SAMPLE DESIGN-BUILD SPECIFICATION

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CHAPTER A

SUBSTRUCTURE

PERFORMANCE

A. Basic Function:
   1. Provide substructure as required to support the completed and occupied building safely and without uncontrolled subsidence or other movement.
   2. Substructure comprises the following elements:
      a. Foundations (A1): Structures responsible for transferring dead loads, live loads, and environmental loads of completed building to the earth in such a way that the building is supported evenly and without movement.
      b. Basements (A2): Space-enclosing elements below grade, including necessary excavation, structural walls and floor, and other elements of enclosure such as waterproofing and thermal insulation.
   3. Where substructure is integral with elements defined within another element group, meet requirements of both element groups.
   4. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance.

B. Amenity and Comfort:
   1. Thermal Performance: Provide thermal resistance as necessary to maintain interior comfort levels specified and in accordance with code and the following:
      a. Energy Efficiency: As specified in Chapter 111 - Facility Performance.
   2. Water Penetration: Prevent ground water penetration into the interior of the building, under any circumstances.
      a. Substantiation:
         1) Preliminary Design: Identification of major water resistant assemblies and drainage features.
         2) Construction Documents: Details of proven-in-use or proven-by-mock-up design.

C. Health and Safety:
   1. Substance Exclusion: Prevent accumulation of harmful chemicals and gases such as radon in spaces below substructure and subsequent penetration into occupied spaces.
      a. Substantiation:
         1) Preliminary Design: Identification of major radon resistant assemblies, chemical resistant assemblies, and ventilation features.
         2) Construction Documents: Details of proven-in-use or proven-by-mock-up design.
   2. Vermin Protection: Provide permanent protection against infestation of construction by ground dwelling termites and other vermin.

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D. Structure:
   1. Capacity: Provide loadbearing substructure members as required by code and designed to distribute dead loads, live loads, and environmental loads so that bearing capacity of soil is not exceeded.
      a. Extend bearing portions of substructure to levels below frostline at project location; not less than 3 ft below grade.
      b. Provide spread footings that do not exceed the allowable soil bearing capacity, piles that provide adequate friction to withstand loading, or other foundation systems acceptable to governing authorities.
   2. Dead Loads: Accommodate loads from weights of building materials, construction itself, and all fixed service equipment.
   3. Live Loads: Accommodate loads from use and occupancy of the building, either uniformly distributed loads as prescribed by code or concentrated loads, whichever are more demanding structurally.
   4. Environmental Loads: Accommodate loads from all environmental forces in accordance with code and the following:
      a. Lateral Soil Loads: Lateral pressure of soil adjacent to vertical substructure elements, including potential surcharge from fixed or moving loads and potential hydrostatic pressure.
      b. Vertical Soil Loads: Full hydrostatic pressure applied over entire substructure area.
      c. Earthquake: In accordance with requirements of Chapter 111 - Facility Performance.
      d. Wind: Overturning forces attributable to design wind speed at project location applied to full building height.
   5. Substantiation:
      a. Preliminary Design: Identification of major structural materials and systems.
      b. Preliminary Design: Soil investigation report, detailed listing of design criteria, and preliminary analysis, prepared by a licensed structural engineer.
      c. Construction Documents: Detailed design analysis by licensed structural engineer.

E. Operation and Maintenance:
   1. Provide substructure elements that will endure for the lifetime of the building with no maintenance.

METHODS OF CONSTRUCTION

A. The following existing substructure elements must be preserved:
   1. Active utilities indicated to remain.

B. Remove the following existing substructure elements as required to accomplish new construction:
   1. Foundations and footings.
   2. Abandoned utilities.

END OF CHAPTER A