

- Specifications:**
- PRETREATMENT SYSTEM - 6 STAGE (Stage Times Reflect 10 FPM)**
- Stage 1 - Clean** 1482 gal Net Capacity 60 sec 150' F. max
    - 1ea - 15 hp Spray Pump #316 S/S 420 gpm ea. @ 60' wc
    - 1ea - 5 hp Process Pump #316 S/S 153 gpm ea. @ 60' wc
    - Plate & Frame Heat Exchanger - #316 S/S
    - Automatic Back flow Make-up from Stage 2
    - Manual Fresh Water Fill - 1 1/4" Quick Fill
    - Dual Tank Wall-Inside Wall #304 S/S, Outside Wall #304 S/S
  - Stage 2 - Rinse** 963 gal Net Capacity 36 sec Ambient
    - 1ea - 7.5 hp Spray Pump #316 S/S 252 gpm ea. @ 60' wc
    - Automatic Back flow Make-up from Stage 3
    - Manual Fresh Water Fill - 1 1/4" Quick Fill
  - Stage 3 - Rinse** 963 gal Net Capacity 36 sec Ambient
    - 1ea - 7.5 hp Spray Pump #316 S/S 252 gpm ea. @ 60' wc
    - Automatic Back flow Make-up from Stage 5
    - Manual Fresh Water Fill - 1 1/4" Quick Fill
  - Stage 4 - Iron Phos** 1482 gal Net Capacity 60 sec 150' F. Max
    - 1ea - 15 hp Spray Pump #316 S/S 420 gpm ea. @ 60' wc
    - 1ea - 5 hp Process Pump #316 S/S 110 gpm ea. @ 60' wc
    - Plate & Frame Heat Exchanger #316 S/S
    - Automatic Fresh Water Make-up from Stage 5
    - Manual Fresh Water Fill - 1 1/4" Quick Fill
  - Stage 5 - Rinse** 963 gal Net Capacity 36 sec Ambient
    - 1ea - 7.5 hp Spray Pump #316 S/S 252 gpm ea. @ 60' wc
    - Manual Fresh Water Make-up \ Fill - 1 1/4" Quick Fill
  - Stage 6 - Seal** 593 gal Net Capacity 24 sec Ambient
    - 1ea - 5 hp Spray Pump #316 S/S 168 gpm ea. @ 60' wc
    - Automatic Fresh Water Make-up \ Fill from R/O Unit

**General**

Tank Construction - Stage 1 #316 3/16" SS Plate/Stage 2 thru 6 #304 3/16" SS Plate  
 Drain boards - Entrance to Stage 2 12 ga #316 SS/Stage 2 thru 6 12ga #304 SS  
 Catwalks - Stage 1 12ga #316 SS/Stage 2 thru 6 12ga #304 SS  
 Sump Covers - Stage 1 12ga #316 SS/Stage 2 thru 6 12ga #304 SS  
 Fresh Water Misting Headers after Stages 1 thru 5  
 Common 400W Hot H2O Heater w/5hp Recirc Pump  
 Two Eye Wash Stations as Shown  
 Full Portal Hgt. Blow Off Knife at Exit  
 6gpm R/O Unit w/2500 Gallon Storage Tank  
 1/2 Ton Manual Hoist for Pump Removal (Not Shown)  
 Manifold all Drains To One Point At Exit End of Washer (2 1/2" Pipe)  
 2 Vent Fans - 3850 cfm ea. - 2hp  
 Pressure Gauges and Flow Control Valves on All Pumps  
 All Spray Risers - 14 nozzles - Side/Side  
 Conv. Thru Washer of #316 SS  
 Insurance Standard - FM

**COMBINATION OVEN**

**Dry-Off Zone**

Three Pass  
 Design Maximum Operating Temperature - 350° F.  
 Design Product Throughput - 12,000 lbs/hr Steel  
 Residence Time - 8.36 min. @ 10 FPM Conveyor Line Speed  
 Heat System 160 CAH Air Heat Burner w/.33 HP Motor  
 #1 3/4 DWDI Recirculating Air Blower - 16,900 cfm - 15 hp  
 1600 cfh Natural Gas @ 5 psi Supply Pressure  
 Exhaust Fan - 1,000 CFM - 1 hp  
 High Velocity Air Seals - 2 @ 2 hp

**Cure Zone**

Four Pass  
 Design Maximum Operating Temperature - 450° F.  
 Design Product Throughput - 12,000 lbs/hr Steel  
 Residence Time - 20.1 min. @ 10 FPM Conveyor Line Speed  
 Heat System 280 TAH Air Heat Burner w/.75 HP Motor  
 #2 1/4 DWDI Recirculating Air Blower - 35,043 cfm - 40 hp  
 2800 cfh Natural Gas @ 5 psi Supply Pressure  
 Exhaust Fan - 1,950 CFM - 1 hp  
 High Velocity Air Seals - 2 @ 2 hp

**General**

Insulated B-Deck Floor  
 6" Thick Oven Walls and Roof  
 Insurance Standard - FM

