



# model 8780

## Indoor Emergency Water Tempering Skid

### FEATURES & BENEFITS

#### QUALITY CONTROL

Fully assembled and tested for quick placement and hook-up.

#### STANDARDIZED PLATFORM

Offering a standardized line of water tempering solutions providing shorter lead times, advanced compliance, cost efficiencies, and customizable configuration options.

#### BLENDING SYSTEM

Safe, fully engineered thermostatic provides 78 gallons per minute with anti-scald protection and full-flow cold water bypass to provide tempered water in adverse situations.

#### TANK SYSTEM OPTIONS

Tanks available: 119 Gal non-ASME (450 L), 120 Gal (454 L) ASME, or 200 Gal (757 L) ASME that will store enough hot water to provide a single 15 minute shower and eye/face wash use. Standard is a 318 Gal (1203 L) ASME or an available 400 Gal (1514 L) ASME that stores enough hot water to provide two 15 minute shower and eye/face wash uses before tank recovery is required.

#### EXPANDABLE/FLEXIBLE CAPABILITIES

System can be designed to a number of variations including the hot water supply, the electrical type, the blending capabilities, and pump options including VFD controlled pump.

#### ELECTRICAL SYSTEM OPTIONS

Haws provides systems at various voltage options, including 480V 3ph, 600V 3ph, 208V 1ph, 208V 3ph, 240V 1ph, and 240V 3ph. Electrical area rating option includes Type 4 Ordinary Location.



### SPECIFICATIONS

Model 8780 skid-mounted tempering system shall include an aluminum 5' x 5' (1.5 x 1.5 m) frame with a composite equipment platform, with high visibility green chemical and UV resistant polyester based powder coating. This multiple shower and eyewash feeder provides an operating temperature range of 35° to 120° F (45.5° to 48.9° C), and is designed to operate with a number of tempering and electrical options. The tempered water blending system includes a 318 gallon ASME hot water tank, galvanized piping, and will incorporate fail-safe features like anti-scald protection and full flow cold water bypass. The electrical system is supplied with a NEMA4 enclosure, 480V three phase inlet, and the can be easily adapted to other voltages upon request. 1-1/2" tepid and cold water inlets.

### APPLICATIONS

Optional equipment to accommodate virtually any specific need includes:

- Stainless steel valves and/or piping
- Temperature control packages including 4 or 10 kW immersion heaters
- Alarm package
- Recirculation pump with VFD, or booster / recirculation pump with VFD

Perfect for indoor facilities that may encounter dangerous chemical hazards and need a complete tempering system, and/or need a feeder to other remote booth substations or other drench systems and/or eyewash stations.

For more information, visit [www.hawscos.com](http://www.hawscos.com) or call (888) 640-4297.

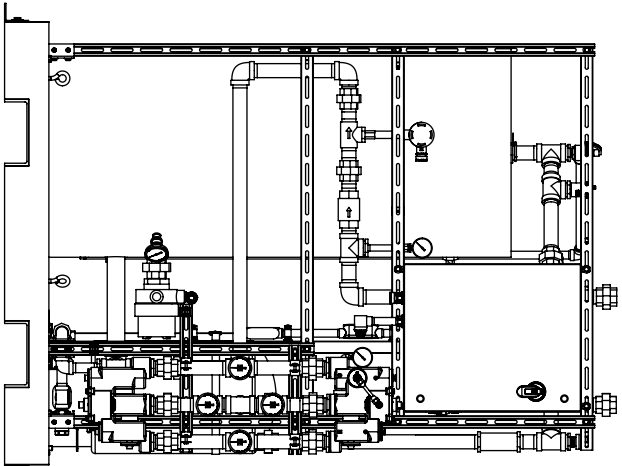
- NOTES:
- DIMENSIONS IN INCHES.
  - ALL TOLERANCES:  $\pm 1/2"$ .
  - ESTIMATED WEIGHT:

DRY: 1200 LB  
WET: 3900 LB

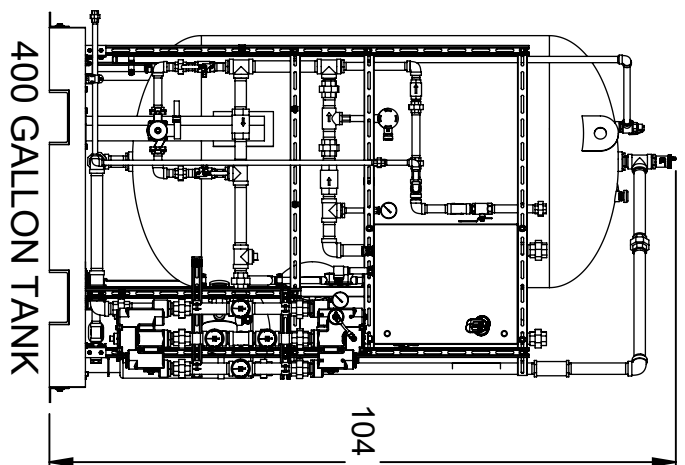
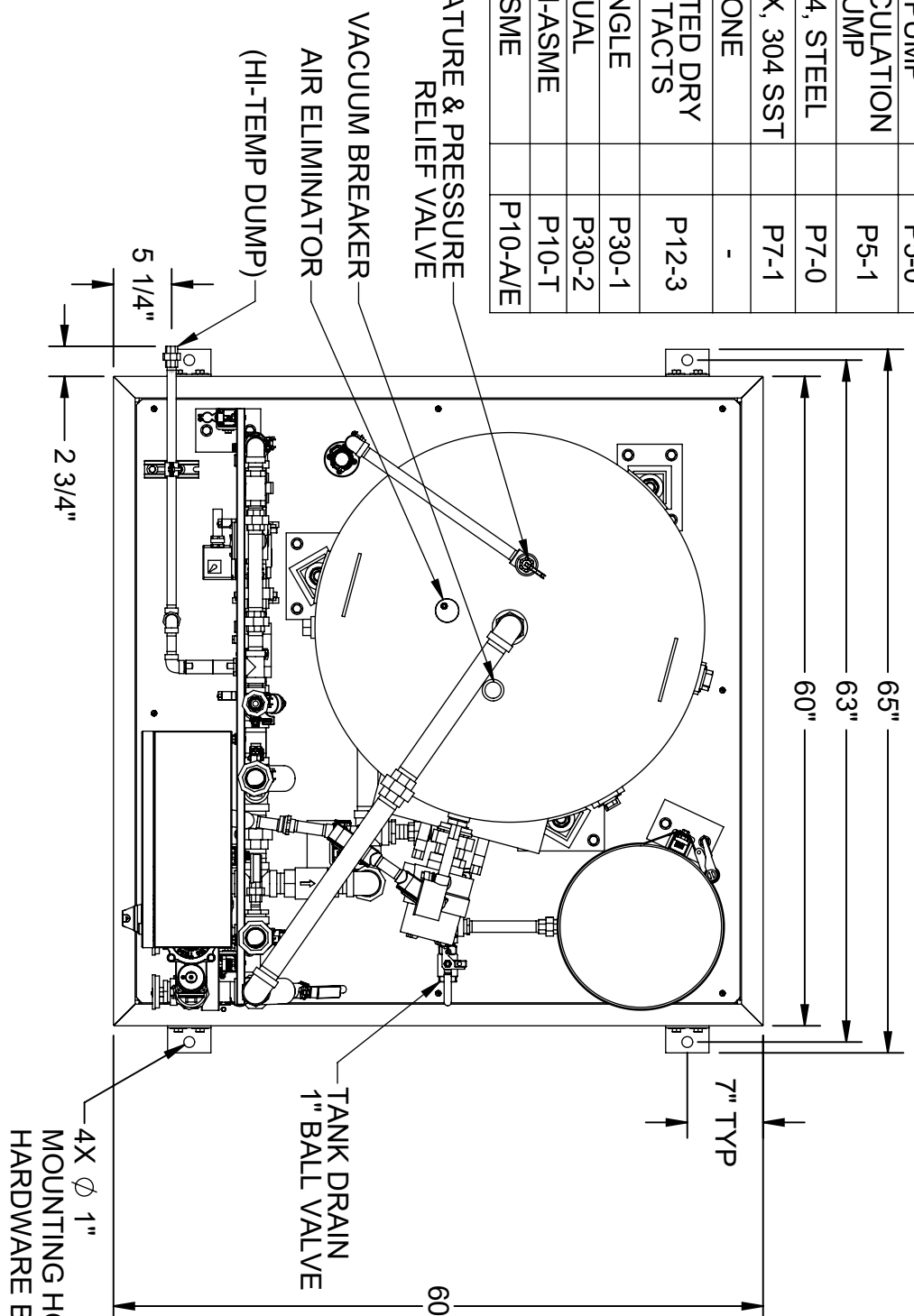
- AREA CLASSIFICATION: ORDINARY
- AMBIENT TEMPERATURE: 32°F-104°F
- NOT ALL FEATURES ARE STANDARD

