Performance Specifications

Design- Build (DB)

GAOA Vale District Office Renovation & Addition

Project Number: L310
BLM Vale District Office
100 Oregon Street
Vale, Oregon 97918

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management
National Operations Center
Architecture & Engineering Branch (OC-671)

30 SEPTEMBER 2025

TABLE OF CONTENTS

INTRODUCTION

1010 Project Summary
1020 Project Program
1030 Project Criteria

A SUBSTRUCTURE

A1010 Standard Foundations
A4010 Standard Slabs-on-Grade

B SHELL

B1010 Floor and Roof Construction

B2010 Exterior Walls
B2020 Exterior Windows
B2050 Exterior Doors and Grilles

B3010 Roofing

C INTERIORS

C1010 Interior Partitions
C1030 Interior Doors
C1090 Interior Specialties

C2010 Interior Wall Finishes
C2030 Flooring
C2050 Ceiling Finishes

D SERVICES

D2010 Domestic Water Distribution
D2020 Sanitary Drainage

D3020 HVAC

D4010 Fire Suppression
D4030 Fire Protection Specialties

D5020 Electrical Service and Distribution
D5040 Lighting

D6010 Data Communications

D7010 Access Control and Intrusion Detection

E EQUIPMENT AND FURNISHINGS

E1060 Residential Equipment

G SITE WORK

G1010 Site Clearing
G1020 Site Elements Demolition
G1070 Site Earthwork

G2030 Pedestrian Plazas and Walkways
G2060 Site Development
G2080 Landscaping

G3010 Water Utilities
G3020 Sanitary Sewerage Utilities

G4010 Site Electric Distribution Systems

--- END OF SECTION ---

1010 PROJECT SUMMARY

1010.1 SCOPE

A. In accordance with the terms and conditions of the Contract, the Design-Build Contractor (DBC) shall perform the work of this Request for Proposal (RFP) for the Bureau of Land Management (BLM) as described below and in associated Sections and Technical Specifications.

B. The Technical Specifications set forth in this document are intended to establish the minimum acceptable standards of quality and provide guidance to the respective sections herein. The omission of any specific Project Scope elements from these Technical Specifications shall not be construed as their exclusion from the overall Scope of Work. It is the sole responsibility of the DBC to ensure that all requirements delineated in the Project Statement of Work are fully incorporated into the Contract deliverables, regardless of their presence or absence in the Technical Specifications.

C. All Architect-Engineer (A-E) Services required in this RFP shall be performed by licensed Architects and Engineers registered in the State where the project is located.

D. The A-E remains fully responsible for determining if the standards or provisions cited in the technical specifications have been revised or updated. Any such conflicts between the specifications and the identified standard or provisions shall be brought to the attention of the Government requesting direction.

1010.2 LOCATION

A. This project is located at 100 Oregon Street, Vale, OR 97918.

1010.3 BACKGROUND

A. Refer to Project Statement of Work for background.

1010.4 PROJECT DESCRIPTION

A. Refer to Project Statement of Work for description of Project.

1010.5 SCOPE OF WORK REQUIREMENTS

A. The work will include, but not be limited to, the following:

1. Evaluate the BLM Concept Package provided in the RFP package.

2. Review site data.

3. Upon award, provide design schedule of work, with milestone submittal dates indicated. Coordinate proposed milestone dates with BLM.

4. Submit list of required permits, if any.

5. Design site, site utilities, building and foundation system.

6. Submit DB Design Development and DB Construction Documents for review and approval, as required per milestone dates in design schedule.

7. Provide schedule of construction work. Coordinate proposed milestone dates with Government.

8. Secure work area and provide for continued access to the facility.

9. Construct project.

10. Create and provide operations and maintenance manual.

11. Provide as-constructed drawings.

B. Compliance with the various codes and design criteria will be determined by a review of the design calculations, specifications, design drawings, construction submittals submitted during construction, and by field inspection. Compliance review is to verify that the DBC is providing systems, products, and/or materials that will satisfy the stated criteria. This review shall not relieve the DBC from responsibility for any errors or omissions nor from responsibility for complying with the requirements of this contract.

1010.6 CONTACT INFORMATION

A. Contracting Officer (CO):

1. Nathan Roush, Supervisory Contract Specialist

2. DOI Branch of National Acquisitions

3. Email: nroush@blm.gov

4. Phone: 720-346-5583

B. Contracting Officer's Representative (COR):

1. Eric Grim, Engineer

2. BLM Oregon/Washington State Office

3. Email: ejgrim@blm.gov

4. Phone: 541-471-6530

C. Technical Design Representative:

1. Jacob Laureska, Architect
2. BLM National Operations Center
3. Email: jlaureska@blm.gov
4. Phone: 720-948-5860

D. Facility Operations Supervisor / On-site Contact:

1. Ryan Bates
2. Vale District Office
3. Email: rbates@blm.gov
4. Phone: 541-473-6257

1010.7 COPYRIGHT

A. All information provided is property of the Government and no copyright symbols or statements shall be used:

1. All designs, drawings, specifications, notes and other works developed in the performance of this contract shall become the sole property of the Government and may be used on any other design, or construction project, without additional compensation to the Contractor. The Government shall be considered the "person for whom the work was prepared" for the purpose of authorship in any copyrightable work under 17 U.S.C. (US Code) 201. With respect thereto, the Contractor agrees not to assert or authorize others to assert any rights nor establish any claim under the design patent or copyright laws.

