Advanced DX Ammonia Case Study:

Shepherd's Processed Eggs

Spanish Fork, Utah

Presented by:

Harry Paul

Air Treatment Corporation

AIR TREATMENT CORPORATION

COLMAC COIL Manufacturing Inc.

Air Treatment History
Commercial & Industrial HVAC&R Manufacturers Rep

- Founded in 1982 by Don Johnson
- Rep Industrial Refrigeration products solutions in California Utah, Arizona and Colorado
- Rep Commercial HVAC product solutions in all of California, Hawaii & Reno
- Warehouse stocking in LA and San Jose
- Over 145 total Employees
- 50 Skilled System Sales Engineers
- Eclipsed $130M in Sales in 2015

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Background

Shepherd's Processed Eggs

- Family owned for 50 years
- Processes approx. 1 million eggs per day
- Fresh, hard boiled, and pasteurized liquid egg products
- New 10,000 sq ft facility added to expand value-added products business

Customer Concerns

- Existing facilities running with large number of air-cooled condensing units operating with different HCFC and HFC refrigerants.
- Strong desire to move to a ‘natural’ refrigerant in new facility.
- Initial resistance to using ammonia due to concerns about:
  - Toxicity and worker safety
  - Added regulatory burden
- Combined use of glycol and DX ammonia (ADX) resulted in system ammonia charge under 500 lbs

Equipment Selection

- Ammonia circuit
  - Colmac ADX evaporators in freezer
    - Enhanced ID tubes – patented
    - Tank distributor – patented
    - Motorized EEV
  - Water-cooled condensing w/ PHXR condenser
  - PHXR flooded glycol chiller
  - Still eliminates water
- Glycol circuit
  - Colmac enhanced tube glycol coolers
    - Allowed VERY close approach temperatures
    - Eliminated need for defrosting

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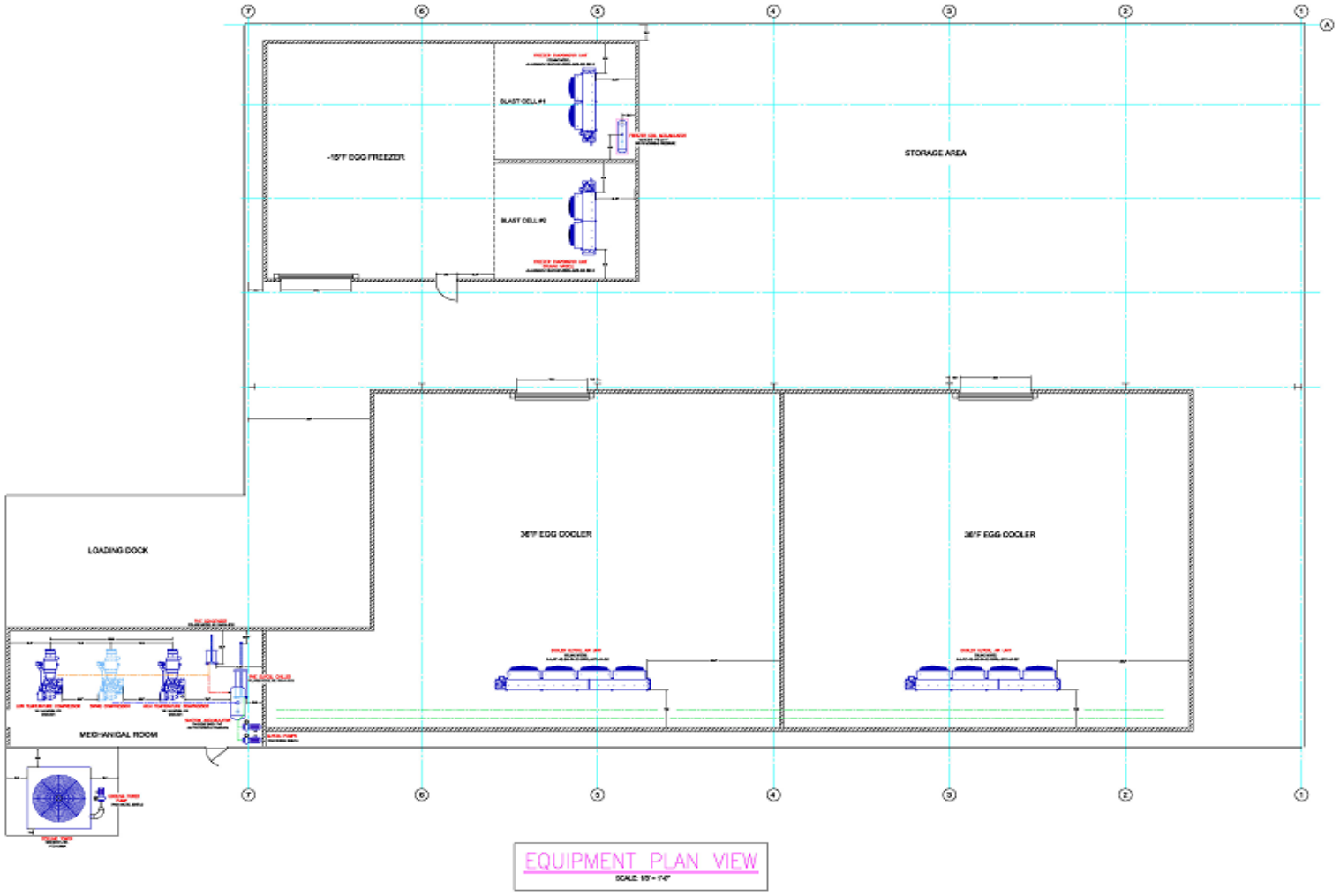
Plant Layout