# MODELS WITH RECIRCULATION PUMP OR NO PUMP

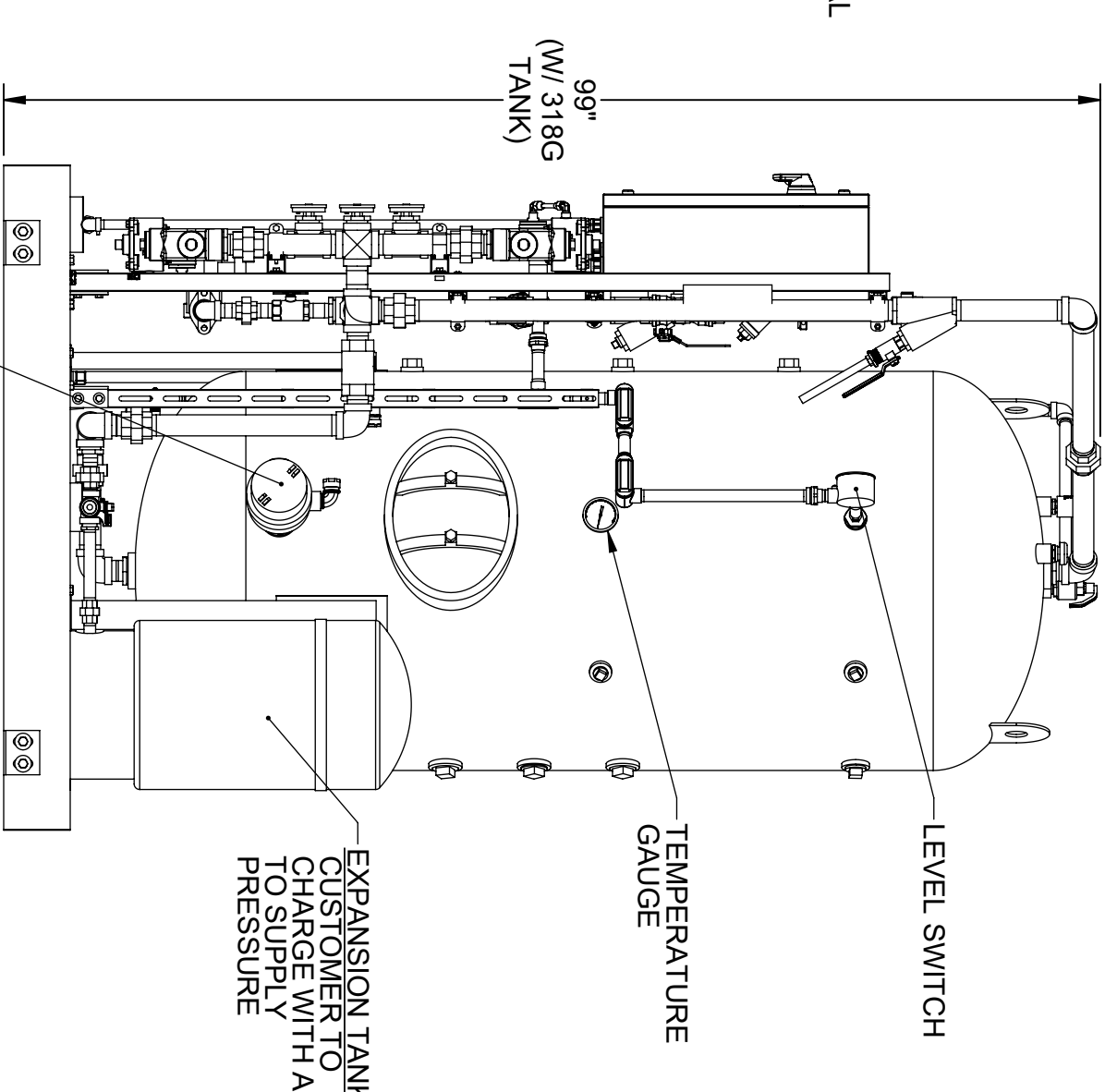
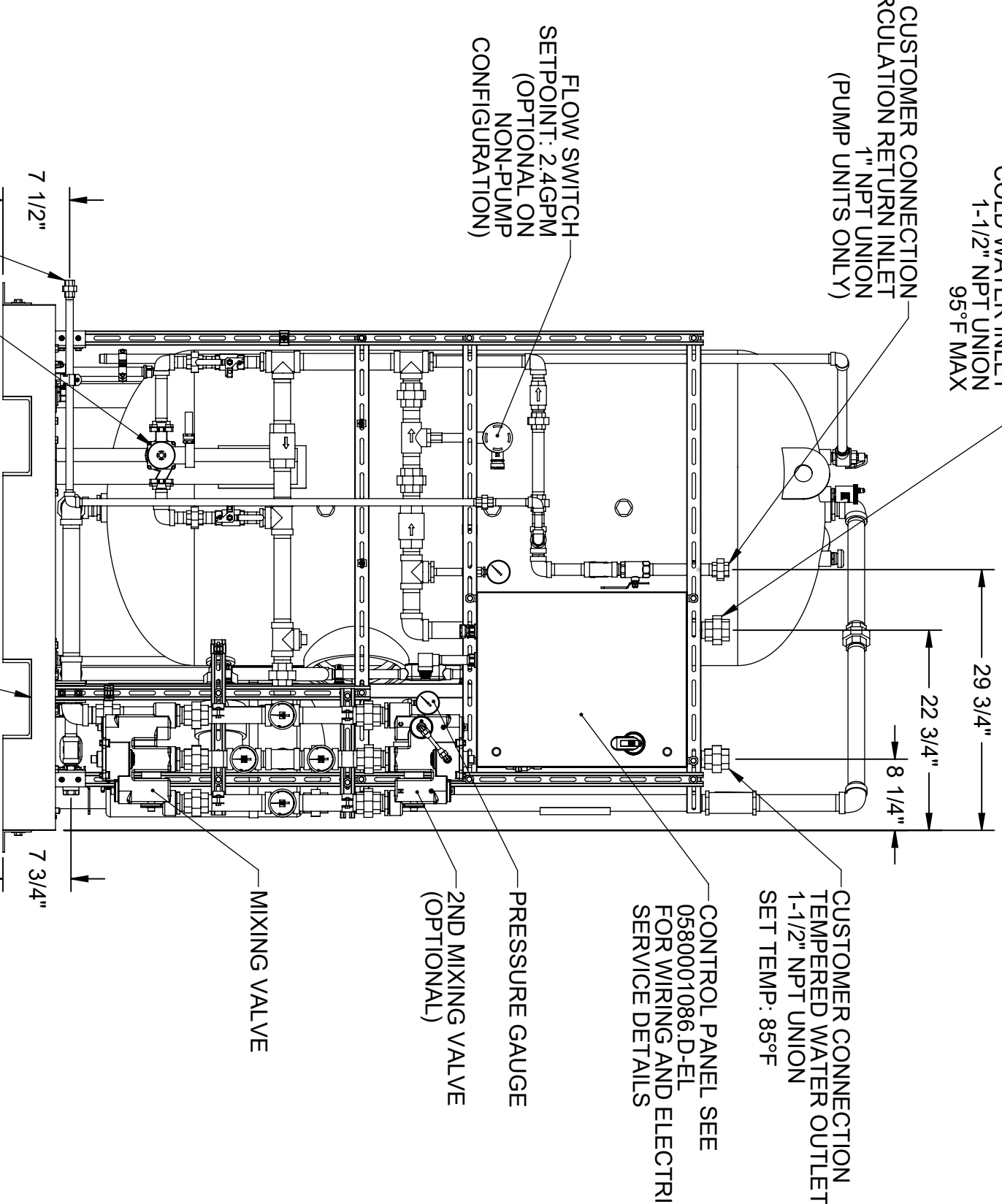
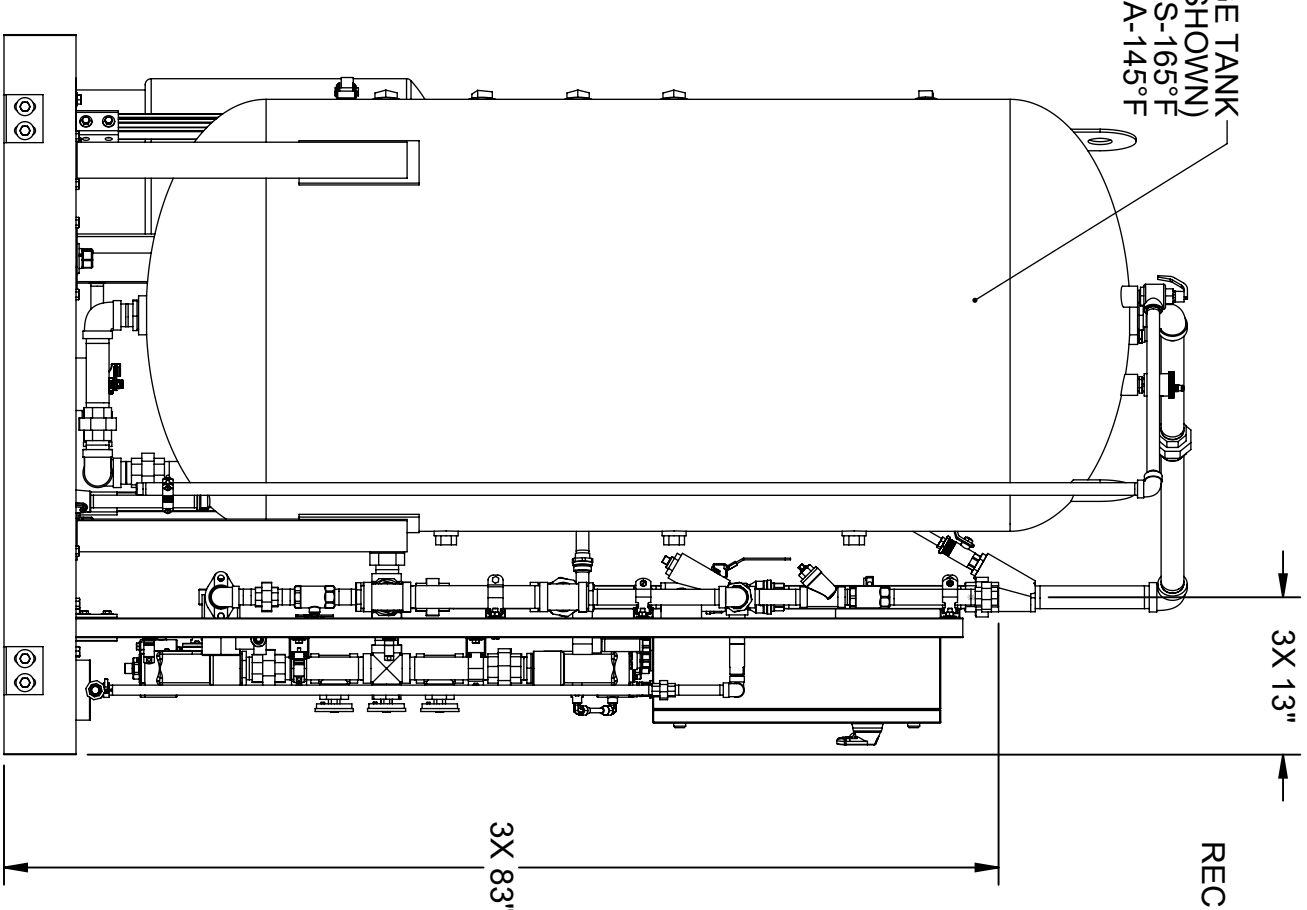
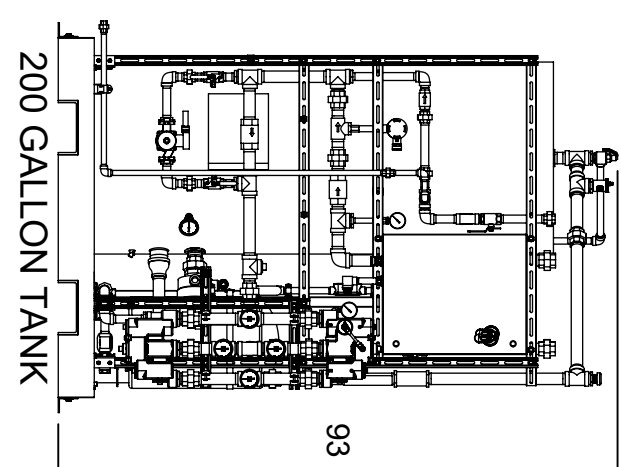
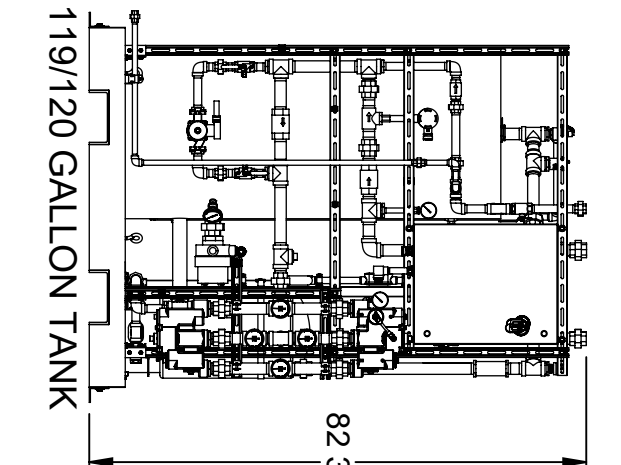
| OPTIONS                  |                                   | DWG REF.         |
|--------------------------|-----------------------------------|------------------|
| PUMP CONFIGURATION       | NO PUMP<br>RECIRCULATION PUMP     | P5-0<br>P5-1     |
| JUNCTION BOX TYPE RATING | TYPE 4, STEEL<br>TYPE 4X, 304 SST | P7-0<br>P7-1     |
| ALARM (IN USE)           | NONE<br>ISOLATED DRY CONTACTS     | -<br>P12-3       |
| MIXING VALVE QTY.        | SINGLE<br>DUAL                    | P30-1<br>P30-2   |
| EXPANSION TANK           | NON-ASME<br>ASME                  | P10-T<br>P10-A/E |



