Project Delivery Method:

☑ Design-Build (D-B)
☐ Construction Management @ Risk (CM with GMP)
☐ Design-Bid-Build (D-B-B)

Owner Team:

☑ Owner Representative (consultant)
☑ Project Manager of Capital Projects
☐ Facility Manager (in-house staff)
☑ Facility Manager (outsource staff)

Project Delivery Team:

☑ Design-Build (D-B) Project Manager
☐ Integrated Project Delivery (IPD) Project Manager
☐ Construction Management (CM) Project Manager
☑ Mechanical-Electrical Coordinator

HVAC Project Team:

☐ HVAC Supervisor (in-house staff)
☑ HVAC Supervisor (outsource staff)
☐ HVAC Technician (in-house staff)
☑ ATC Technician (outsource staff)
☐ Third-Party Testing, Adjusting, and Balancing (TAB) Technician

OWNER'S BUILDING PROGRAM

Application:

☐ Retail Facilities, Chapter 2
☐ Commercial & Public Buildings, Chapter 3
☑ Places of Assembly, Chapter 5
☑ Enclosed Vehicle Facilities, Chapter 16

Project Type:

☐ New Construction
☑ Renovation
☑ Infrastructure (central heating, cooling, and/or cogeneration)
☐ Energy Audit and Retrofit

References:

☑ 2016 ASHRAE Handbook – HVAC Systems and Equipment
☐ 2017 ASHRAE Handbook – Fundamentals
☐ 2018 ASHRAE Handbook – Refrigeration
☑ 2019 ASHRAE Handbook – HVAC Applications

Other References:

☑ Cooling Technology Institute (cooling towers)
☑ ASHRAE Fundamentals of Design and Control of Central Chilled-Water Plants
☐ ASHARE Guide for Buildings in Hot and Humid Climates

DESIGN INTENT DOCUMENT

☑ The owner's building program goals and additional goals
☑ System constraints and constructability constraints
☐ Finalized system selection shall be centralized HVAC air systems and remote heating and cooling plants
☑ Automatic controls shall include existing temperature controls and equipment furnished controls
☑ Program and project goals

DESIGN CRITERIA DOCUMENT

☑ The HVAC design criteria shall be in sync with the project delivery method and owner's building program requirements.
☐ The utility shall be natural gas to serve the new central boiler plant that shall serve three firetube hot water boilers. Two 800 boiler horsepower (BHP) shall be sized at two-thirds capacity, and one 200 BHP unit is intended to be a standby for these two boilers as well as to operate during the air conditioning season.
☑ The utility shall be 480/3/60 electrical power to serve two new chillers, 75-ton units each sized with one chiller intended to be a standby. The controls shall be interfaced with the existing BAS.
☑ The new retrofitted central plant chilled water system shall be primary pump and standby pump with a secondary pump and standby, all with VFDs.
☐ The pipe distribution shall be standard underground distribution to new tertiary pumps with VFDs within each building.
☐ The HVAC design engineer shall provide system flow diagrams at the design development phase.
☑ The HVAC design engineer shall include an electrical data sheet to coordinate with the electrical design engineer, a plumbing data sheet to coordinate with plumbing design engineer, and equipment and distribution weights to coordinate with the structural design engineer at the conceptual/schematic phase.