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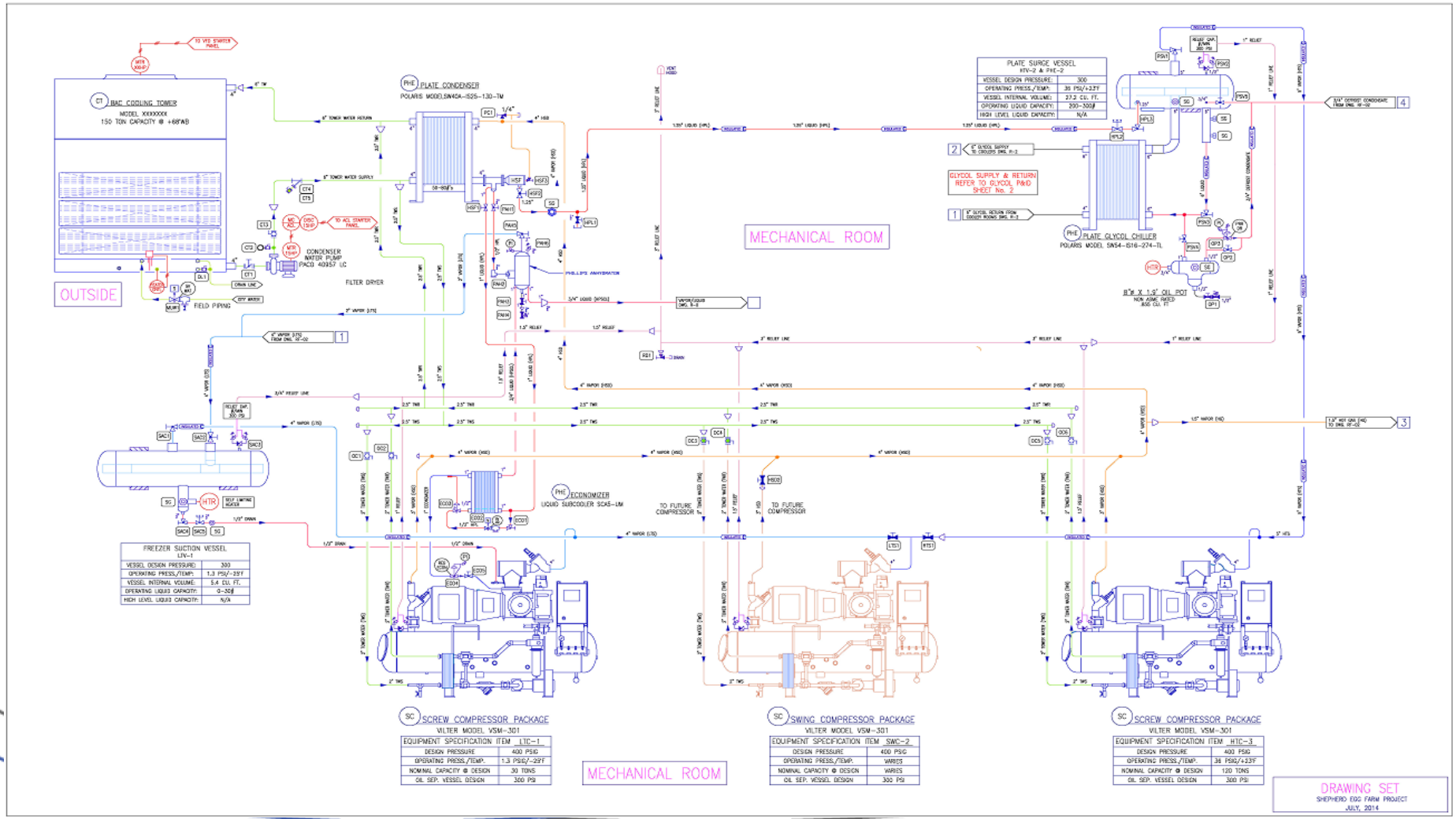
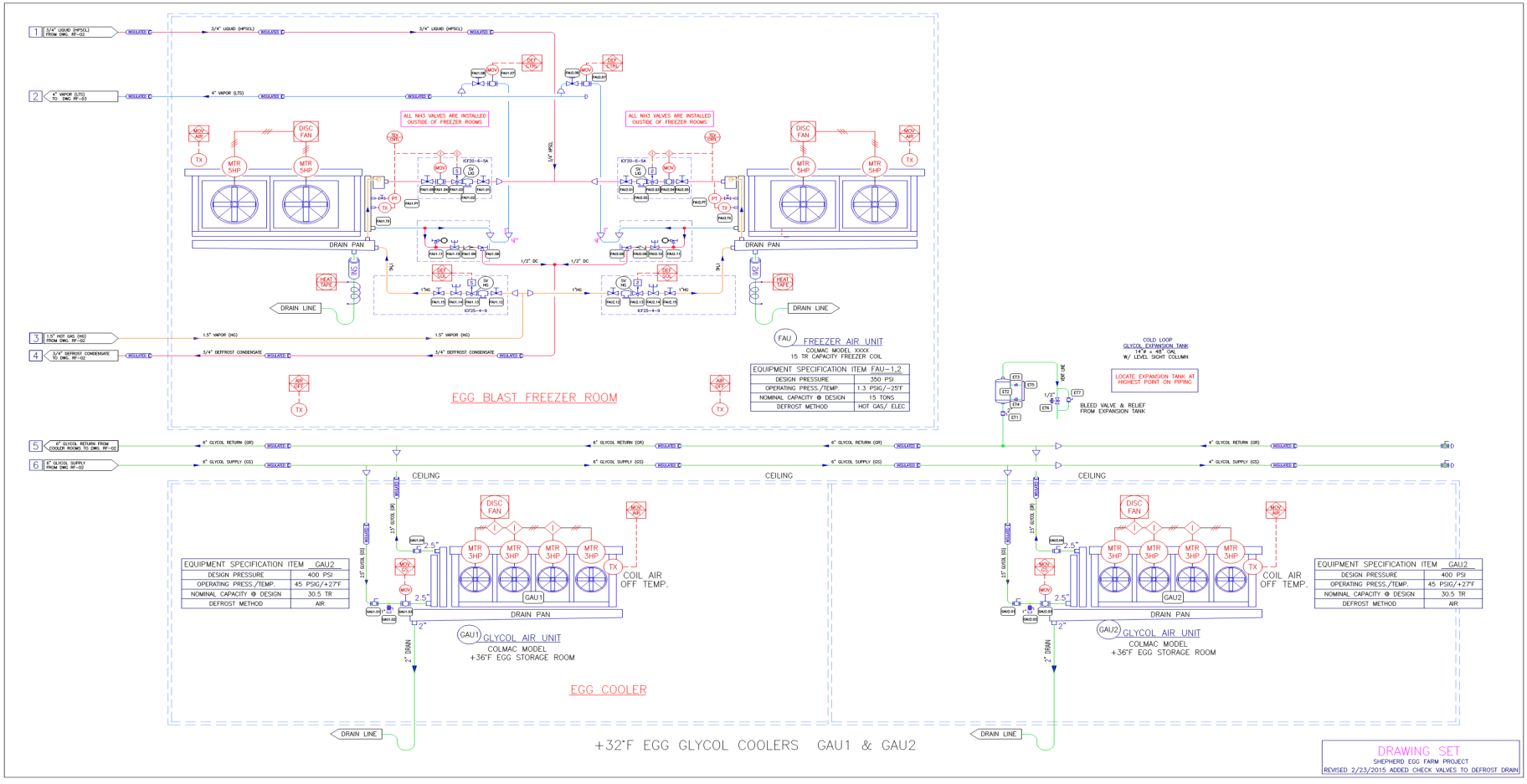


System Design



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Compressor and Control Panel

Cooling Tower and Condenser

Glycol Chiller

Enhanced Glycol Air Coolers

ADX Freezer Evaporators

Valve Groups and Water Still

Results

- Ammonia charge: 400 lbs (3 lbs NH3/TR)
- Estimated pumped ammonia charge 5,000 lbs
- First cost:
  - $125,000 less than pumped ammonia
  - $180,000 less than R507
- Cost of Operation
- Maintenance Costs

Advanced DX Ammonia

Thank you!

Questions?