119/120 GALLON TANK, NO PUMP



| TANK SIZE                                                         |           |                           |                                       |
|-------------------------------------------------------------------|-----------|---------------------------|---------------------------------------|
| (TANK TEMPERATURES ARE SET AT 165°F FOR USA AND 145°F FOR CANADA) |           |                           |                                       |
| TANK SIZE                                                         | TANK TEMP | SHOWER CAPACITY (15 MIN.) | MINIMUM INLET TEMP. / OPTION SELECTED |
| 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                                  |
| 318G                                                              | 165°F     | 2                         | 39°F                                  |
| 400G                                                              | 145°F     | 2                         | 35°F                                  |
| 400G                                                              | 165°F     | 2                         | 32°F                                  |



CUSTOMER CONNECTION  
HI-TEMP VALVE DUMP  
1/2" NPT UNION  
>95°F  
(RECIRCULATION PUMP UNITS ONLY)

FULL LENGTH  
FORKLIFT CHANNELS

THE ATTACHED DESIGNS ARE CONSIDERED TRADE SECRETS AND POTENTIALLY PATENTABLE. IN ACCORDANCE WITH CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT, THESE DESIGNS IN ACTUAL OR CONCEPTUAL FORMS CANNOT BE DISCLOSED, REPRODUCED OR USED WITHOUT HAWS EXPRESS WRITTEN CONSENT.

CUSTOMER NOTING #:

1455 ALPEPE LANE  
SPARKS, NEVADA 89431

INDOOR EMERGENCY WATER TEMPERING SKID

THIRD ANGLE PROJECTION

SCALE SIZE: 1/16"

C

0580001086.D-GA

REV. 3

APPROVAL DATE: 07/06/22

IR

GA

SH 1 OF 1

CHECKED DATE: 07/06/22

JSLP

GA

SH 1 OF 1

DRAWN DATE: 06/16/21

JSLP

GA

SH 1 OF 1

DRAWN BY: DP

GA

SH 1 OF 1

| REVISIONS |  |  |  | REV | DESCRIPTION | ECON | DATE   | BY |
|-----------|--|--|--|-----|-------------|------|--------|----|
|           |  |  |  | 3   | PER ECO     | 5817 | 6/8/22 | IR |

# MODELS WITH VFD RECIRC/BOOSTER PUMP

- NOTES:
1. DIMENSIONS IN INCHES.

2. ALL TOLERANCES: ±1/2"

4. ESTIMATED WEIGHT:

DRY: 1200 LB

WET: 3900 LB

AREA CLASSIFICATION: ORDINARY

6. AMBIENT TEMPERATURE: 32°F-104°F

7. NOT ALL FEATURES ARE STANDARD

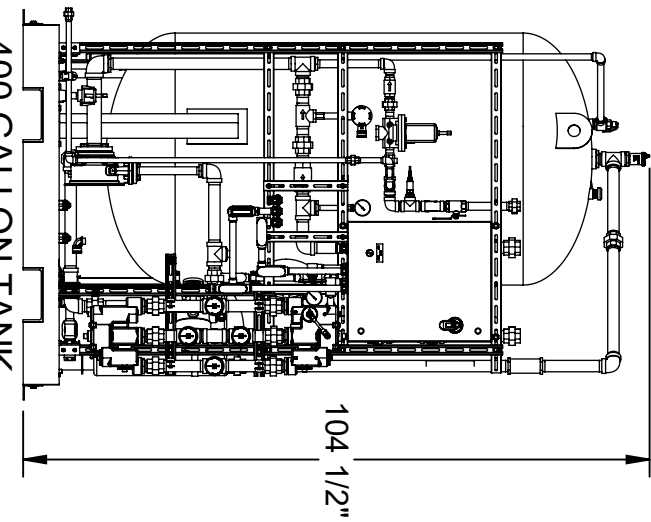
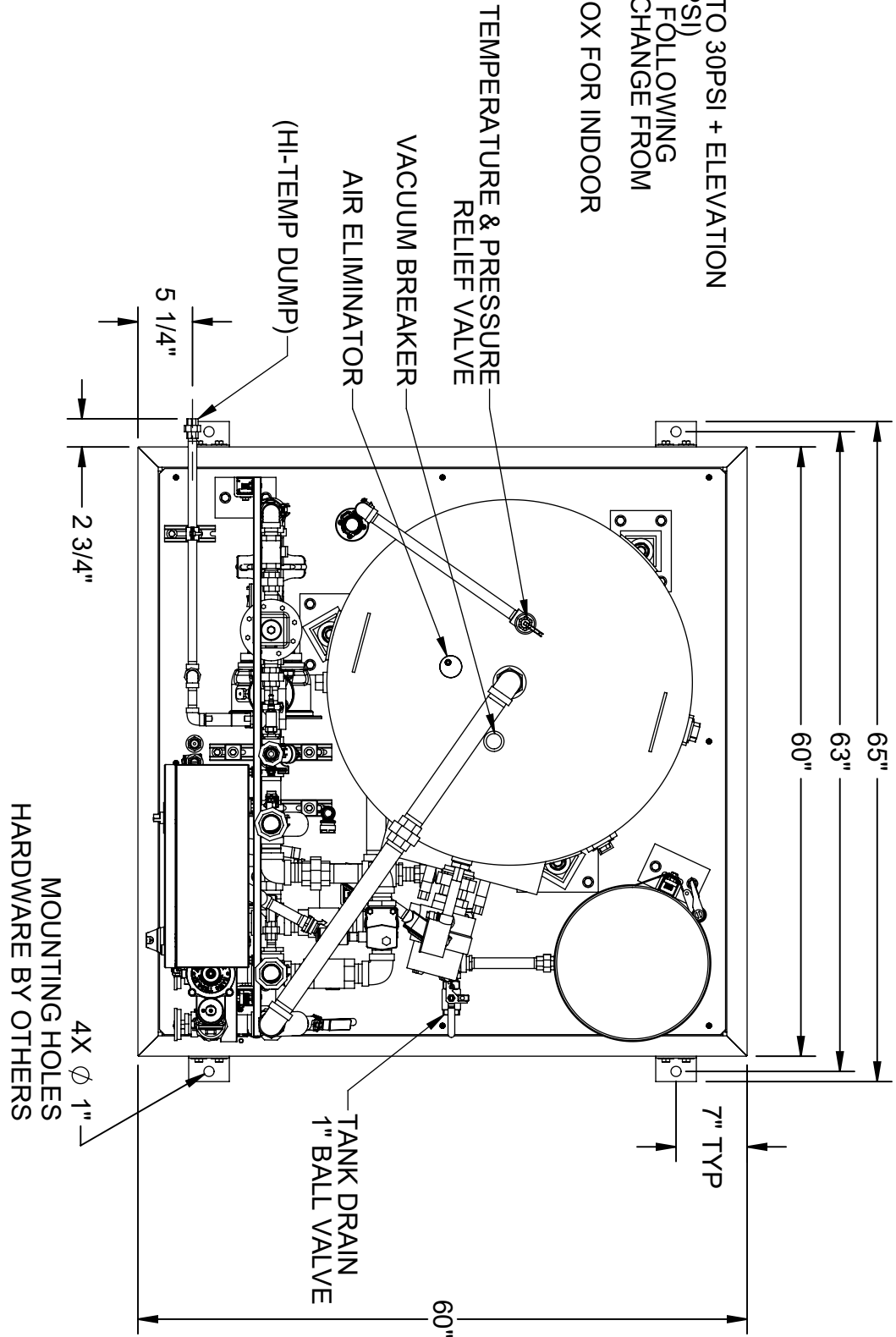
8. RECOMMENDED RECIRCULATION FLOWRATE: 10GPM