**CONVEYOR SYSTEM**

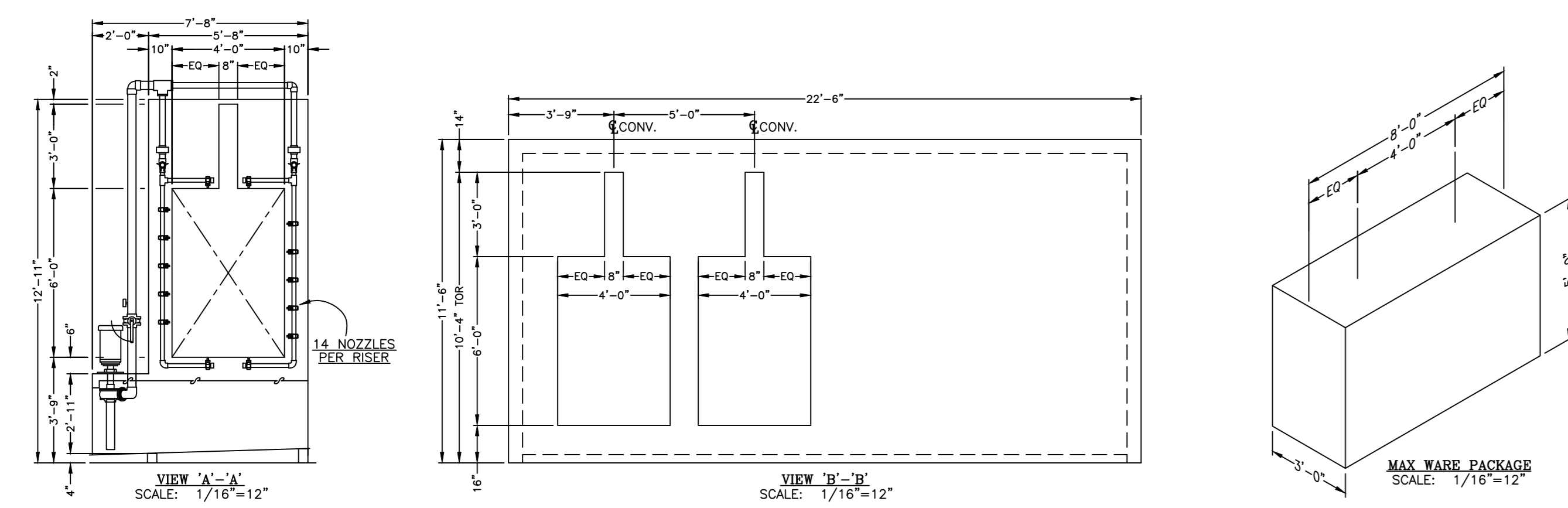
Rapid 4" 1" Beam Conveyor - Floor Supported - 775 ft. Running Length  
 Trolleys w/Full Compliment Ball Bearings, No Seals, H Attachments  
 & Trolleys on 24" Centers  
 Line Speed - 10 FPM (5 to 15 FPM Range)  
 Average Line Loading - 20 lbs/ft.  
 All Turns to be 24" Radius Roller Bank Except for Internal Oven Turns  
 Which shall be Graphalloy Bushed Traction Wheel Type  
 Caterpillar Drive - Variable Speed A/C (Located in Washer Panel)  
 Air Operated Automatic Take-up  
 Oven Expansion Joints as Required  
 Automatic Chain Lubricator (Digilube)

**POWDER COATING EQUIPMENT ENCLOSURE**

Walls - 3" Panels - .030 FRP Smooth Faced w/3" Structural Tube Framing  
 Ceiling - 2" Panels - .030 FRP Smooth Faced (one side) w/Bar Joist Supported  
 Commercial Drop Ceiling Grid  
 Fluorescent 3 Tube Flush T-8 Mount Light Fixtures - 22 ea.  
 3'-0"x6'-8" Man Door - 3 ea.  
 3'-0"x4'-0" Polycarbonate Viewing Window - 4 ea.  
 8'-0"x8'-0" Roll Up Door - 2 ea.  
 Air Conditioning System Provided by Customer

- GENERAL NOTES**
- All Specifications are subject to completion of System Engineering.
  - Utility requirements are approximate. Actual requirements should not be greater than those stated and may be less.
  - Deflagration venting for powder coating equipment (if required) to be supplied and installed by customer.
  - Zinc Phosphate can cause rapid fouling of heat exchange components resulting in a significant performance reduction. Frequent chemical cleaning of heat exchanger(s) may be required and daily cleaning should not be considered unusual.

- UTILITY LEGEND**
- E1 - Washer 170 amp 460 V/ 3 Ph.
  - E2 - Combination Oven 120 amp 460 V/ 3 Ph.
  - E3 - PLC Touchscreen 10 amp 120 V/ 1 Ph.
  - E4 - Oiler 15 amp 120 V/ 1 Ph.
  - E5 - P/C Room Lights 2ea. 15 amp circuits 277 V/ 1 Ph.
  - E6 - R/O Unit 15 amp 460 V/ 3 Ph.
- G1 - Washer Gas Drop, 4000 CFH Natural Gas @ 5 PSI Req'd.
  - G2 - Cure Oven Heater Gas Drop, 2800 CFH Natural Gas @ 5 PSI Req'd.
  - G3 - Dry-Off Oven Heater Gas Drop, 1600 CFH Natural Gas @ 5 PSI Req'd.
- NOTE! All Gas Locations Have Regulators By G.A.T.
- W1 - City Water Connection - 1 1/2" IPS
  - W2 - City Water Connection - 1" IPS
  - W3 - City Water Connection - 3/4" IPS
- A1 - Compressed Air - 80 PSI - No Volume



Revision		GENERAL AUTOMATIC TRANSFER CO. ST. LOUIS, MO.	
No.	Note		
01-25-08	UPDATED PER CUSTOMER REQUEST		
01-29-08	ELEVATION CHANGE THRU CLEAN ROOM		
02-07-08	CLEAN ROOM 1 FT. WIDER, ADDED 'B' DECK WALLS INSIDE OVEN		
02-13-08	CONV. KEY INCREASED TO 3'-0"		
02-25-08	CONV. ELEV. THRU LOAD/UNLOAD.		
03-12-08	GENERAL UPDATES		

FOR: **JOB: APPROVAL DRAWING**

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SCALE: 1/8" = 1'-0" DRAWN BY: CHK'D BY:

DATE: 11-27-07 DRAWING NO. SH. OF