

SECTION A1000tg – TECHNICAL GUIDE

FOUNDATION SYSTEMS

06/02

PART 1 - GENERAL

1.1 SYSTEM DESCRIPTION

Foundations shall include all substructure elements supporting the facility and its equipment.

1.2 SYSTEM REQUIREMENTS

- a. Provide complete foundation systems for the new facility. A geotechnical report prepared for a recently constructed facility in the general vicinity of the project may be provided by the Government for general site information, and may be attached to Part 5 of the Request for Proposals (RFP). However, it is the responsibility of the contractor to obtain geotechnical data and recommendations from a licensed professional geotechnical engineer as necessary for design and construction.
- b. The foundation shall be designed in accordance with the criteria listed below for seismic, wind, dead, live and gravity loads.

1.3 CRITERIA

- a. The design shall incorporate universally accepted construction procedures developed through sound and prudent engineering judgment.
- b. The foundations shall be designed in accordance with the following codes:
 - (1) ASCE 7-95 for dead, live, and wind loading,
 - (2) TI-809-04, "Seismic Design for Buildings", for seismic loading and detailing, and
 - (3) the criteria for live loads listed in Section B1000, "Superstructure."
- c. Additional requirements for seismic design found in the Southwest Division A-E GUIDE are also applicable to this project. TI-809-04 and the A-E Guide can be found at the following web sites:

[ASACE TI-809-04 "Seismic Design for Buildings"](#)

[SWDIV AE Guide](#)

- d. The function and occupancy of the facility is described in the Program Requirements included in Section 01155 of the RFP. The seismic use group and corresponding performance level will be one of the following:

I Standard Occupancy Structure	Life Safety
II Special Occupancy Structure	Safe Egress
IIIH Hazardous Facility	Safe Egress
IIIE Essential Facility	Immediate Occupancy

At locations where there is a potential for liquefaction, the foundation design shall provide sufficient support to the structure including special features, address potential liquefaction and resultant differential settlements which may occur during earthquake events to meet the specified

seismic performance level. Total settlement and differential settlement must be accounted for in the foundation design, regardless of the seismic group.

e. Concrete design and construction shall be in accordance with ACI 318, "Building Code Requirements for Structural Concrete", and ACI 301, "Specifications for Structural Concrete for Buildings."

f. Masonry design and construction shall be in accordance with ACI 530, "Building Code Requirements for Masonry Structures," and ACI 530.1, Specification for Masonry Structures."

g. The specified design codes used for design shall be compared to local building codes and the more conservative requirements shall be used.

PART 2 - SYSTEM COMPONENTS

2.1 STANDARD FOUNDATIONS (A1010)

a. Foundations shall consist of prestressed, precast concrete piles and grade beams and/or pile caps, reinforced concrete spread footings, reinforced concrete mat systems and/or combinations thereof as recommended by the Design-Build Contractor's Architect/Engineer of Record, based upon the Soils Report and Soils Engineering recommendations obtained by the Design-Build Contractor and his Architect/Engineer for this project. Alternate foundation systems may be used upon recommendation by the Design-Build Contractor's Architect/Engineer of Record and upon acceptance of those recommendations by the Contracting Officer.

b. The use of fly ash and blast furnace slag in concrete shall be maximized, but shall not exceed 25% and 50%, respectively, by weight of total cementitious material.

c. Reinforcing steel shall contain a minimum of 30%-recycled steel.

d. Timber structural foundation materials will not be permitted.

PART 3

Not Used.

--END OF SECTION--