9. PRESSURE TRANSMITTER SETPOINT IS TYPICALLY SET TO 30PSI + ELEVATION

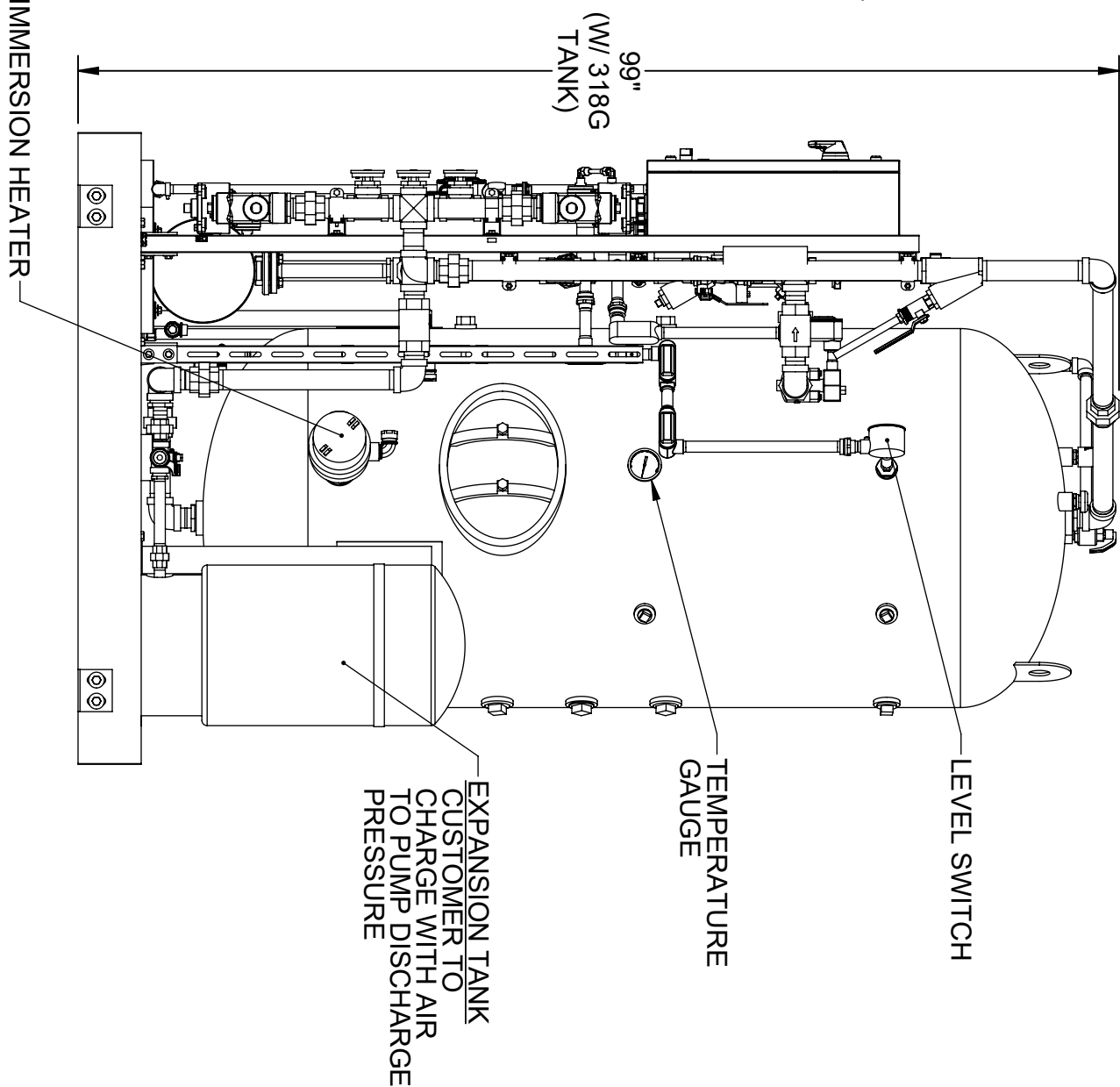
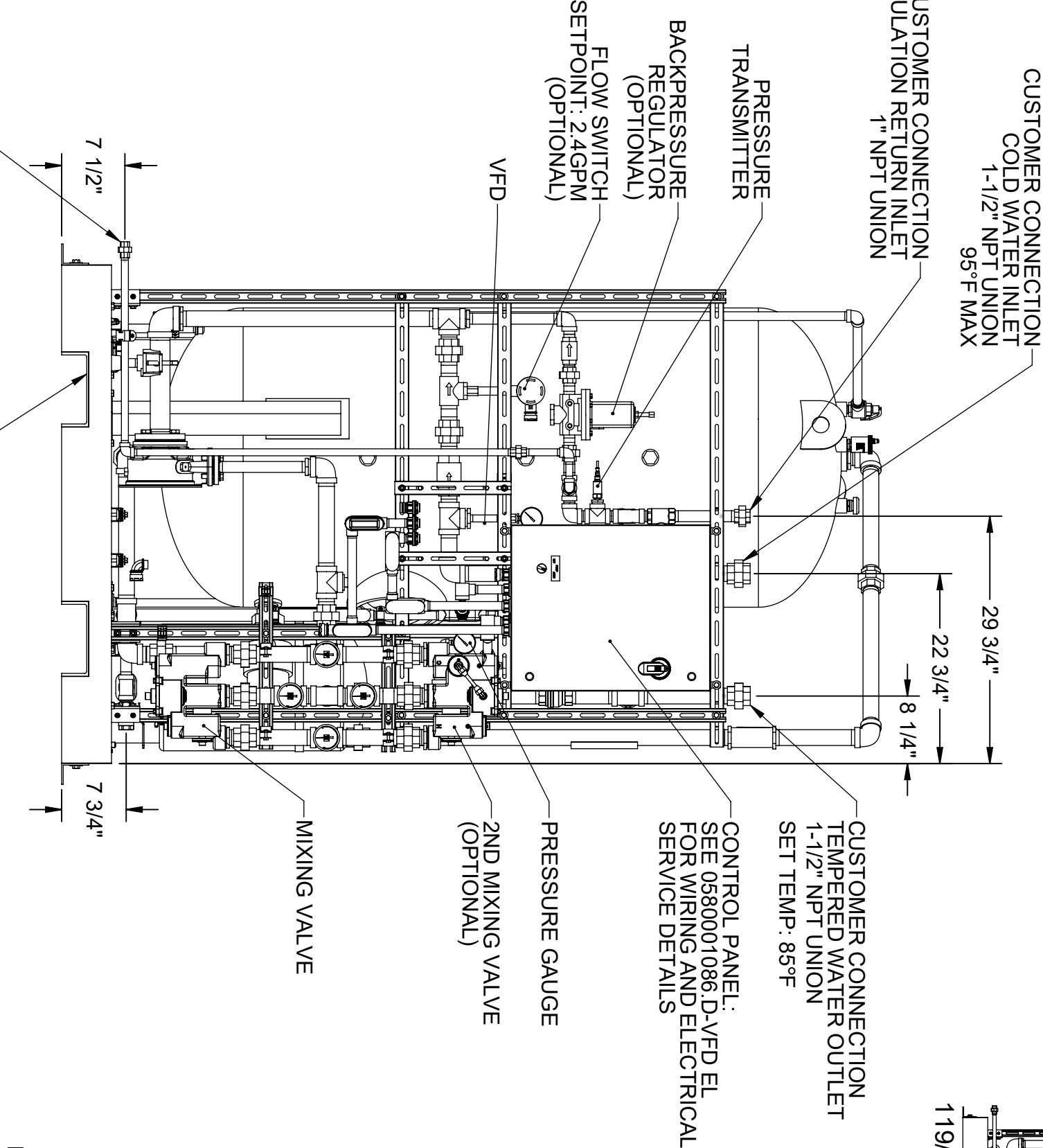
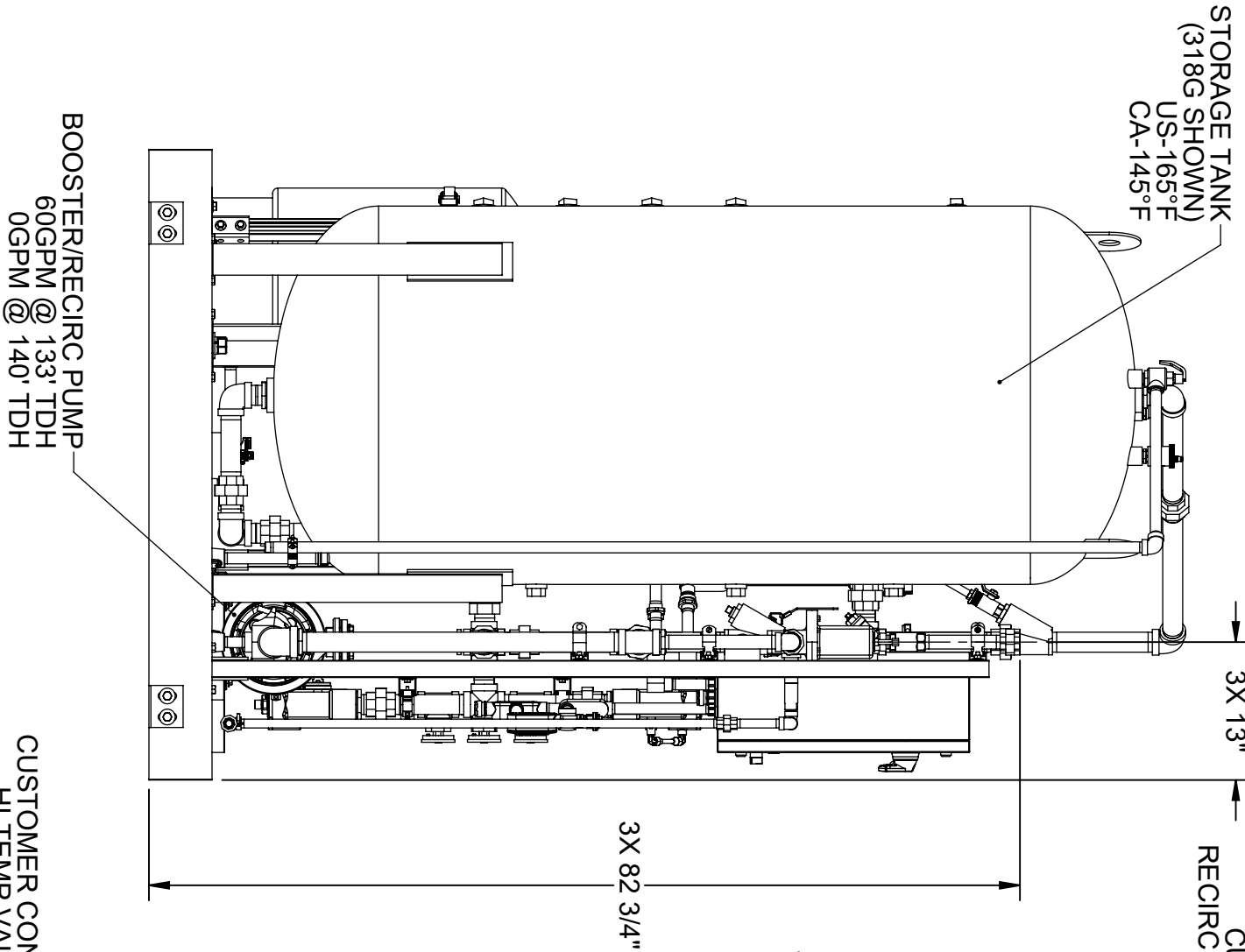
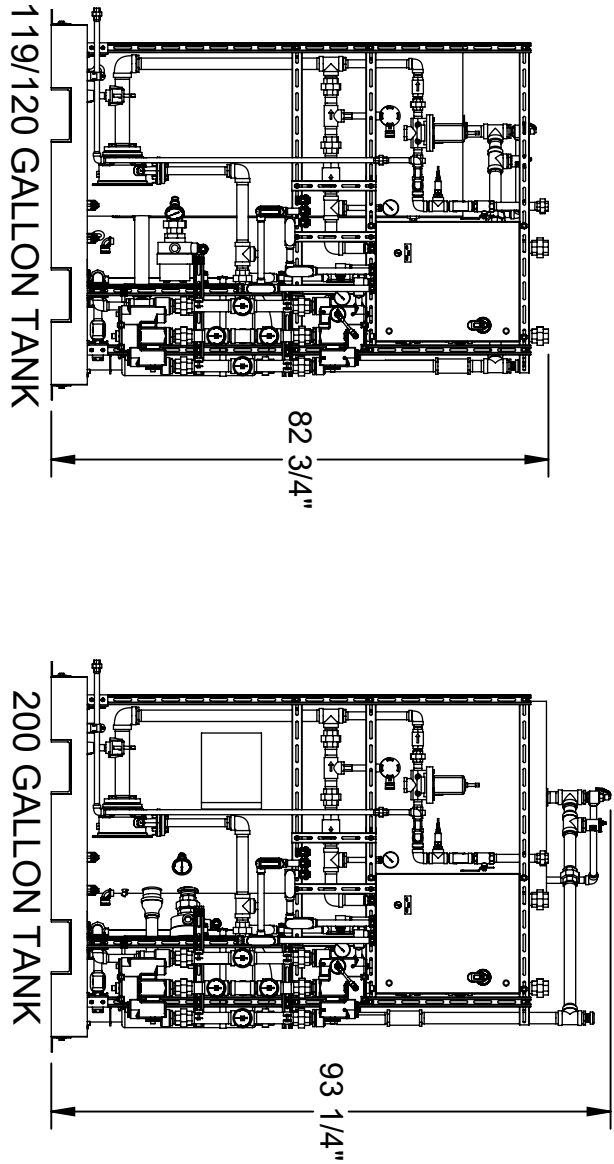
10. A BACK PRESSURE REGULATOR IS REQUIRED FOR THE FOLLOWING SKID TO HIGHEST SHOWER