2. The Contractor for a period of three (3) years after completion of the task order agrees to furnish all retained works on the request of the Contracting Officer. Unless otherwise provided in this contract, the Contractor shall have the right to retain copies of all works beyond such period.

1010.8 REPORTS

A. Report(s) shall include the results/findings of the investigation. The report shall be provided with a cover, table of contents, executive summary, signature sheet (of evaluator, project manager, and reviewer) with professional state seal, introduction, general remarks, site investigation, analysis, recommendations, and annotated photos showing location taken and appendices (references, all calculations, evaluation checklists, summary data sheet, deficiencies, cost estimate(s), drawings, and any other data, etc.)

--- END OF SECTION ---

1020 PROJECT PROGRAM

1020.1 PROJECT PROGRAM

A. Refer to Project Statement of Work for Project Program.

--- END OF SECTION ---

1030 PROJECT CRITERIA

1030.1 JURISDICTION, CODES AND EASEMENTS

A. Definitions:

1. Building Codes, in general, refer to sets of requirements governing the design, construction, alteration, maintenance and use of buildings. They specify the minimum requirements to adequately safeguard building occupants' health, safety, and welfare.

2. Model Building Codes refer to minimum design provisions and practices established by nationally recognized coordinating bodies made up of building professionals from all interested organizations. They are developed using consensus processes, they require the use of referenced national consensus standards and specifications, and they can be used as templates for AHJs to use when developing their local ordinances.

3. Authorities Having Jurisdiction (AHJ): AHJs adopt and enforce a comprehensive building code package by ordinance. They can adopt the model codes in their entirety or amend them as necessary depending on their laws and regulations.

4. Federal Basic Design and Construction Policies: Follow nationally recognized model building codes and other applicable nationally recognized codes that govern Federal construction to the maximum extent feasible and consider local building code requirements. (See 40 U.S.C. 3310 and 3312.)

    a. 40 U.S. Code § 3312 - Compliance with nationally recognized codes

        i. Application:

            A) To any project for construction or alteration of a building for which amounts are first appropriated for a fiscal year beginning after September 30, 1989.

        ii. Building Codes: Each building constructed or altered by the General Services Administration or any other federal agency shall be constructed or altered, to the maximum extent feasible as determined by the Administrator or the head of the federal agency, in compliance with one of the nationally recognized model building codes and with other applicable nationally recognized codes, including electrical codes, fire and life safety codes, and plumbing codes, as the Administrator decides is appropriate. In carrying out this subsection, the Administrator or the head of the federal agency shall use the latest edition of the nationally recognized codes.

        iii. Zoning Laws: Each building constructed or altered by the Administration, or any other federal agency shall be constructed or altered only after consideration of all requirements (except procedural requirements) of the following laws of a State or a political subdivision of a State, which would apply to the building if it were not a building constructed or altered by a federal agency:

A) Zoning laws.

B) Laws relating to landscaping, open space, minimum distance of a building from the property line, maximum height of a building, historic preservation, esthetic qualities of a building, and other similar laws.

iv. Cooperation With State and Local Officials

A) State and local government consultation, review, and inspections: To meet the requirements of subsections (b) and (c), the Administrator or the head of the federal agency authorized to construct or alter the building shall:

a) in preparing plans for the building, consult with appropriate officials of the State or political subdivision of a State, or both, in which the building will be located.

b) on request, submit the plans in a timely manner to the officials for review by the officials for a reasonable period of time not exceeding 30 days: and

c) permit inspection by the officials during construction or alteration of the building, in accordance with the customary schedule of inspections for construction or alteration of buildings in the locality, if the officials provide to the Administrator or the head of the federal agency:

a. a copy of the schedule before construction of the building is begun; and

b. reasonable notice of their intention to conduct any inspection before conducting the inspection.

d) State and Local Government Recommendations: Appropriate officials of a State or political subdivision of a State may make recommendations to the Administrator or the head of the federal agency authorized to construct or alter a building concerning measures necessary to meet the requirements of subsections (b) and (c). The officials also may make recommendations to the Administrator or the head of the federal agency concerning measures which should be taken in the construction or alteration of the building to consider local conditions. The Administrator or the head of the agency shall give due consideration to the recommendations.

e) Effect of Noncompliance: An action may not be brought against the Federal Government and a fine or penalty may not be imposed against the Government for failure to meet the requirements of

subsection (b), (c), or (d) or for failure to carry out any recommendation under subsection (e).

f) Limitation on Liability: The Government and its contractors shall not be required to pay any amount for any action a State or a political subdivision of a State takes to carry out this section, including reviewing plans, carrying out on-site inspections, issuing building permits, and making recommendations.

B. Authority Having Jurisdiction:

1. Authority Having Jurisdiction (AHJ) means a legal entity (Federal, State, or Local), such as a Building Official or Fire Code Official, that has statutory authority for enforcing a code or standard or for approving equipment, materials, an installation, or a procedure.

