

Project Delivery Method:

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

Owner Team:

- **College President**
- Building Program Committee
- **Owner Representative (consultant)**
- **Project Manager of Capital Projects**

Project Delivery Team:

- Design-Build (D-B) Project Manager
- **Construction Management (CM) Project Manager**
- Design-Bid-Build (D-B-B) Project Manager
- **Job Superintendent**
- **Mechanical-Electrical Coordinator**
- **Architect, Acoustical, Plumbing, Electrical, Structural, Fire Protection, and Security Consultants**

HVAC Project Team:

- **HVAC Project Manager-Subcontractor**
- HVAC Technician (in-house staff)
- **BAS Technician (in-house staff)**
- **Third-Party Commissioning Consultant (Cx/C)**
- Third-Party TAB (Testing, Adjusting, and Balancing) Technician

Application 2019 ASHRAE Handbook

- Commercial and Public Buildings, Chapter 3
- **Places of Assembly, Chapter 5**
- **Educational Facilities, Chapter 8**
- **Museums, Galleries, Archives, and Libraries, Chapter 24**
- Ventilation of Industrial Environment, Chapter 32

Systems 2020 ASHRAE Handbook

- **HVAC System Analysis and Selection, Chapter 1**
- **Decentralized Cooling and Heating, Chapter 2**
- Central Cooling and Heating Plant, Chapter 3
- **Air-Handling and Distribution, Chapter 4**
- In-Room Terminal Systems, Chapter 5

Equipment 2020 ASHRAE Handbook

- **Room Air Distribution Equipment, Chapter 20**
- Fans, Chapter 21
- Air Heating Coils, Chapter 27
- Heat Exchangers, Chapter 48

Project Type:

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

References:

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

Other References:

- ASHRAE Guide for Buildings in Hot & Humid Climates
- **ASHRAE Indoor Air Quality Guide: Best Practice for Design, Construction, and Commissioning**
- ASHRAE Practical Guide to Seismic Restraints
- **ASHRAE Standard 202 (Commissioning Process for Buildings and Systems)**

DESIGN INTENT DOCUMENT (DID)

- **College Building Program Goals and Additional Goals**
- **New Automatic Temperature Controls (ATC), VAV, and FPB Furnished Controls; and BACnet, Internet, Existing BAS, and Existing CMMS System Interfaces**
- Functional Goals: Refer to Chapter 1, 2019 Handbook
- **Budget Goals: First Cost and Operating Cost**
- **Timeline Goal(s): Occupancy Due Date – August Before Classes Start**
- Management Goals: Outsource Management and Capital Projects Management
- Utility Availabilities: Existing Electrical Emergency Power, Central Plant Condenser Water, and BAS
- **Existing Conditions: Remove and Replace Central Air System Supply Air, Return Air, and Economizer Air Cubic Feet Per Minute (cfm) and General Exhaust**
- **Heating System(s): 2-Pipe, Hot Water Supply (HWS) and Hot Water Return (HWR) to Certain VAV Terminals with Heating Coils and FPBs with Heating Coils**
- **Terminal Units: VAV and FPB with Wall Registers, Ceiling Diffusers, and Return Air Plenum**

DESIGN CRITERIA DOCUMENT

- The HVAC Design Criteria Shall Be in Sync with the Project Delivery Method and Owner's Project Requirements
- A New Central Air System will Replace the Existing Unit to Provide Improved HVAC to the Renovation Space Being Converted to a Study Hall on the College Campus Building
- The Space Shall Be Maintained at 68° in the Occupied Periods and 60° During Unoccupied Heating Season. In the Cooling Season, the Space Shall Be 78° in the Occupied Period and 75° in the Unoccupied Period
- The HVAC Team Shall Provide Contract Drawings and Specification Coordinated with Equipment Weight, Electric, and Plumbing Criteria to Solicit Contractor Bids
- Field Fabrication Drawings Shall Become the Record Drawings at Closeout
- VAV and FPB Terminals 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 ASHRAE guidelines for Ventilation and Humidity Control and ASHRAE Indoor Air Quality Guide: Best Practice for Design, Construction, and Commissioning