11. RATINGS: CONFIGURABLE WITH TYPE 4/4X JUNCTION BOX FOR INDOOR LOCATION

| OPTIONS                  |                       | DWG REF. |
|--------------------------|-----------------------|----------|
| PUMP CONFIGURATION       | BOOSTER/RECIRC W/ VFD | P5-3     |
| JUNCTION BOX TYPE RATING | TYPE 4, STEEL         | P7-0     |
|                          | TYPE 4X, 304 SST      | P7-1     |
|                          | NONE                  | -        |
| ALARM (IN USE)           | ISOLATED DRY CONTACTS | P12-3    |
| MIXING VALVE QTY.        | SINGLE                | P30-1    |
|                          | DUAL                  | P30-2    |



| TANK SIZE                                                         |            |                           |                                     |
|-------------------------------------------------------------------|------------|---------------------------|-------------------------------------|
| (TANK TEMPERATURES ARE SET AT 165°F FOR USA AND 145°F FOR CANADA) |            |                           |                                     |
| TANK SIZE                                                         | TANK TEMP. | SHOWER CAPACITY (15 MIN.) | OPTION MINIMUM INLET TEMP. SELECTED |
| 119G                                                              | 145°F      | 1                         | 62°F                                |
|                                                                   | 165°F      | 1                         | 54°F                                |
| 120G                                                              | 145°F      | 1                         | 62°F                                |
|                                                                   | 165°F      | 1                         | 54°F                                |
| 200G                                                              | 145°F      | 1                         | 35°F                                |
|                                                                   | 165°F      | 1                         | 32°F                                |
| 318G                                                              | 145°F      | 2                         | 50°F                                |
|                                                                   | 165°F      | 2                         | 39°F                                |
| 400G                                                              | 145°F      | 2                         | 35°F                                |
|                                                                   | 165°F      | 2                         | 32°F                                |



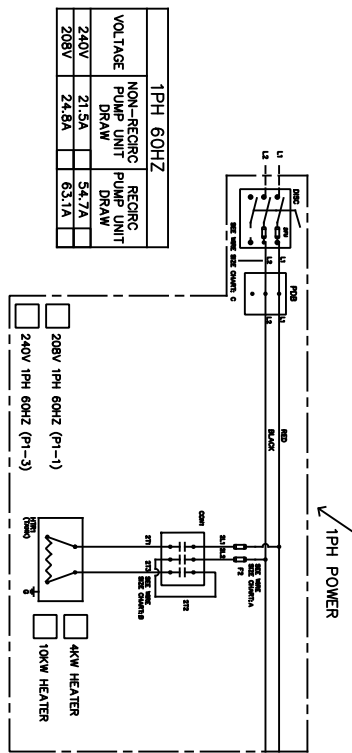
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|                                                                                                                                                                                                                                                                                                                                                      |          |                                                                                                                                                                     |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| CUSTOMER INFO/TAG #:                                                                                                                                                                                                                                                                                                                                 |          |  1455 ALLEPE LANE<br>SPARKS, NEVADA 89931<br>USA                                 |      |
| JOB NUMBER:                                                                                                                                                                                                                                                                                                                                          |          | INDOOR EMERGENCY WATER<br>TEMPERING SKID                                                                                                                            |      |
| DRAWN BY:                                                                                                                                                                                                                                                                                                                                            | DP       |                                                                                                                                                                     |      |
| DRAWN DATE:                                                                                                                                                                                                                                                                                                                                          | 06/16/21 |                                                                                                                                                                     |      |
| CHECKED BY:                                                                                                                                                                                                                                                                                                                                          | JSLP     |                                                                                                                                                                     |      |
| CHECKED DATE:                                                                                                                                                                                                                                                                                                                                        | 07/06/22 |                                                                                                                                                                     |      |
| APPROVED BY:                                                                                                                                                                                                                                                                                                                                         | IR       | <div>THIRD ANGLE PROJECTION</div> <div></div> <div>GA</div> <div>SH 1 OF 1</div> |      |
| APPROVAL DATE:                                                                                                                                                                                                                                                                                                                                       | 07/06/22 |                                                                                                                                                                     |      |
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| SCALE                                                                                                                                                                                                                                                                                                                                                | SIZE     | PART NO.                                                                                                                                                            | REV. |
| 1:10                                                                                                                                                                                                                                                                                                                                                 | C        | 0580001086.D-GA                                                                                                                                                     | 3    |

| REVISIONS |             |          |    |
|-----------|-------------|----------|----|
| REV       | DESCRIPTION | DATE     | BY |
| 1         | REVISED     | 05/05/20 | MS |
| 2         | REVISED     | 05/05/20 | MS |
| 3         | REVISED     | 05/05/20 | MS |

| 3PH 60HZ |                           |                       |  |
|----------|---------------------------|-----------------------|--|
| VOLTAGE  | NON-RECIRC PUMP UNIT DRAW | RECIRC PUMP UNIT DRAW |  |
| 600V     | 5A                        | 12.6A                 |  |
| 480V     | 6.2A                      | 15.8A                 |  |
| 240V     | 12.4A                     | 31.6A                 |  |
| 208V     | 14.3A                     | 36.4A                 |  |

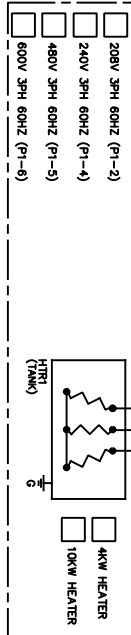
GROUND TO BE  
MAINTAINED  
AT ALL LOCAL CODES  
AND STANDARDS



OPTIONAL FEATURE THAT CAN BE  
CONFIGURED WHEN PURCHASED

- COMPONENT DESIGNATION
- CR1 - CONTROL POWER FUSE
  - CR2 - CIRCULATING PUMP FUSE
  - CTR - CIRCULATING PUMP TANK HEATER
  - DISC - DISCONNECT SWITCH
  - F1 - PUMP FUSE
  - F2 - TANK HEATER FUSE
  - HTRI - TANK HEATER
  - LS - LEVEL SWITCH
  - PDB - POWER DISTRIBUTION BLOCK
  - PDP - PUMP FUSE
  - TS1A1 - TANK HEATER THERMOSTAT

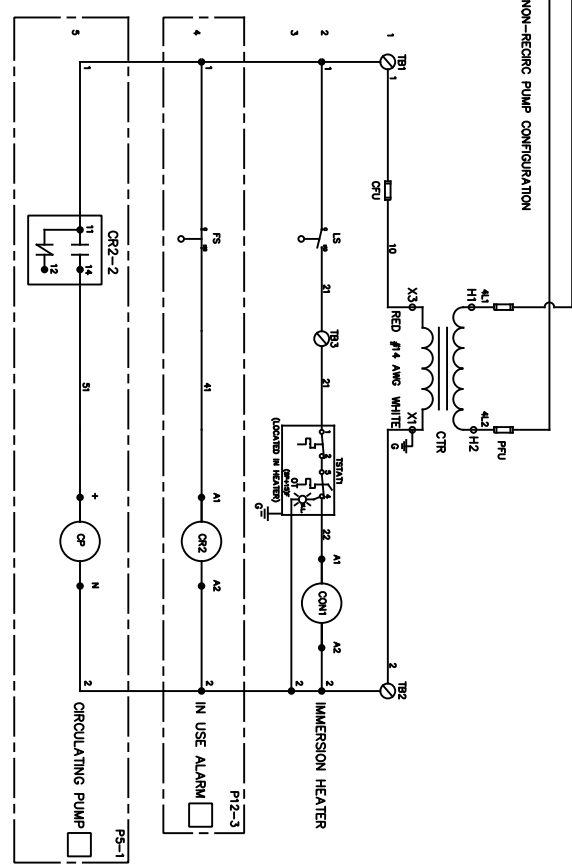
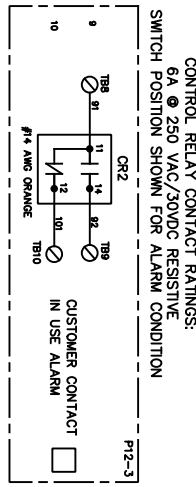
- NOTES:
- AREA CLASSIFICATION: ORDINARY
  - AVAILABLE AMBIENT TEMPERATURE RANGE:  
32°F - 104°F
  - RATINGS: CONFIGURABLE WITH TYPE 4/4X JUNCTION BOX  
FOR INDOOR LOCATION