2. The Bureau of Land Management (BLM) is the recognized AHJ on BLM property.

C. General Code Requirements:

1. The flagship ICC model building codes are the International Building Code (IBC), the International Existing Building Code (IEBC) and the International Residential Code (IRC). These three model codes can be considered parent codes that coordinate all other codes. Combined with discipline-specific companion codes, including fire, plumbing, mechanical and others, a comprehensive package is formed. This package includes referenced national consensus material and engineering standards and product quality specifications, thereby incorporating the scientific understanding produced by specialized organizations. Compliance with the referenced standards within each code is necessary for compliance with the code.

2. The building design shall conform to the codes and standards listed in the “BLM Building Codes and Standards” document attached to the Performance Specifications.

3. The site design shall comply with the following (in addition to above):

a. American Association of State Highway and Transportation Officials (AASHTO) T99-18, “Standard Method of Test for Moisture–Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop”.

b. AASHTO T191-14, “Standard Method of Test for Density of Soil In-Place by the Sand-Cone Method”.

c. AASHTO T310, “Standard Method of Test for In-Place Density and Moisture Content of Soil and Soil–Aggregate by Nuclear Methods (Shallow Depth)”.

d. 2009 Manual on Uniform Traffic Control Devices (MUTCD), with Revisions 1 and 2, May 2012

e. BLM National Sign Handbook https://www.blm.gov/services/national-operations-center/national-sign-program.

D. Occupational Safety and Health Administration (OSHA) Requirements:

1. The contractor shall develop and implement a comprehensive safety and health plan that meets or exceeds OSHA requirements, including but not limited to:

    a. Hazard communication.

    b. Personal Protective Equipment (PPE).

    c. Emergency response plan.

    d. Fall protection.

    e. Electrical safety.

    f. Confined space entry.

E. Easements:

1. Coordinate utility access/alignments with appropriate authorities during preliminary design and planning efforts.

2. Once the final utility alignments are known, the Contractor shall notify the Government of the tentative easement requirements and the name and titles of the designated utility easements with associated surveys by a licensed surveyor.

3. Subject to a preliminary review by the Contracting Officer, this information will be forwarded to the BLM State Realty Office who will then contact the various utilities and upon verification, process the required easements with the individual utilities as required.

--- END OF SECTION ---

A1010 STANDARD FOUNDATIONS

A1010.1 SYSTEM DESCRIPTION

A. This system consists of all work below the lowest floor construction and the adjoining horizontal and vertical elements required to form a complete foundation, together with the necessary soil excavation and backfill.

A1010.2 CODE RISK CATEGORY

A. As specified in Section 1030 “Project Criteria”.

B. Climate Zone: Project is located in climate zone 5B (Malheur County, Oregon)

A1010.3 GEOTECHNICAL INVESTIGATION

A. To be completed by the DBC.

A1010.4 GENERAL REQUIREMENTS

A. Determination of the foundation system requirements shall be the responsibility of the Design Build Contractor (DBC).

B. The foundation systems for all structures included in this contract shall be designed to conform to the codes and standards listed in Section 1030 “Project Criteria”.

A1010.5 DESIGN REQUIREMENTS

A. The DBC shall design to meet applicable loading requirements (live, dead, snow, wind, seismic, etc.) as outlined in Section 1030 “Project Criteria”.

B. Frost Depth: As required for building location.

C. Radon Mitigation: As recommended by the Geotechnical Report.

D. Concrete:

1. Minimum concrete design requirements shall be in accordance with ACI 318-14, Chapter 19 “Concrete Design and Durability Requirements”, including exposure and corrosive environment requirements.

2. Minimum compressive strength at 28 days shall be as required by design, but not less than 4000 psi.

3. Cementitious Material Content: Cementitious material may be a blend of Portland cement and fly ash. Minimum cementitious material content, 564 pounds per cubic yard.

a. Portland Cement: ASTM C150, Type II.

b. Fly Ash: ASTM C618-95, Class F. Fly ash not to exceed 15 percent of total cementitious material content by weight.

4. Entrained Air Content: All exterior concrete and concrete exposed to freeze/thaw shall have entrained air in accordance with ACI:

a. For Exposure Class F1, F2, F3.

b. Concrete for hard troweled slabs shall not exceed 3.0% total air.

5. Chloride Ion Content: Chlorides are not permitted.

6. Other admixtures complying with ASTM C494 or ASTM C618 may be used with approval.

7. Concrete Testing Service: The Contractor is responsible for all concrete testing, including testing identified as being the responsibility of the "Owner". Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

E. Reinforcing steel:

1. ASTM A615 Grade 60.

2. ASTM A615 Grade 40 for field bent dowels.

3. ASTM A706 Grade 60 for field welded reinforcing.

A1010.6 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

A1010.7 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Shop Drawings:

1. Foundation plan including:

a. Layout

b. Anchor bolt locations

c. Reinforcing fabrication marks

d. Control joints.

2. Reinforcing steel shop drawings.

C. Manufacturer's Catalog Data:

1. Perimeter drainage system and soil gas venting system components.

2. Concrete sealer/hardener (if used).

3. Insulation and insulation appurtenances.

4. Vapor barrier.

D. Design Data:

1. Concrete mix design including all additives and design environmental Exposure Category and Classes based on ACI 318.

E. Test Reports:

1. Soil compaction results.

2. Aggregate gradation.

3. Concrete cylinder test results.

--- END OF SECTION ---

A4010 STANDARD SLABS-ON-GRADE

A4010.1 SYSTEM DESCRIPTION

A. This system consists of all work associated with slab-on-grade floors.

B. Slab-on Grade Construction:

1. Slab-on-grade:

a. Exterior flatwork thickness shall be minimum 4 inches (walks etc.).

b. Interior flatwork thickness shall be minimum 5 inches.

