Building an Energy Efficient Environment

Session sponsored by:

#UNITEDFRESH
HANSEN-RICE, INC. leverages an integrated design-build approach by providing value to construction projects through a full range of Program Management, Design & Engineering, Pre-Construction and Construction solutions.
Corporate Overview

- Privately Held / Family-owned business since 1983
- Licensed in 50 states
- 3rd on Top 100 Metal Builders List for 2018
- Revenue Distribution
  - 75% Food Related
    - 50% Food Service/Distribution
    - 40% Food Production/Manufacturing
    - 10% Raw Product Storage
  - 25% Heavy Industrial
- Architectural
- Engineering- Structural, Civil, Mechanical, Electrical
Sustainability Award

- Food Processing’s - Green Plant of the Year – 2015
  - Increased water-efficiency
  - Utilization of food grade glycol for refrigeration
  - Increased R-Value to protect against 100+deg days
  - Recirculation of wash water
  - LED lighting
  - VFD’s on all motors
  - Efficient work flow design for reduced traffic and emissions from forklift
  - Waterless urinals, motion sensors for sinks, no paper towels
Site Selection

- Renewable energy sources:
  - Wind, Solar, Hydro
- Minimal environmental impact
- Wastewater, renewable systems
- Region and typical weather conditions
  - Design accordingly to environment. (warm/cold) (Dry/Wet)
- Greenfield, Brownfield, Repurpose
- Transportation/Logistics/Traffic Analysis
Civil Design

- Water, Gas, Electrical
- Stormwater capture
- Security
- Landscaping (hardscaping)
- Site Access
- Process waste systems
- Traffic routing
- Waste system recovery
  - Anaerobic digestion
  - Methane recovery and reuse
  - Minimize
Building Envelope

- Efficient product flow
- Personnel flow
- Concrete slabs
  - Underfloor insulation
  - Ballasted floor system
- Wall types
- Roof, Insulation Membrane roofing
- Solar panels
- Exterior Lighting
- Building systems (recycled steel)
- Sealing of penetrations, fenestration management
- Insulated and fast acting doors
- Office systems
Mechanical Systems

- HVAC
  - Energy Recovery Ventilation
    - Case study
  - Positive cascading pressures
  - Combined heat and power
  - Central plant location
  - OSA damper and exhaust modulation
- Water
  - Dry cooler vs. Evaporative cooling
  - Rain water/ Grey water reuse
  - Treated water re-use
- Refrigeration
  - Heat Recovery systems
  - New Technologies
  - Precise load matching
Electrical Systems

- Power sources: Solar, Wind, Hydro
- LED lighting
- PoE (Power over Ethernet):
  - Utilizing to power LED lighting with low voltage
- Plug in of Refrigerated Trucks
- IoT (Internet of Things)
- Atom Power, new circuit breaker technology
Process Equipment

- VFD's
- Water recovery systems
  - Recirculation pumps
- Anaerobic digesters and methane recovery
- Human factors – pathway modeling and traverse safety
QUESTIONS?