| NON-RECIRC PUMP CONFIGS. FUSE CHART |     |       |      |
|-------------------------------------|-----|-------|------|
| DFU                                 | F2  | PFU   | CFU  |
| 208V 1PH 30A                        | 25A | 1.25A | 1A   |
| 240V 1PH 30A                        | 25A | 1.25A | 1A   |
| 208V 3PH 30A                        | 15A | 1.25A | 1A   |
| 240V 3PH 30A                        | 12A | 1A    | 1A   |
| 480V 3PH 30A                        | 6A  | .5A   | 1A   |
| 600V 3PH 30A                        | 5A  | .5A   | 1A   |
| FUSE TYPE                           | JKS | KLDR  | KLDR |

| RECIRC PUMP CONFIGS. FUSE CHART |     |      |      |
|---------------------------------|-----|------|------|
| DFU                             | F2  | PFU  | CFU  |
| 208V 1PH 100A                   | 60A | 6A   | 5.6A |
| 240V 1PH 100A                   | 60A | 6A   | 5.6A |
| 208V 3PH 60A                    | 35A | 6A   | 5.6A |
| 240V 3PH 60A                    | 30A | 5.6A | 5.6A |
| 480V 3PH 30A                    | 15A | 2.8A | 5.6A |
| 600V 3PH 30A                    | 12A | 2A   | 5.6A |
| FUSE TYPE                       | JKS | KLDR | KLDR |

| WIRE SIZE CHART |              |              |              |
|-----------------|--------------|--------------|--------------|
| A               | B            | C            |              |
| 4KW #8          | 10KW #4      | 4KW #6       | 4KW #10      |
| 208V 1PH #8     | 240V 1PH #8  | 208V 3PH #8  | 240V 3PH #8  |
| 208V 3PH #10    | 240V 3PH #10 | 480V 3PH #10 | 600V 3PH #10 |
| 208V 3PH #12    | 240V 3PH #12 | 480V 3PH #12 | 600V 3PH #12 |
| 208V 3PH #12    | 240V 3PH #12 | 480V 3PH #12 | 600V 3PH #12 |



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HAWES EXPRESS WRITTEN CONSENT.

|                 |                                                 |                                         |
|-----------------|-------------------------------------------------|-----------------------------------------|
| APPROVALS       | DATE                                            | 1406 WESTPLANE<br>SPRINGS, NEVADA 89431 |
| DRAWN BY        | DATE                                            |                                         |
| CHECKED BY      | DATE                                            |                                         |
| APPROVED BY     | DATE                                            |                                         |
| DESIGN NUMBER   | 8780 - INDOOR EMERGENCY WATER<br>TEMPERING SKID |                                         |
| DESIGNER'S NAME |                                                 |                                         |
| NOTES           |                                                 |                                         |
| 1               | C                                               | 3                                       |

GROUND TO BE INSTALLED PER ALL LOCAL CODES AND STANDARDS

3PH 60HZ

BASE UNIT

| VOLTAGE | DRAW  |
|---------|-------|
| 600V    | 13.8A |
| 480V    | 19.7A |
| 240V    | 49.4A |
| 208V    | 55.9A |

1PH 60HZ

BASE UNIT

| VOLTAGE | DRAW  |
|---------|-------|
| 240V    | 87.6A |
| 208V    | 99.2A |

COMPONENT DESIGNATION

CRU

CONTROL POWER

COIN

COINTEGRATOR 3

CR2

CONTROL RELAY

CTR

CONTROL RELAY

DISC

DISCONNECT SW

F1

FUSE

F2

FUSE

F3

FUSE

F4

FUSE

F5

SPACE HEATER FUSE

F6

SPACE HEATER FUSE

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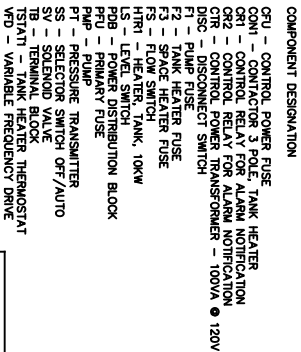
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| WIRE SIZE CHART |     |     |     |     |    |
|-----------------|-----|-----|-----|-----|----|
|                 | A   | B   | C   | D   | E  |
| 208V 1PH        | #6  | #8  | #4  | #6  | #0 |
| 240V 1PH        | #6  | #10 | #4  | #8  | #0 |
| 208V 3PH        | #8  | #12 | #6  | #8  | #4 |
| 240V 3PH        | #8  | #12 | #8  | #8  | #4 |
| 480V 3PH        | #12 | #12 | #10 | #12 | #8 |
| 600V 3PH        | #12 | #12 | #10 | #12 | #8 |

| WIRE SIZE CHART |     |     |     |     |    |
|-----------------|-----|-----|-----|-----|----|
|                 | A   | B   | C   | D   | E  |
| 208V 1PH        | #6  | #8  | #4  | #6  | #0 |
| 240V 1PH        | #6  | #10 | #4  | #8  | #0 |
| 208V 3PH        | #8  | #12 | #6  | #8  | #4 |
| 240V 3PH        | #8  | #12 | #8  | #8  | #4 |
| 480V 3PH        | #12 | #12 | #10 | #12 | #8 |
| 600V 3PH        | #12 | #12 | #10 | #12 | #8 |

| WIRE SIZE CHART |     |     |     |     |    |
|-----------------|-----|-----|-----|-----|----|
|                 | A   | B   | C   | D   | E  |
| 208V 1PH        | #6  | #8  | #4  | #6  | #0 |
| 240V 1PH        | #6  | #10 | #4  | #8  | #0 |
| 208V 3PH        | #8  | #12 | #6  | #8  | #4 |
| 240V 3PH        | #8  | #12 | #8  | #8  | #4 |
| 480V 3PH        | #12 | #12 | #10 | #12 | #8 |
| 600V 3PH        | #12 | #12 | #10 | #12 | #8 |

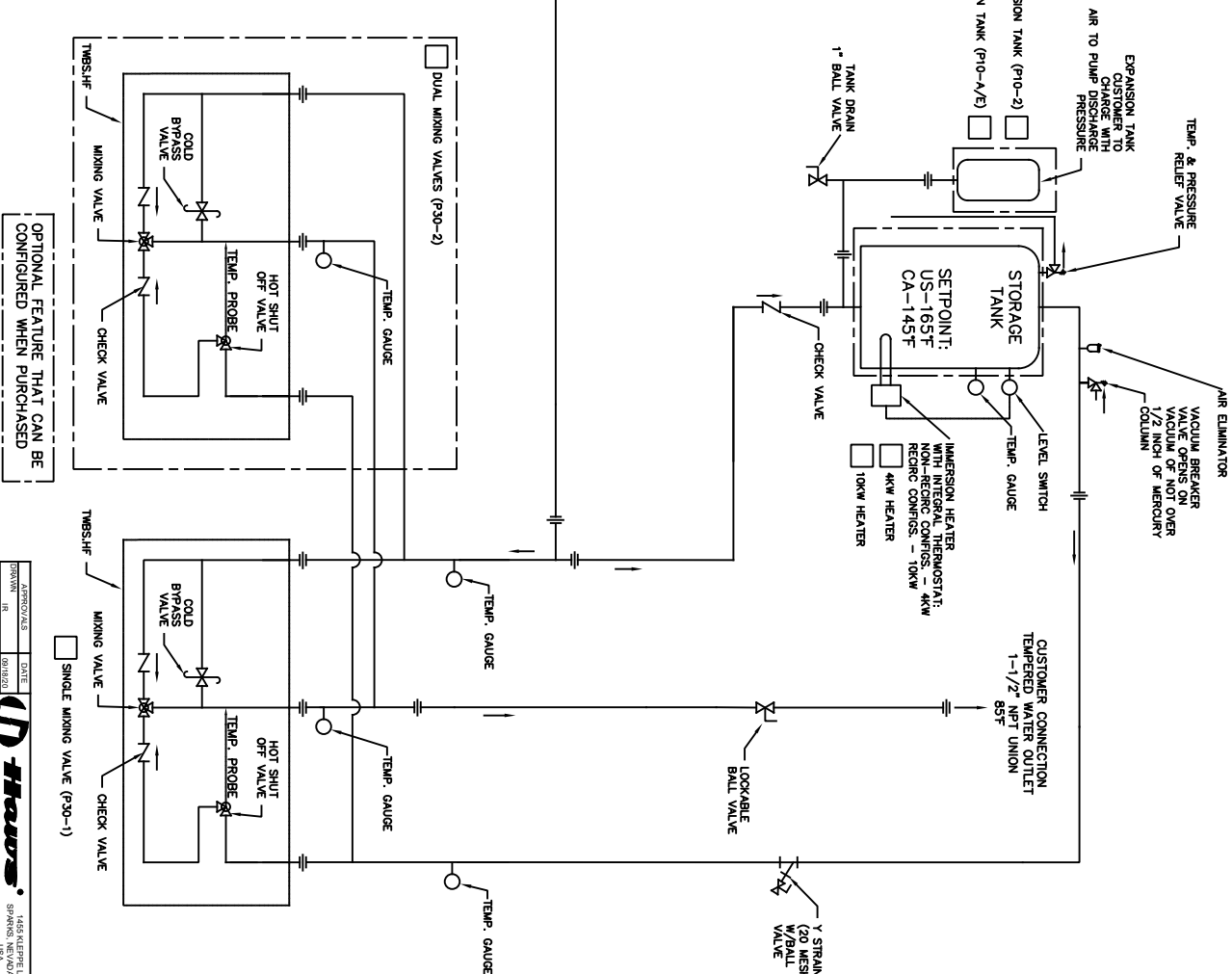
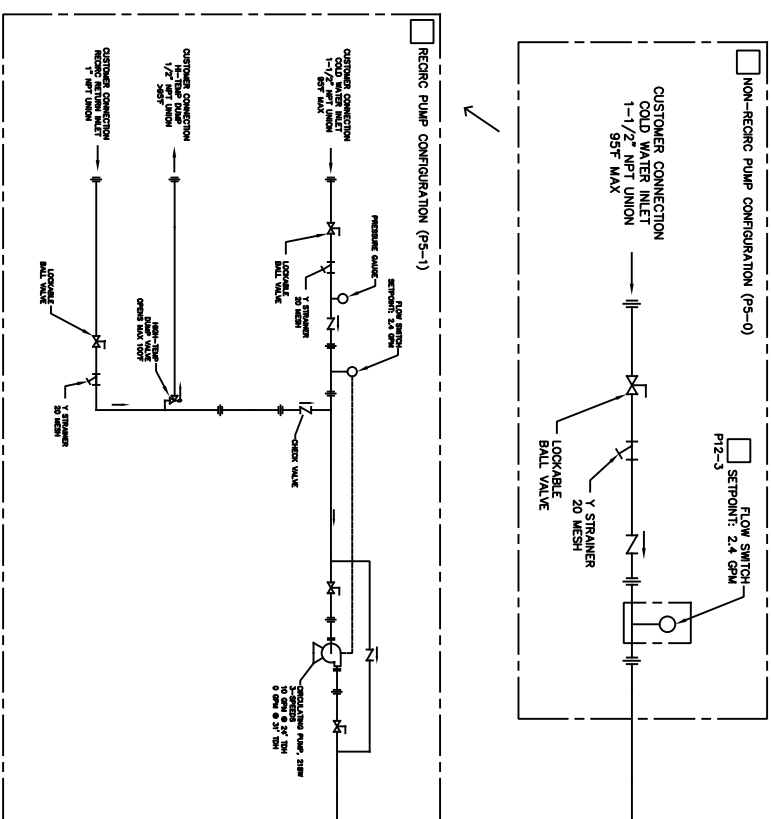
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| REVISIONS |             |            |    |
|-----------|-------------|------------|----|
| REV.      | DESCRIPTION | DATE       | BY |
| 1         | ISSUED      | 07/11/2023 | AW |
| 2         | REVISED     | 07/11/2023 | AW |