2. Use ACI 318, Table 7.6.1.1 for minimum reinforcing for interior building slabs-on-grade and exterior Engine Bay flatwork. Maximum spacing of reinforcing shall be three times slab thickness or 18 inches, whichever is smaller.

3. Provide control joints and adequate reinforcing steel at re-entrant corners in slabs-on-grade.

4. Use of staggered or offset control joints in slabs-on-grade shall not be permitted.

5. Load transfer dowels shall be used at all thresholds and approach aprons along with expansion joint material (which also serves as a thermal break). Equipment approach aprons are recommended to also have a minimum 4” bearing lip with two layers of slip sheet.

6. Vehicle aprons: Thicken exposed edges 2X slab depth for 2X slab depth length, transitioning at a 45 degree to slab depth.

A4010.2 SYSTEM REQUIREMENTS

A. The DBC shall utilize slab-on-grade construction for the addition, considering on site soil conditions, site frost depth, site grading, recommendations of the Geotechnical Engineering Report and other pertinent conditions and constraints.

1. All wood in direct contact with concrete or concrete masonry shall be pressure treated in accordance with IBC requirements.

2. Foundations shall be constructed of reinforced concrete.

3. Structure Excavation and Backfill:

a. Soil density specification and testing are the responsibility of the DBC. The DBC shall assure that subgrade soil densities are adequate to support the structure with minimal settlement.

b. Dewatering is the responsibility of the DBC. No concrete shall be placed in excavations that contain standing water.

c. As much as possible, the DBC shall use excavated material for backfill material. This may require processing the excavated material. Imported backfill shall be kept to a minimum. The geotechnical report addresses the suitability of reuse of excavated material, including where it may be used, how it shall be processed, and applicable design values if used for support of any structural system.

d. OSHA excavation safety rules shall be adhered to. Keep heavy equipment away from trench edges and place surcharge loads at a distance at least equal to the depth of the excavation away from edges of the excavation.

A4010.3 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

A4010.4 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Shop Drawings:

1. Foundation plan including:

a. Layout

b. Anchor bolt locations

c. Reinforcing fabrication marks

d. Control joints.

2. Reinforcing steel shop drawings.

C. Manufacturer's Catalog Data:

1. Concrete sealer/hardener (if used).

2. Insulation and insulation appurtenances.

3. Vapor barrier.

D. Design Data:

1. Concrete mix design including all additives and design environmental Exposure Category and Classes based on ACI 318.

E. Test Reports:

1. Soil compaction results.

2. Aggregate gradation.

3. Concrete cylinder test results.

A4010.5 SYSTEM COMPONENTS

A. Standard Foundation:

1. Continuous, reinforced concrete spread footing on undisturbed or properly compacted soil. Footing assemblies shall include excavation, hand-shaped bottom, compacted backfill, formwork and keyways, reinforcing steel, concrete, and screed finish

2. Apply Non-Fibered Asphalt Emulsion Damp Proofing (ASTM D1227, Type III Class 1, and ASTM D1187 Type I) for below-grade damp proofing of walls and foundations.

3. Provide perimeter drainage system for high ground water sites and as recommended by the geotechnical report. The perimeter drainage system shall be designed to remove water away from the foundation of the structure, with the drainage system terminated in the site storm sewer system or terminated above grade with a screened end and riprap in a retention basin. Provide perforated pipe as specified below, wrapped with filter fabric and bedded in granular fill material:

    a. Corrugated Polyethylene (PE) Drainage Pipe: ASTM F405-13, perforated, heavy duty, with PE snap fittings and couplings.

    b. Polyvinyl Chloride (PVC) Pipe: ASTM D3034-16, Type PSM, PS 46 (SDR 35), perforated, with PVC solvent-weld fittings and couplings.

B. Slab-on-Grade Construction:

1. General: Slab-on-grade design and construction shall be in accordance with ACI 360R-10 and ACI 318-14 Paragraph 24.4.3.2.

2. All interior slabs-on-grade shall be provided with methods for expansion control, perimeter and joint sealers, and slope to floor drains and floor sinks.

    a. Column block outs shall be diamond shape with closure pour afterward.

    b. Edge chamfer shall be ½”.

    c. Max spacing of control joints shall be 20 ft.

    d. Maximum aspect ratio shall be 1.5 to 1.

    e. Minimum saw cut joint depth shall be slab thickness/5.

3. Provide aggregate base minimum 4 inch under interior slabs-on-grade, with 20 mil reinforced polyethylene vapor barrier located directly under slab.

4. Furnish anchor bolts minimum 7” embedment in top of foundation walls for anchoring the sill plate at maximum 48-inch O.C. and/or as required for shear walls.

5. Exterior slab/building interface (stoops & aprons): Use 3/4-inch expansion joint material with backer rod and sealant and load transfer dowels with dowel caps. Minimum #5 at 24 inches O.C. or minimum of three per stoop. Terminate perimeter insulation at this location at concrete interface as required.

