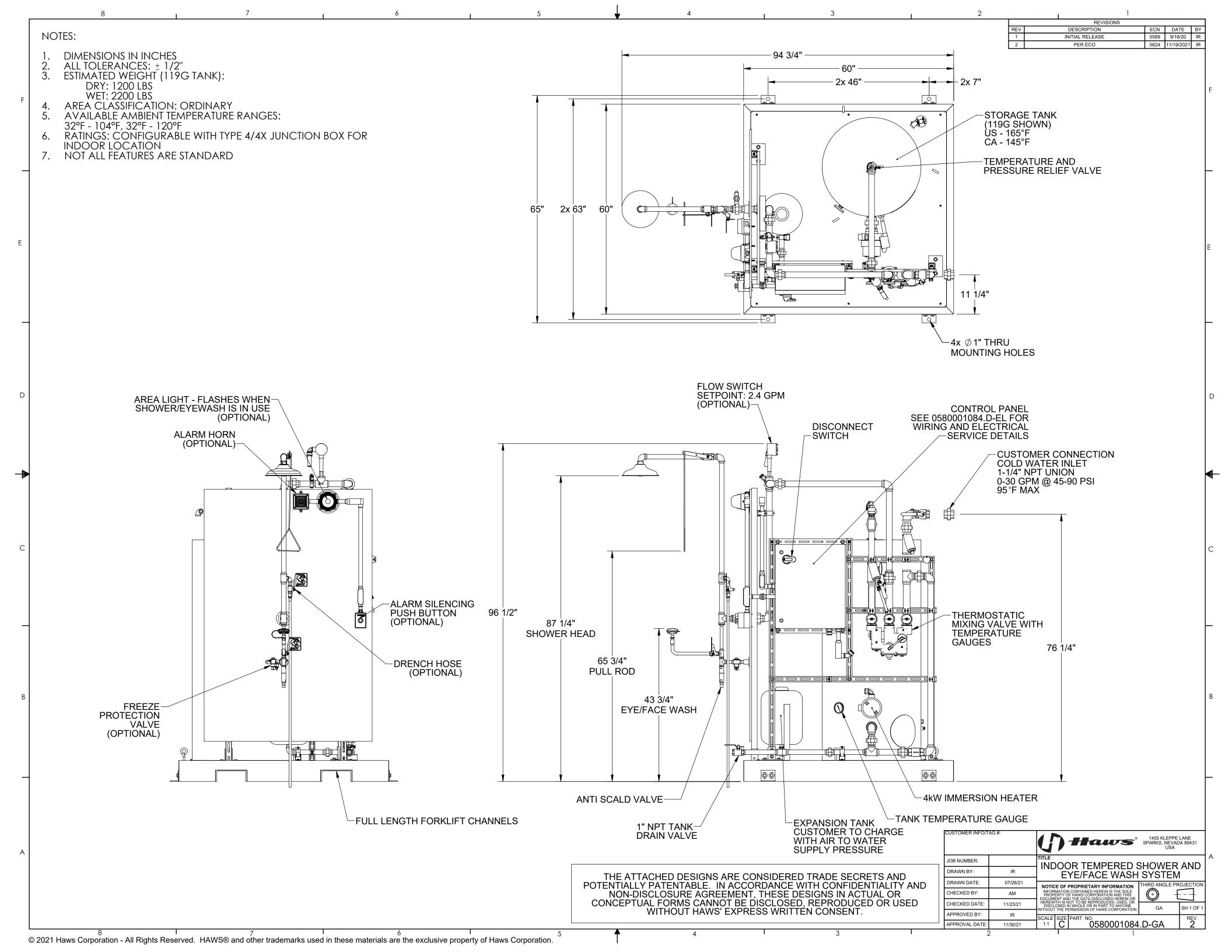
Haws Services | (800) 766-5612 | www.hawsco.com/services