- NOTES:
1. AREA CLASSIFICATION: ORDINARY
  2. AVAILABLE AMBIENT TEMPERATURE RANGE: 32°F - 104°F
  3. SEE TABLE 1 FOR PRESSURE DROP ACROSS SKID. SHOWERS AND EYEWASHES REQUIRE 30PSI MINIMUM AT THEIR HIGHEST FLOW RATE.
  4. RATINGS: CONFIGURABLE WITH TYPE 4/4X JUNCTION BOX FOR INDOOR LOCATION

| PRESSURE DROP ACROSS SKID<br>(SINGLE COMBINATION SHOWER FLOWS 30GPM) |               |  |
|----------------------------------------------------------------------|---------------|--|
| SKID CONFIGURATION                                                   | PRESSURE DROP |  |
| 60GPM/ SST PIPE/ 2 TMS                                               | 17 PSI        |  |
| 60GPM/ GALV PIPE/ 2 TMS                                              | 24 PSI        |  |
| 60GPM/ SST PIPE/ 1 TMS                                               | 30 PSI        |  |
| 60GPM/ GALV PIPE/ 1 TMS                                              | 37 PSI        |  |
| 30GPM/ SST PIPE/ 2 TMS                                               | 4 PSI         |  |
| 30GPM/ GALV PIPE/ 2 TMS                                              | 6 PSI         |  |
| 30GPM/ SST PIPE/ 1 TMS                                               | 8 PSI         |  |
| 30GPM/ GALV PIPE/ 1 TMS                                              | 10 PSI        |  |

| TANK SIZE<br>(TANK TEMPERATURES ARE SET AT 165°F FOR USA<br>AND 145°F FOR CANADA) |                                |                           |                    |
|-----------------------------------------------------------------------------------|--------------------------------|---------------------------|--------------------|
| TANK<br>TEMP.                                                                     | SHOWER<br>CAPACITY<br>(5 MIN.) | MINIMUM<br>INLET<br>TEMP. | OPTION<br>SELECTED |
| 1196                                                                              | 145°F                          | 1                         | 62°F               |
| 1206                                                                              | 145°F                          | 1                         | 62°F               |
| 1657                                                                              | 1                              | 54°F                      |                    |
| 1657                                                                              | 1                              | 54°F                      |                    |
| 2006                                                                              | 145°F                          | 1                         | 35°F               |
| 1657                                                                              | 1                              | 32°F                      |                    |
| 3186                                                                              | 145°F                          | 2                         | 50°F               |
| 1657                                                                              | 2                              | 39°F                      |                    |
| 4006                                                                              | 145°F                          | 2                         | 35°F               |
| 1657                                                                              | 2                              | 32°F                      |                    |



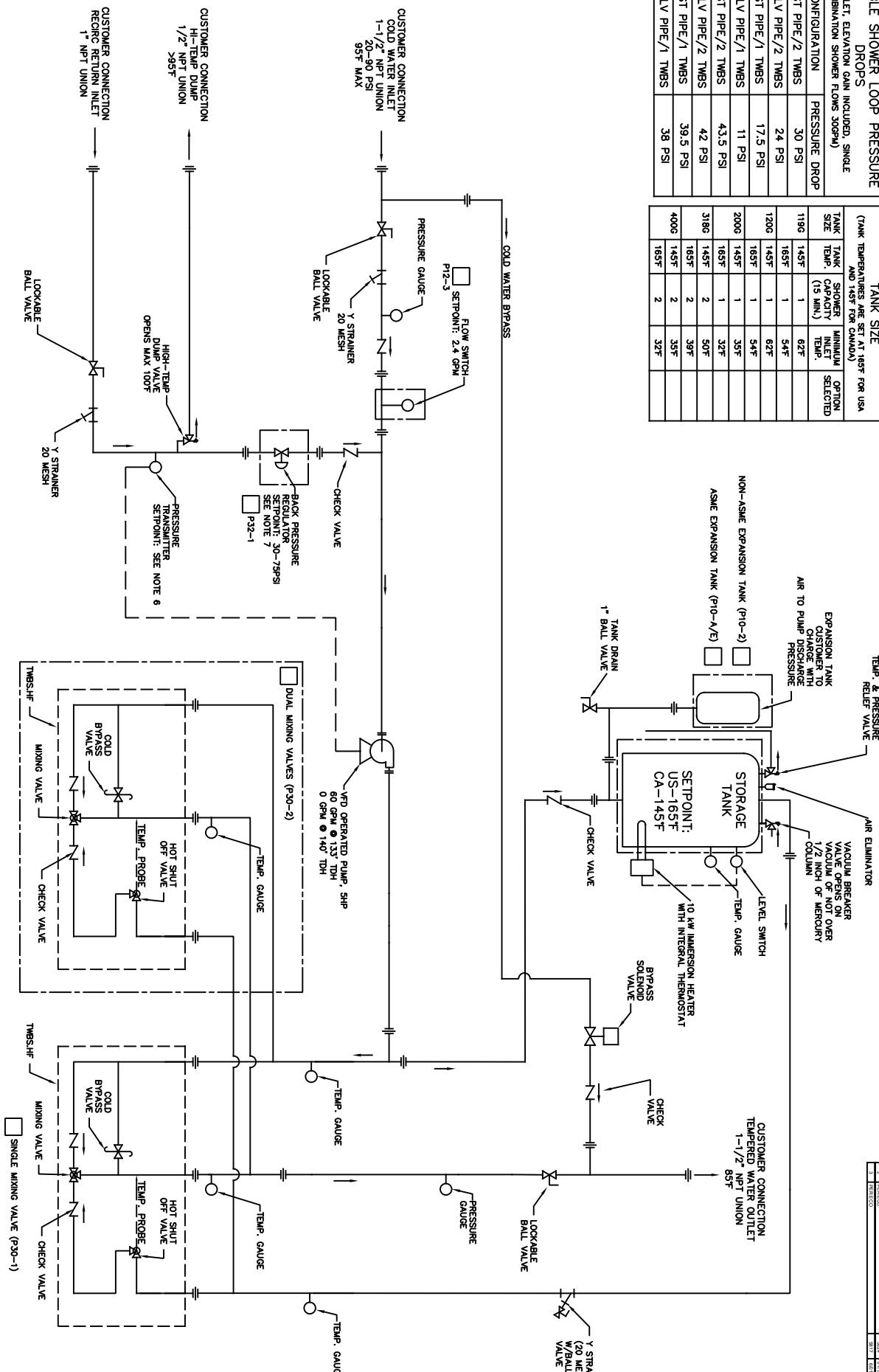
THE ATTACHED DESIGNS ARE CONSIDERED TRADE SECRETS AND POTENTIALLY PATENTABLE. IN ACCORDANCE WITH CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT, THESE DESIGNS IN ACTUAL OR CONCEPTUAL FORMS CANNOT BE DISCLOSED, REPRODUCED OR USED WITHOUT HAWES EXPRESS WRITTEN CONSENT.

|                  |                                              |                       |
|------------------|----------------------------------------------|-----------------------|
| APPROVALS        | DATE                                         | 1465 WELPE LINE       |
| DRAWN BY         | 07/18/2023                                   | SPRINGS, NEVADA 89451 |
| CHECKED BY       | 07/18/2023                                   |                       |
| DESIGNED BY      | 07/18/2023                                   |                       |
| CONTRACT NUMBER  | 8780 - INDOOR EMERGENCY WATER TEMPERING SKID |                       |
| PROJECT NAME     | INDOOR EMERGENCY WATER TEMPERING SKID        |                       |
| PROJECT NUMBER   | 05890001086 D-PID                            |                       |
| PROJECT LOCATION | SPRINGS, NEVADA 89451                        |                       |
| PROJECT STATUS   | AW                                           |                       |

| REVISIONS |             |          |    |
|-----------|-------------|----------|----|
| REV.      | DESCRIPTION | DATE     | BY |
| 1         | INITIAL     | 05/18/20 | SP |
| 2         | REVISION    | 05/18/20 | SP |

| ALLOWABLE SHOWER LOOP PRESSURE DROPS                                         |               | TANK SIZE                                                         |                           |                     |                 |
|------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------|---------------------------|---------------------|-----------------|
| (20PSI INLET ELEVATION GAIN INCLUDED, SINGLE COMBINATION SHOWER FLOWS 30GPM) |               | (TANK TEMPERATURES ARE SET AT 165°F FOR USA AND 145°F FOR CANADA) |                           |                     |                 |
| SKID CONFIGURATION                                                           | PRESSURE DROP | TANK SIZE                                                         | SHOWER CAPACITY (15 MIN.) | MINIMUM INLET TEMP. | OPTION SELECTED |
| 60GPM/SST PIPE/2 TWBS                                                        | 30 PSI        | 1180                                                              | 145°F                     | 1                   | 82°F            |
| 60GPM/GALV PIPE/2 TWBS                                                       | 24 PSI        | 1200                                                              | 145°F                     | 1                   | 82°F            |
| 60GPM/SST PIPE/1 TWBS                                                        | 17.5 PSI      | 1657                                                              | 145°F                     | 1                   | 54°F            |
| 60GPM/GALV PIPE/1 TWBS                                                       | 11 PSI        | 2006                                                              | 145°F                     | 1                   | 35°F            |
| 30GPM/SST PIPE/2 TWBS                                                        | 43.5 PSI      | 1657                                                              | 145°F                     | 1                   | 32°F            |
| 30GPM/GALV PIPE/2 TWBS                                                       | 42 PSI        | 3180                                                              | 145°F                     | 2                   | 50°F            |
| 30GPM/SST PIPE/1 TWBS                                                        | 39.5 PSI      | 1657                                                              | 145°F                     | 2                   | 39°F            |
| 30GPM/GALV PIPE/1 TWBS                                                       | 38 PSI        | 4006                                                              | 145°F                     | 2                   | 35°F            |