6. Floor Treatment: All slabs-on-grade which will not be covered with any type of flooring shall have a floor sealer/hardener applied. Floors that will be covered, especially with resilient flooring, shall not have a sealer/hardener applied.

7. Insulation: ASTM C578-18, Type IV, extruded polystyrene (XPS) rigid insulation. Provide continuous XPS perimeter insulation from top of slab to bottom of foundation/top of footing (minimum 24 inches) on the exterior face of the foundation, with a protective fiberglass reinforced plastic (FRP) covering where insulation is exposed above grade. Minimum insulation R values shall be as required by the IECC.

8. Soil Gas Venting System: Provide a passive soil gas venting system to vent the space under the vapor barrier, with the vent terminating above the roof of the building. The passive soil gas venting system shall be designed with provision to add a fan in the future, if necessary.

--- END OF SECTION ---

B1010 FLOOR & ROOF CONSTRUCTION

B1010.1 SYSTEM DESCRIPTION

A. This system includes all work related to floor and roof construction.

B1010.2 CODE RISK CATEGORY

A. As specified in Section 1030 “Project Criteria”.

B1010.3 GENERAL REQUIREMENTS

A. Determination of the floor and roof construction framing system requirements shall be the responsibility of the Design-Build Contractor (DBC).

B. The floor and roof systems for the structure included in this contract shall be designed to conform to the codes and standards listed in Section 1030 “Project Criteria”.

B1010.4 DESIGN REQUIREMENTS

A. The DBC shall design to meet applicable loading requirements (live, dead, snow, wind, seismic, etc.) as outlined in Section 1030 “Project Criteria”.

B1010.5 CONCRETE SYSTEMS REQUIREMENTS

A. As specified in Section A “Substructure.”

B1010.6 WOOD SYSTEM REQUIREMENTS

A. Provide blocking and lateral support for floor joists in accordance with IBC Section 2308. Provide blocking between roof framing members at bearing locations and at diaphragm boundaries.

B. Interior Wood Framing Requirements:

1. Dimensional wood framing members shall be new lumber. Lumber may be Douglas fir, Douglas fir-larch, Hemlock fir, southern pine, or other structurally competent species allowed by applicable codes and standards. Framing lumber shall meet the following minimum grading requirements:

    a. Joists and Rafters: Number 2 or better.

    b. Beams, 4x and larger: Shall be laminated. Number 1.

    c. Posts, 4x and larger: Shall be laminated.

d. Blocking: Number 3 or better.

C. Exterior (Exposed) Wood Framing:

1. Porch Beams and Posts:

a. Dimensional timber wood framing members shall be new lumber Douglas Fir #1 FOHC (Free of Heart Center).

D. Engineered lumber may be used in lieu of dimensional lumber for roof framing system.

E. Roof Framing & Sheathing Requirements:

1. Minimum roof sheathing thickness shall be 5/8 inch. Roof sheathing panel end joints shall be staggered.

2. Diaphragm designs shall be engineered to avoid use of 3x material at diaphragm edges/joints.

3. Roof trusses shall be attached to exterior wall top plates with hurricane ties.

4. Rake overhangs shall be framed with outriggers supported by the gable end walls and connected to the roof trusses inside the gable end walls where SIPS are used.

5. All wood in direct contact with concrete or concrete masonry shall be pressure treated in accordance with IBC requirements and have two layers of 30 lb. felt beneath.

B1010.7 METAL SYSTEM REQUIREMENTS

A. All loads are supported by structural steel frame.

1. Secondary lateral loads are transferred to structural steel frame.

2. Lateral loads transferred to foundation by structural steel shall be without the aid of in-plane wall diaphragms. Tension cables shall not be used.

B. Steel design shall conform to the relevant codes listed in Section 1030 “Project Criteria”.

C. Structural Steel:

1. Structural steel framing shall be Grade 50 with associated channels, angles, plate and bar.

2. Cold-Formed Hollow Structural Sections: ASTM A500 Grade B or C.

3. Steel Pipe: ASTM A53, Type E or Type S, Grade B.

4. Bolts and Connections: Designate Type A325 or A490.

D. Open Web Steel Joists:

1. Bearing Condition: Underslung.

2. Provide holes in chord members for connecting and securing other construction to joists.

3. Camber joists according to SJI's "Specifications".

4. Reinforce at concentrated loads in accordance with SJI's "Specifications".

5. Deflection requirements in accordance with SJI's "Specifications".

6. Deliver, store, and handle joists as recommended in SJI's "Specifications."

7. Top-Chord Extensions: Extend top chord of joists complying with SJI's "Specifications".

8. K-Series Joists:

    a. Manufacture steel joists of type indicated according to "Standard Specification of Open Web Steel Joists, K-Series" in SJI's "Specifications," with steel-angle top- and bottom-chord members, underslung ends, and parallel top chord.

    b. Framing shall comply with SJI's "Specifications" and the following:

        i. Max open web steel joist spacing shall be 5'-0".

    c. Steel Joist Substitutes: Manufacture according to "Standard Specifications for Open Web Steel Joists, K-Series" in SJI's "Specifications," with steel-angle or steel-channel members.