# **SPARE PARTS**

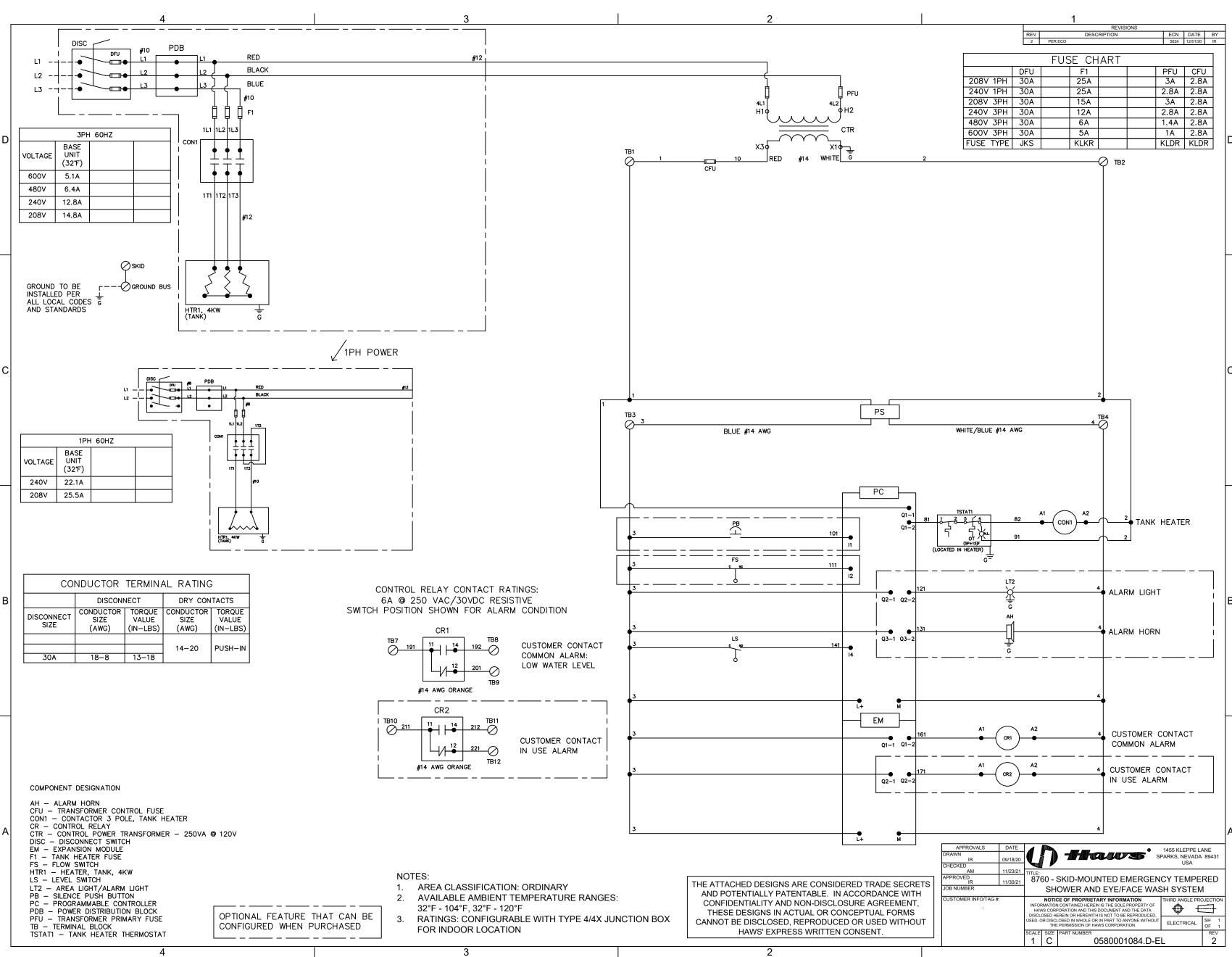
Please call Haws Services to order spare parts: 1-800-766-5612

