



DESIGN ENGINEER'S PUNCLIST

Project Delivery Method:

- Design-Build (D-B)
- Integrated Project Delivery (IPD)
- Construction Management at Risk (CM) with Guaranteed Maximum Price (GMP)
- Design-Bid-Build (D-B-B)

Owner Team:

- Hospital President
- Building Program Committee
- Safety and Security Consultant
- Project Manager of Capital Projects

Project Delivery Team:

- D-B Project Manager
- CM Project Manager
- Architect
- Job Superintendent
- Mechanical-Electrical Coordinator
- Safety and Security Consultant

HVAC Project Team:

- HVAC Project Manager-Subcontractor
- HVAC Technician (in-house staff)
- BAS Technician (in-house staff)
- Third-Party Commissioning Consultant (CxC)
- Energy Consultant

2018 ASHRAE Handbook-HVAC Application

- Ammonia Refrigeration Systems, Chapter 2

- Cryogenics, Chapter 47
- Ventilation of Industrial Environment, Chapter 48

2020 ASHRAE Handbook-HVAC Systems and Equipment

- HVAC System Analysis and Selection, Chapter 1
- Decentralized Cooling and Heating, Chapter 2
- Central Cooling and Heating Plant, Chapter 3
- Compressors, Chapter 38
- Liquid Chiller Systems, Chapter 43

Project Type:

- New Construction
- Addition
- Renovation
- Shell & Core
- Infrastructure (central cooling)

References:

- 2017 ASHRAE Handbook - Fundamentals
- 2018 ASHRAE Handbook - Refrigeration
- 2019 ASHRAE Handbook - HVAC Applications
- 2020 ASHRAE Handbook - HVAC Systems and Equipment

Other References:

- Codes and Standards at the End of ASHRAE's Handbooks
- ASHRAE Indoor Air Quality Guide: Best Practice for Design, Construction, and Commissioning
- IIAR Bulletins 108, 109, 110, and 114
- NFPA 101

DESIGN INTENT DOCUMENT (DID)

- Research into the Application of Ammonia Refrigeration
- Hospital Building Program Goals and Additional Goals
- New Automatic Controls Temperature Controls (ATC) Furnished with each Chiller, BACnet Interface, Internet Interface, an Existing BAS Interface, and Existing CMMS System Interface
- Functional Goals: Refer to Chapter 1, 2019 Handbook
- Budget Goals: First Cost, Operating Cost, Global Warming Difference
- Timeline Goal(s): Occupancy Due Date – August
- Management Goals: Outsource Management and Capital Projects Management
- Utility Availabilities: Existing Electrical Power and BAS
- Existing Conditions: Remove and Replace Central Chillers and Associated Chilled Water Pumps

DESIGN CRITERIA DOCUMENT

- The HVAC Design Criteria Shall Be in Sync with the Project Delivery Method and Owner's Project Requirements
- A New Central Chillers shall Replace the Existing Units to Significantly Reduce Ozone Depletion Potential and Global Warming Potential
- The New Chillers and New Cooling Towers will Reduce the Carbon Footprint
- The Design Team Shall Provide Contract Drawings and Specification Coordinated with Equipment Weight, Electric, and Plumbing Criteria for the CM Project Manager to Solicit Contractor Bids
- Field Fabrication Drawings Shall Become the Record Drawings at Closeout
- Heat Rejection Equipment Shall Be Furnished with O&M Manuals
- The Preventive Maintenance Work Orders Shall Be Uploaded to the In-House O&M CMMS System
- The Design Team and CM Firm will Refer to IIAR and ASHRAE Guidelines for Design, Construction, and Commissioning Best Practices
- Implement ASHRAE Guideline GPC-22, Instrumentation for Monitoring Central Chilled Water Plant Efficiency
- The O&M Staff Shall Receive Specialized Training Associated with the Use of Ammonia Refrigeration as well as Standard Central Chiller Plant Training

- ANSWERS MARKED IN BLUE -