E. Structural Metal Deck:

1. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

2. Fire-Resistance Ratings: comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

3. Ensure that the number of support attachments at diaphragm chords, struts, ties or other collector elements that are parallel to the deck flutes is adequate to develop the full capacity of the diaphragm.

4. Shall be factory hot-dipped galvanized ASTM A 525 minimum Class G-60.

5. Gage: Minimum 22 gage.

B1010.8 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

B1010.9 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Concrete Systems:

1. As specified in Section A “Substructure.”

C. Wood Systems:

1. Shop Drawings:

a. Pre-Engineered wood trusses.

b. SIPs layout and connection details.

2. Manufacturer’s Catalog Data:

a. Engineered lumber.

b. Wood Framing / Glulams.

c. Metal framing connectors.

d. Spray foam insulation.

e. Structural insulated panels.

f. Coating / stains.

3. Certificates:

a. Framing lumber and sheathing, including species, grade, and treatment.

D. Metal Systems:

1. Welding Qualifications: Qualify field-welding procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

2. Structural Steel Framing

a. Informational Submittals:

i. Qualification Data: For manufacturer/professional engineer.

b. Shop Drawings: Show fabrication of structural-steel components.

i. Include details of cuts, connections, splices, camber, holes, and other pertinent data.

ii. Include embedment Drawings.

iii. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.

iv. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.

v. Identify members and connections of the seismic-load-resisting system.

vi. Indicate locations and dimensions of protected zones.

vii. Identify demand-critical welds.

viii. Identify members not to be shop primed.

3. Open Web Steel Joists

a. Informational Submittals:

i. Qualification Data: For manufacturer/professional engineer.

ii. Welding certificates.

iii. Manufacturer certificates.

iv. Mill Certificates: For each type of bolt.

v. Comprehensive engineering analysis of special joists signed and sealed by the qualified professional engineer responsible for its preparation.

vi. Field quality-control reports.

b. Shop Drawings:

i. Include layout, designation, number, type, location, and spacing of joists.

ii. Include joining and anchorage details; bracing, bridging, and joist accessories; splice and connection locations and details; and attachments to other. construction.

4. Structural Metal Decking

a. Informational Submittals:

i. Welding certificates.

ii. Product Certificates: For each type of steel deck.

iii. Product Test Reports: For tests performed by a qualified testing agency, indicating that each of the following complies with requirements:

A) Evaluation Reports: For steel deck, from ICC-ES.

B) Field quality-control reports.

b. Shop Drawings:

i. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

B1010.10 SYSTEM COMPONENTS

A. Concrete Floor Construction: As specified in Section A “Substructure”.

B. Roof Construction:

1. Wood Roof Construction:

a. General: Attics shall be vented with adequate access from inside the facility.

b. Pre-Engineered Wood Trusses: Roof trusses shall be designed to meet the requirements of ANSI/TPI 1-2014, “National Design Standard for Metal Plate Connected Wood Truss Construction.”

c. Spray-Foam Insulation (for application at truss heels and incidental areas for complete encapsulation): Comply with ASTM C1029-15 and ICC-ES AC377, Appendix X requirements.

d. Metal Framing Connectors: Galvanized steel engineered wood connectors. Metal framing connectors shall be installed with appropriate fasteners in strict accordance with the manufacturer’s instructions.

e. Exposed Timber Framing: Coat with premium exterior penetrating oil finish. Apply one coat before installation and one coat after. Apply third coat prior to occupancy/completion.

C. Steel Systems Construction:

1. Erection: Set structural steel accurately in locations and to elevations indicated and in accordance with ANSI/AISC 303 and ANSI/AISC 360.

2. Open Web Steel Joists

a. Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Specifications" and "Code of Standard Practice".

3. Structural Metal Decking:

a. Fasten deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated.

b. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals specified.

i. Side-Laps: Mechanically clinch or button punch.

4. Metal Roof System

a. System shall comply with UL Class 90.

b. Metal Roof Panels: As specified in Section B30 Roofing.

c. Underlayment: As specified in Section B30 Roofing.

d. Cover Board:

i. Fiberglass-mat faced gypsum roof boards 1/2" thick DensDeck by Georgia Pacific or approved equal.

A) Stagger roof board end and edge joints minimum 12" over installed insulation layers.

B) Board edges and ends shall be butted tightly together; do not gap edges or ends.

C) Apply only as many roof boards as can be covered by underlayment system in the same day.

ii. Stagger the cover board and insulation joints.

iii. Install fasteners through insulation to structural metal deck below.

e. Roof Insulation:

i. ASTM C578-18 extruded polystyrene (XPS) foam panels

ii. Thickness shall be as required to achieve the required R-values.

iii. Minimum of three layers of rigid insulation. All end joints to be staggered with respect to adjoining rows. All joints to be offset from joints in layers below, including cover board.

iv. Structural Metal Decking: As listed above. Provide ventilation for structural deck corrugations at both eaves.

--- END OF SECTION ---

B2010 EXTERIOR WALLS

B2010.1 SUMMARY

A. This system consists of the exterior facing of the building, including load bearing and non-load bearing exterior walls, exterior doors, and exterior windows.

B2010.2 CODE RISK CATEGORY

B. As specified in Section 1030 “Project Criteria”.

B2010.3 GENERAL REQUIREMENTS

A. Determination of the exterior wall framing system and siding requirements shall be the responsibility of the Design Build Contractor (DBC) where not explicitly stated in this section.

