MECHANICAL

1. APPLICABLE DESIGN CRITERIA

   A. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Guide and Data Books.

   B. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62; Ventilation for Acceptable Indoor Air Quality.

   C. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 15; Safety Code for Mechanical Refrigeration.

   D. American Society of Heating Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standard 90.1, Energy Standard for Buildings Except Low Rise Residential Buildings.

   E. Americans with Disabilities Act (ADA).

   F. Energy Policy Act of 2005 (EPact 2005).

   G. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) HVAC Systems Duct Design Guidebooks.

   H. International Mechanical Code (IMC).

   I. International Plumbing Code (IPC).

   J. VA Physical Security and Resiliency Design Manual, July 2022

   K. VA Fire Protection Design Manual

   L. NFPA 10 – Standard for Portable Fire Extinguishers, 2022 Edition

   M. NFPA 13 – Standard for the Installation of Sprinkler Systems.

   N. NFPA 70 – National Electrical Code, 2023 Edition

   O. NFPA 72 – National Fire Alarm and Signaling Code, 2022 Edition

   P. NFPA 90A – Standard for the Installation of Air-Conditioning and Ventilating Systems.

   Q. NFPA 99 – Health Care Facilities Code, 2012 Edition.

   R. NFPA 101 – Life Safety Code, 2021 Edition.

   S. American National Standards Institute (ANSI).

   T. American Society of Mechanical Engineers (ASME) Publications.

U. American Society of Testing & Materials (ASTM) Publications.

V. Department of Veteran Affairs, Office of Construction & Facilities Management Design Manuals.

W. Department of Veteran Affairs, Office of Construction & Facilities Management Design Guides.

2. DESIGN CONDITIONS

A. Altitude and location (approximate):

- Elevation: 1321 feet AMSL
- Latitude: 37.65 deg N
- Longitude: 92.43 deg W

B. Design Temperatures:

- Winter (Heating) 99.6%:
  a. Outside Air: 7.9 deg F
  b. Wind: 31.4 MPH
  c. Inside: 70 deg F
  d. (35% RH in the Interior Spaces)
- Winter (Infiltration):
  a. Outside Air: 7.9 deg F
- Summer (Cooling) 0.4%:
  a. Outside Air: 100.5 deg F DB, 73.8 deg F MCWB (Per ASHRAE Fundamentals, 2021 Edition, 0.4% occurrence)
  b. Inside: 75 deg F, 50% RH
- Summer (Infiltration):
  a. Outside Air: 100.5 deg F DB, 73.8 deg F MCWB
- Break Room / Office Room (Conference, Break, Office):
  a. Room Temperature: 75 deg F Summer, 70 deg F Winter
  b. Room Humidity: 30% to 60%
  c. Pressure Relationship: None
  d. ACH Rate: 4 ACH
  e. OA Requirement: 2 ACH