# **DRAWINGS**

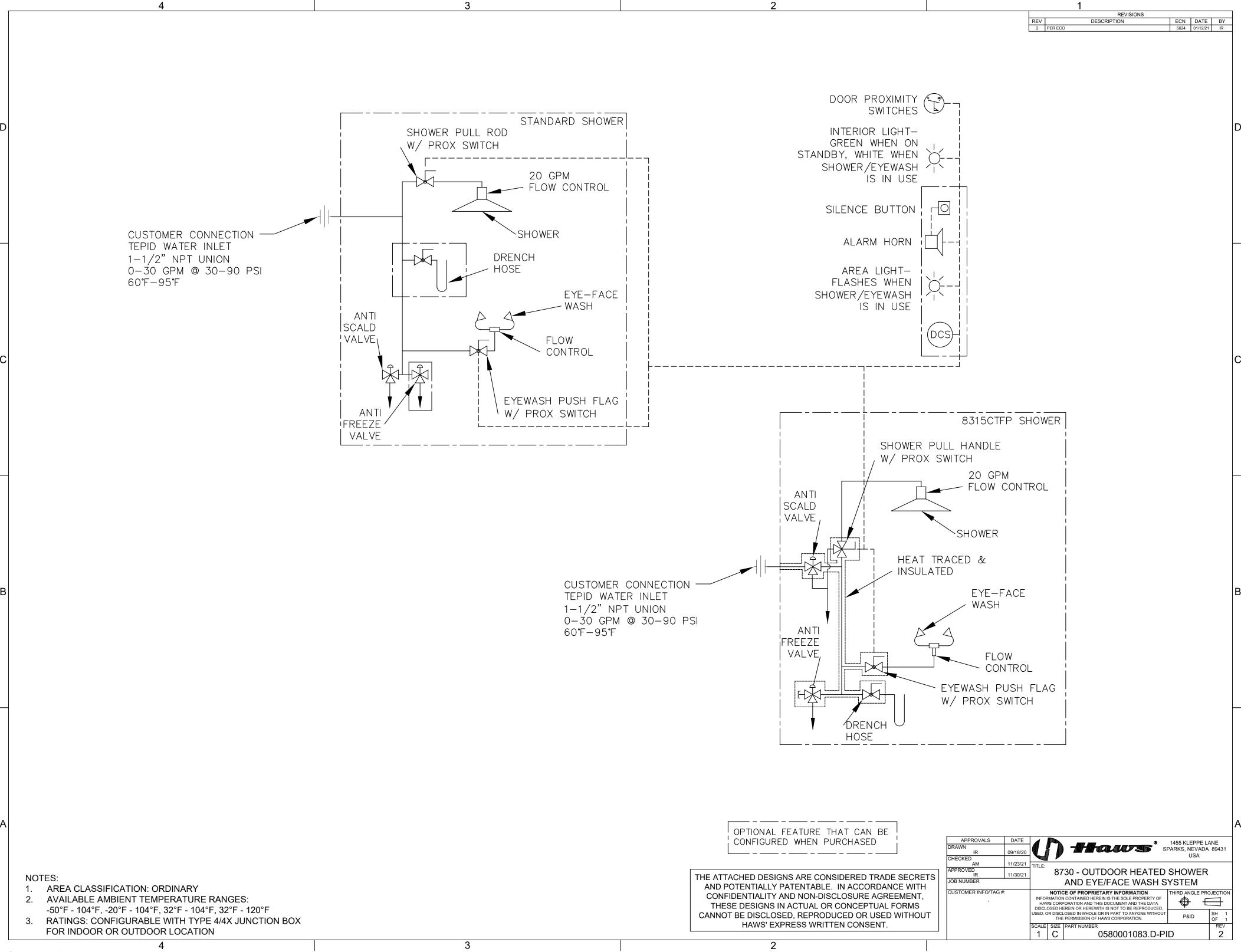
General Arrangement Drawing (0580001084.D-GA)



Electrical Schematic (0580001084.D-EL)



Piping and Instrumentation Diagram (0580001084.D-PID)



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#### LIMITED WARRANTY

HAWS warrants that this specific product is guaranteed against defective material or poor workmanship for a period of **one year from date of shipment**. HAWS liability under this warranty shall be discharged by furnishing without charge F.O.B. HAWS Factory any goods, or part thereof, which shall appear to the Company upon inspection to be of defective material or not of first class workmanship, provided that claim is made in writing to Haws within a reasonable period after receipt of the product. Where claims for defects are made, the defective part or parts shall be delivered to the Company, prepaid, for inspection. HAWS will not be liable for the cost of repairs, alterations, or replacements, or for any expense connected therewith made by the owner or his agents, except upon written authority from HAWS, Sparks, Nevada. HAWS will not be liable for any damages caused by defective materials or poor workmanship, except for replacements, as provided above. Buyer agrees that Haws has made no other warranties either expressed or implied in addition to those above stated, except that of title with respect to any of the products or equipment sold hereunder and that HAWS shall not be liable for general, special, or consequential damages claimed to arise under the contract of sale.

The emergency equipment manufactured by HAWS is warranted to function if installation and maintenance instructions provided are adhered to. The units also must be used for the purpose for which they were intended. This product is intended to supplement first-aid treatment. Due to widely varying conditions, Haws cannot guarantee that the use of this emergency equipment will prevent serious injury or the aggravation of existing or prior injuries.

NO OTHER WARRANTIES EXPRESSED OR IMPLIED ARE AUTHORIZED, PROVIDED OR GIVEN BY HAWS.

SHOULD YOU EXPERIENCE DIFFICULTY WITH THE INSTALLATION OF THIS

**MODEL PLEASE CALL:** 

HAWS SERVICES: 1-800-766-5612

FOR CUSTOMER SERVICE: 1-888-640-4297

For more information on Haws products, see our website: www.hawsco.com

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