B. Exterior walls shall be constructed utilizing at a minimum the following options:

1. Either wood or steel construction framing.

2. Exterior substrate shall be fiber cement board system or exterior-grade plywood sheathing.

3. Exterior wall cladding shall be fiber-cement. Style shall be either board and batten, horizontal lap siding, or a combination of the two.

4. Minimum interior wall/ceiling height shall be 8 feet in occupied areas, and higher where feasible.

C. The exterior enclosure systems for all structures included in this contract shall be designed to conform with all applicable building codes and regulations.

D. Extend framing and cavity/continuous insulation to underside of roof at porches and gable ends.

E. Provide new infill wood stud framing at all existing gable ends. Re-clad gable end framing with structural wall sheathing and siding.

B2010.4 WOOD SYSTEM REQUIREMENTS

A. As specified in Section B1010.

1. Minimum wall sheathing thickness shall be 7/16-inch, Exposure 1, APA rated 32/16.

2. Plywood sheathing backing panels for telephone boards and similar: ACX plywood, 5/8-inch thickness.

3. Diaphragm designs shall be engineered in order to avoid use of 3x material at diaphragm edges/joints.

4. All wood in direct contact with concrete or concrete masonry shall be pressure treated in accordance with IBC requirements and have two layers of 30 lb. felt beneath.

5. Air/Water Barrier Drainage Requirements: Systems for drainage of water between wall air/water barrier (drainage plane) and fiber cement siding shall be as follows:

    a. Fiber cement siding installed over housewrap: Drainable housewrap, with spacers, corrugations, or grooves to furnish drainage pathways behind siding.

    b. Fiber cement siding installed over continuous insulation (sheathing insulation) or wood sheathing with factory-applied air/water barrier: Rainscreen or furring strips furnishing a minimum 1/8-inch gap behind siding.

    c. If the project is located where average annual rainfall is greater than 40 inches, a rainscreen or furring strips furnishing a minimum 1/8-inch gap behind siding shall be installed over housewrap, continuous insulation, or OSB with factory-applied air/water barrier drainage planes.

B2010.5 METAL SYSTEM REQUIREMENTS

A. As specified in Section B1010.

1. Cold Formed Metal Framing.

    a. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum temperature change.

    b. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure.

    c. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

    d. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:

        i. Wall Studs: AISI S211:

            A) Max Spacing: 24 inches.

            B) Depth: Minimum 5½”.

            C) Gage: Minimum 20 gage.

D) Minimum 18 Gage for weldable construction.

ii. Headers: AISI S212.

iii. Lateral Design: AISI S213.

B2010.6 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

B2010.7 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Metal Systems

1. Structural Steel: As specified in Section B10.

2. Cold Formed Metal Framing

a. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.

b. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

C. Manufacturer's Catalog Data:

1. Air/water barrier (housewrap).

2. Continuous insulation (sheathing insulation)

3. Exterior furring for thermal isolation.

4. Wall cavity insulation.

5. Siding and trim.

6. Exterior paint

7. Exterior siding.

8. Lock box.

D. Samples:

1. Paint color samples.

2. Wall color samples.

E. Certificates:

1. Framing lumber and sheathing, including species, grade, and treatment.

B2010.8 EXTERIOR WALL COMPONENTS

A. Wood Exterior Walls:

1. General: Wall framing shall be 2x6 wood studs or equivalent (spacing not to exceed 24 inches on center), with plywood sheathing, and polyethylene fiber air/water barrier (housewrap) with taped joints – see drainage requirements for air/water barrier in “System Requirements” above. OSB sheathing with factory-applied air/water barrier and taped joints may be used in lieu of standard sheathing and housewrap. Walls shall be insulated, covered with siding, caulked, and painted as specified below. Provide 5/8-inch gypsum board on interior wall face, screwed to studs, with all joints taped and all screw heads spotted with joint compound to a Level 4 finish suitable for light texture application.

2. Wall Insulation Systems: The following shall be acceptable for use as wall insulation:

a. Fiberglass: ASTM C665-17, Type I, (unfaced) friction fit fiberglass batt cavity insulation.

b. Rock Wool: ASTM C665-17, Type I, (unfaced) friction fit rock wool (mineral wool) batt cavity insulation.

c. Spray-Foam: ASTM C1029-15, Type II, 2 PCF, closed cell polyurethane spray-foam cavity insulation.

d. Continuous (Sheathing) Insulation: ASTM C578-18 extruded polystyrene (XPS) rigid insulation, or ASTM C1289-11 foil-faced polyisocyanurate rigid insulation. Since the continuous insulation will be installed outside of the air/water barrier, the continuous insulation joints shall not be taped.

3. Wall Insulation R Values: Minimum R values for exterior wall stud cavity and continuous insulation shall be as follows:

a. New Construction: In accordance with IECC minimum requirements.

b. Existing Exterior Walls: Provide minimum R-10 continuous thermal insulation around entire building perimeter.

4. Insulation shall be installed in a manner that will prevent condensation from forming inside the air/water barrier (house wrap).