TABLE 1



OPTIONAL FEATURE THAT CAN BE CONFIGURED WHEN PURCHASED

- NOTES:
1. AREA CLASSIFICATION: ORDINARY
  2. AVAILABLE AMBIENT TEMPERATURE RANGE: 32°F - 104°F
  3. RATINGS: CONFIGURABLE WITH TYPE 4AX JUNCTION BOX FOR INDOOR LOCATION
  4. SEE TABLE 1 FOR ALLOWABLE PRESSURE DROP FROM SKID OUTLET TO SHOWERS. PRESSURE DROP INCLUDES ELEVATION CHANGES. PRESSURE DROP VALUES GIVEN FOR SUPPLY PRESSURE OF 20PSI. IF SUPPLY PRESSURE IS HIGHER, ADD THE DIFFERENCE BETWEEN SUPPLY PRESSURE AND 20PSI TO THE PRESSURE DROP GIVEN TO GET ADJUSTED ALLOWABLE PRESSURE DROP. ALLOWABLE PRESSURE DROP SHOULD NEVER EXCEED 80PSI WITH OUT FURTHER ANALYSIS AS THIS COULD LEAD TO OVER-PRESSURIZING SHOWERS.
  5. RECOMMENDED RECIRCULATION FLOWRATE: 10GPM
  6. PRESSURE TRANSMITTER SETPOINT IS TYPICAL SET TO 30PSI + ELEVATION CHANGE FROM SKID TO HIGHEST SHOWER (1FT = .43PSI)
  7. A BACK PRESSURE REGULATOR IS REQUIRED FOR THE FOLLOWING CONDITION: SUPPLY PRESSURE < 30PSI + ELEVATION CHANGE FROM SKID TO HIGHEST SHOWER

|                                                                                                                                                                                                                                                        |                                                                |                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------|
| APPROVALS                                                                                                                                                                                                                                              | DATE                                                           | 1465 KILPATRICK LANE<br>SPARIS, WYOMING 89431 |
| DRAWN BY                                                                                                                                                                                                                                               | 05/18/20                                                       |                                               |
| CHECKED BY                                                                                                                                                                                                                                             | 01/08/21                                                       |                                               |
| APPROVED BY                                                                                                                                                                                                                                            | 07/08/21                                                       |                                               |
| CUSTOMER INFORMATION                                                                                                                                                                                                                                   | TITLE: 8780 - INDOOR EMERGENCY WATER TEMPERING SKID W/VFD PUMP |                                               |
| NOTICE OF NON-REPRESENTATION INFORMATION: INFORMATION CONTAINED HEREIN IS THE SOLE PROPERTY OF HAWES CORPORATION AND IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF HAWES CORPORATION. |                                                                |                                               |
| SCALE: 1" = 1'-0"                                                                                                                                                                                                                                      | PROJECT NUMBER: 0580001086-D-VFD PID                           | REV: 1                                        |
| SCALE: 1" = 1'-0"                                                                                                                                                                                                                                      | PROJECT NUMBER: 0580001086-D-VFD PID                           | REV: 3                                        |

## 8780 PART NUMBER BREAKDOWN

### PART NUMBER CONFIGURATION AND DRAWING REFERENCE GUIDELINE.

**STEP 1:**

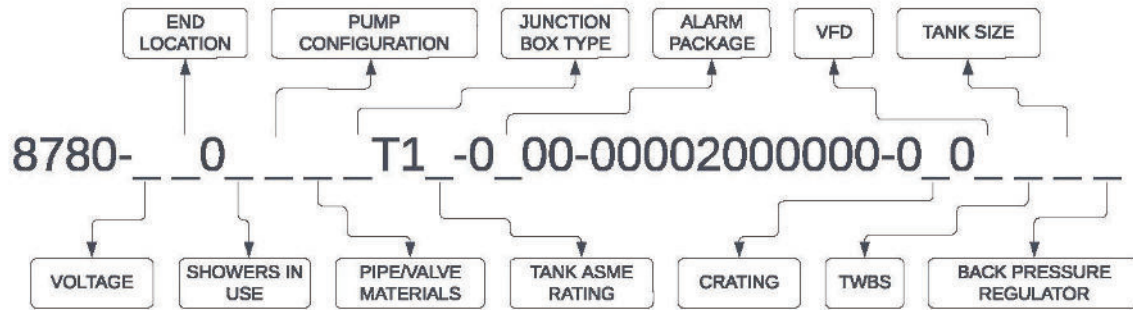
CONFIGURE PART NUMBER OR RETRIEVE PART NUMBER FROM EQUIPMENT. EXAMPLE PN: 8780-SU0D3B0T1T-0000-00002000000-0001141

**STEP 2:**

DETERMINE THE DRAWING SET THAT APPLIES TO THE CONFIGURED PART NUMBER. UNITS WITH NO PUMP OR JUST A RECIRCULATION PUMP USE DRAWINGS 0580001086.D-EL, 0580001086.D-PID AND 0580001086.D-GA. UNITS WITH A BOOSTER/RECIRCULATION PUMP AND A VFD USE DRAWINGS 0580001086.D-VFD EL, 0580001086.D-VFD PID AND 0580001086.D-VFD GA.

**STEP 3:**

USE THE TABLES BELOW TO DETERMINE WHICH SECTIONS OF THE DRAWINGS APPLY.



| VOLTAGE       | PN | DRAWING REFERENCE |
|---------------|----|-------------------|
| 208V 1PH 60HZ | 1  | P1-1              |
| 208V 3PH 60HZ | 2  | P1-2              |
| 240V 1PH 60HZ | 3  | P1-3              |
| 240V 3PH 60HZ | 4  | P1-4              |
| 480V 3PH 60HZ | 5  | P1-5              |
| 600V 3PH 60HZ | 6  | P1-6              |

| END LOCATION  | PN | DRAWING REFERENCE |
|---------------|----|-------------------|
| UNITED STATES | U  | P2-U              |
| CANADA        | S  | P2-S              |

| SHOWERS IN USE | PN | DRAWING REFERENCE |
|----------------|----|-------------------|
| ONE (30GPM)    | S  | P4-S              |
| TWO (60GPM)    | D  | P4-D              |

| PUMP CONFIGURATION                  | PN | DRAWING REFERENCE                                                                    |
|-------------------------------------|----|--------------------------------------------------------------------------------------|
| NO PUMP                             | 0  | 0580001086.D-EL, P5-0<br>0580001086.D-PID, P5-0<br>0580001086.D-GA, P5-0             |
| RECIRCULATION PUMP                  | 1  | 0580001086.D-EL, P5-1<br>0580001086.D-PID, P5-1<br>0580001086.D-GA, P5-1             |
| BOOSTER/RECIRC. PUMP (VFD INCLUDED) | 3  | 0580001086.D-VFD EL, P5-3<br>0580001086.D-VFD PID, P5-3<br>0580001086.D-VFD GA, P5-3 |

| PIPE AND VALVE MATERIALS                               | PN | DRAWING REFERENCE |
|--------------------------------------------------------|----|-------------------|
| GALVANIZED PIPE WITH BRASS VALVES AND STRAINERS        | G  | P6-G              |
| 304 SST PIPE WITH BRASS VALVES AND STRAINERS           | B  | P6-B              |
| 304 SST PIPE WITH STAINLESS STEEL VALVES AND STRAINERS | S  | P6-S              |

| JUNCTION BOX TYPE | PN | DRAWING REFERENCE |
|-------------------|----|-------------------|
| TYPE 4            | 0  | P7-0              |
| TYPE 4X           | 1  | P7-1              |

| TANK ASME RATING         | PN | DRAWING REFERENCE |
|--------------------------|----|-------------------|
| NON-ASME EXPANSION TANK  | T  | P10-T             |
| ASME TANKS               | A  | P10-A             |
| ASME EXPANSION TANK ONLY | E  | P10-E             |

| IN-USE ALARM PACKAGE                         | PN | DRAWING REFERENCE |
|----------------------------------------------|----|-------------------|
| NONE                                         | 0  | -                 |
| FLOW SWITCH WITH ISOLATED ALARM DRY CONTACTS | 3  | P12-3             |

| CRATING  | PN |
|----------|----|
| STANDARD | 0  |
| PREMIUM  | 1  |

| VFD                                  | PN | DRAWING REFERENCE                                                  |
|--------------------------------------|----|--------------------------------------------------------------------|
| NONE                                 | 0  | 0580001086.D-EL<br>0580001086.D-PID<br>0580001086.D-GA             |
| INCLUDED (BOOSTER/RECIRC. PUMP ONLY) | 1  | 0580001086.D-VFD EL<br>0580001086.D-VFD PID<br>0580001086.D-VFD GA |

| TWBS | PN | DRAWING REFERENCE |
|------|----|-------------------|
| ONE  | 0  | P30-1             |
| TWO  | 1  | P30-2             |

| TANK SIZE (GAL)       | PN | DRAWING REFERENCE |
|-----------------------|----|-------------------|
| 119                   | 0  | P31-0             |
| 120                   | 1  | P31-1             |
| 200                   | 2  | P31-2             |
| 318 (NON-VFD, 125PSI) | 3  | P31-3             |
| 318 (VFD, 150PSI)     | 4  | P31-4             |
| 400 (NON-VFD, 125PSI) | 5  | P31-5             |
| 400 (VFD, 150PSI)     | 6  | P31-6             |

| BACKPRESSURE REGULATOR | PN | DRAWING REFERENCE |
|------------------------|----|-------------------|
| NONE                   | 0  | -                 |
| INCLUDED               | 1  | P32-1             |