PART 1 - GENERAL

1.1 OVERVIEW

A. HVAC systems design shall be performed by a Texas licensed professional engineer.

B. Where it is considered by the A/E that the proposed systems design cannot comply with the requirements stated and referenced herein, the A/E shall communicate such concerns to the Owner's Project Manager in writing and resolve non-compliance in sufficient time during the design phase of the Project to meet Contract schedule obligations.

PART 2 - DESIGN CRITERIA

2.1 GENERAL

A. Refer to Design Guideline Element Z2005 for Codes and Applicable Regulatory Agencies. Where direction described in applicable codes are in conflict, the A/E shall comply with the more stringent requirement. The A/E is required to make themselves aware of all applicable codes and ordinances and assure compliance thereto.

B. Where provisions for future equipment, fixtures or building expansion are required, systems equipment capacity, pipe sizing and arrangement shall accommodate proposed demand. Coordinate with the Owner during Programming to identify and document specific project requirements.

C. Coordinate all room equipment information with the Project Architect for mechanical requirements.

D. HVAC design must be coordinated with all other disciplines such as, Architectural, Structural, Electrical, Plumbing and Civil/Site. The following HVAC related work is usually shown by other disciplines:

1. Architectural drawings and specifications show all louvers and attached screens in exterior walls, all flashing for ducts and pipes penetrating roofs and exterior walls, finish and identification, painting of walls and ceilings, access panels, chases, furred spaces, mechanical equipment rooms, and penthouses.

2. On new construction projects coordinate with Architectural consultant to consider fixed external shading devices, reduced glazing areas, and increased thermal envelope insulation values. Reduced thermal loads will reduce physical installation requirements of mechanical equipment, reduce above ceiling congestion, and reduce HVAC construction cost. Reduced thermal loads are required to be considered in load calculations by HVAC Engineer. Intent is to reduce the installed heating/cooling capacity while reducing energy consumption over the life of the facility.

3. On new construction projects coordinate with Architectural consultant to provide construction that meets or exceeds the thermal insulation requirements of ASHRAE 90.1.

Coordinate that all exterior penetrations are to be fully sealed to prevent infiltration per ASHRAE 90.1, limiting the effect on the HVAC system.

4. Structural drawings and specifications show all concrete and structural steel work, including catwalks, concrete housekeeping pads, lintel supports around openings, and platforms for access to HVAC equipment and supports for cooling towers and other large mechanical equipment. Structural drawings indicate pipe support design details for floor and wall-mounted supports.

5. Electrical drawings and specifications show motor starters and disconnects not furnished as part of HVAC equipment, smoke detectors (duct and/or space mounted), all power wiring to HVAC smoke dampers and motors.

6. Plumbing provides all domestic water make-up supply and drain outlets, underground oil storage tank(s) and piping for emergency generators.

E. Coordinate and make provisions for all necessary stairs, catwalks, platforms, steps over roof mounted piping and ducts, etc., that will be required for access, operation and maintenance. Access to roofs by portable ladder is not acceptable.

F. Equipment shall be located to be accessible for installation, operation and repair. Mechanical spaces shall be of suitable size to permit inspection and access for maintenance, and to provide space for future equipment when required. The effect that equipment noise or vibration might have on areas adjacent to, above, and below equipment shall be considered. Location of equipment remote from sound sensitive areas should be emphasized. Design shall comply with specified room sound ratings.

G. MEP infrastrcuture on emergency power and their associated controls must be located above the FEMA 500-year flood elevation + 2 feet (Verify with Owner for each project). Emergency power is required for various systems and is specifically identified throughout the Design Guidelines. A/E is to consider emergency power needs in systems configurations and groupings. Project emergency power needs are to be identified and documented during Programming.

H. Floor areas that are purposely designed as shell or build out space in a building shall be properly ventilated and dehumidified/conditioned to alleviate the creation of a detrimental environment that would support mold growth. Provide adequate space conditioning such that relative humidity levels do not exceed 60% RH.

PART 3 - SPECIAL CONTRACT DOCUMENT REQUIREMENTS

3.1 GENERAL

A. Room names and numbers, and column lines and their designations shall appear on all floor and partial floor plans as they appear on architectural drawings.

B. HVAC floor and partial plans shall include graphic scales, north arrows and key plan.

C. Floor plans shall show ductwork, piping, valves, equipment, etc.

D. Performance data schedules for all equipment shall be shown in schedules on the Drawings.

E. Include legend on Drawings identifying applicable symbols and abbreviations.

F. The A/E shall include in the General Notes section of the Drawings a note stating “No mechanical piping or HVAC duct (except where used for stairwell pressurization purposes) shall penetrate through fire resistance rated exit enclosures (stairwells and exit passageways)”.

G. All equipment and material specifications shall be bound in the Project Manual.

H. HVAC Drawings shall be coordinated with the location and ratings of all fire and smoke partitions.

1. Do not employ "smoke control" unless it is specifically required by NFPA or IBC (e.g. still need to utilize stairwell pressurization and HVAC shut down).

2. Utilize duct detector arrangements to affect HVAC shutdown as required by NFPA - do not employ HVAC shutdown upon general alarm. HVAC shutdown shall be affected by a two-detector, "cross-zoned" arrangement where both detectors must alarm before shutdown occurs. This is an arrangement similar to that employed in clean agent installations.

I. Refer to individual Design Guideline Element sections for additional document requirements applicable to the various systems.

PART 4 - PRODUCTS

4.1 GENERAL

A. Refer to Owner’s Master Construction Specifications. These are available on the Owner’s Design Guidelines website: http://www2.mdanderson.org/depts/cpm/standards/specs.html

PART 5 - DOCUMENT REVISION HISTORY

Issue	Date	Revision Description	Reviser
	20190301	Original Issuance	
Rev. 1			

END OF ELEMENT D3000