5. Siding: ASTM C1186-08 fiber cement board lap siding and 1x fiber reinforced cement trim, factory-primed for paint. Lap siding shall be installed with a 6-inch exposure and shall be

fastened in accordance with the siding manufacturer's installation instructions. Siding end joints in the wall field shall be butted tight, with flashing installed under the joint; do not caulk field butt joints. Provide 1/8-inch gap where siding meets jamb and sill trim pieces, and caulk gaps between siding and trim. Furnish head flashing over all door and window trim, but do not caulk the gap between the flashing and the siding above.

6. Caulk: ASTM C920-18, Type S, Grade NS, Class 25, permanently flexible acrylic caulk.

7. Paint: Factory-primed siding and trim shall be painted with two coats of exterior grade latex (100% acrylic) semi-gloss paint. Color shall be as selected by the Government.

8. Metal Framing Connectors: Galvanized steel engineered wood connectors. Metal framing connectors shall be installed with appropriate fasteners in strict accordance with the manufacturer's instructions.

B. Steel Exterior Walls:

1. General:

a. Wall framing shall be vertical steel studs at minimum 5-1/2" deep (spacing not to exceed 24 inches on center)

b. Sheathing: Plywood, OSB, or exterior-grade Gypsum Board.

i. Cover with polyethylene fiber air/water barrier (housewrap) with taped joints – see drainage requirements for air/water barrier in "System Requirements" above. OSB sheathing with factory-applied air/water barrier and taped joints may be used in lieu of standard sheathing and housewrap. Walls shall be insulated, covered with siding, as specified below.

c. Provide 5/8-inch Type X gypsum board on interior wall face, screwed to studs, with all joints taped and all screw heads spotted with joint compound to a Level 4 finish suitable for light texture application.

d. Wall Insulation Systems: The following shall be acceptable for use as wall insulation:

i. Fiberglass: ASTM C665-17, Type I, (unfaced) friction fit fiberglass batt cavity insulation.

ii. Rock Wool: ASTM C665-17, Type I, (unfaced) friction fit rock wool (mineral wool) batt cavity insulation.

iii. Spray-Foam: ASTM C1029-15, Type II, 2 PCF, closed cell polyurethane spray-foam cavity insulation.

e. Continuous (Sheathing) Insulation: ASTM C578-18 extruded polystyrene (XPS) rigid insulation, or ASTM C1289-11 foil-faced polyisocyanurate rigid insulation. Since the

continuous insulation will be installed outside of the air/water barrier, the continuous insulation joints shall not be taped.

f. Wall Insulation R Values: Minimum R values for exterior wall stud cavity and continuous insulation shall be as required by the IECC.

2. Furring System: Thermally broken cladding attachment system.

a. GreenGirt CMH (https://smartcisystems.com/products/greengirt/) or approved equal - Composite Metal Hybrid (CMH) sub-framing system with in-fill insulation integrated with exterior wall cladding.

--- END OF SECTION ---

B2020 EXTERIOR WINDOWS

B2020.1 SUMMARY

A. This section consists of Exterior Windows.

B2020.2 GENERAL REQUIREMENTS

A. Determination of exterior windows shall be the responsibility of the Design Build Contractor (DBC) where not explicitly stated in this section.

B. Exterior windows shall be the following types:

1. New windows on building rear: Commercial-grade vinyl to match existing size and style.

2. New windows on front addition: Extruded aluminum storefront.

C. Source Limitations: Obtain each type and variety of window from a single manufacturer, unless otherwise indicated.

D. Structural Performance: Window assemblies shall have an LC-PG35 rating as a minimum for Type HS and Type FW windows per AAMA/WDMA/CSA 101/I.S.2/A440-11, and shall be provided with a higher performance grade rating as necessary to meet special wind requirements if wind loads at the project location are greater than 35 PSF.

E. Thermal Performance: Window assembly thermal performance shall be as required by the IECC.

F. Sound Transmission: Windows shall have a minimum STC rating of 34.

G. Security:

1. The exterior glazing shall be clear laminated glass.

2. Operable windows shall be lockable from the inside when they do not need to be open for ventilation or other operational purposes.

H. Trim: Solid surface sills, with gypsum board returns at jambs and heads.

I. Blinds: See Section C “Interiors”.

J. Window Sizes:

1. New windows on building rear: Match existing window sizes.

2. New windows on front addition: To be determined by the DBC.

B2020.3 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

B2020.4 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Manufacturer's Catalog Data:

1. Exterior windows.

C. Operation and Maintenance Data:

1. Exterior windows.

D. Samples:

1. Window color samples.

--- END OF SECTION ---

B2050 EXTERIOR DOORS & GRILLES

B2050.1 SUMMARY

A. This section consists of Exterior Doors and Hardware:

1. Hollow Metal Doors and Frames.

2. Extruded Aluminum Storefront Door Systems.

3. Commercial door hardware and electrified door hardware as shown or specified for both exterior and interior doors.

B2050.2 GENERAL REQUIREMENTS

A. Determination of exterior doors and hardware products shall be the responsibility of the Design Build Contractor (DBC) where not explicitly stated in this section.

B. Exterior doors shall be the following types:

1. Staff entry doors, including building rear and sides: Hollow metal doors and frames with glazing in locations deemed appropriate by the Government and in accordance with BLM Physical Security standards.

2. Public / Primary Entrance doors: Extruded aluminum storefront with sidelites.

C. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.

D. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.

E. Coordination: Hardware and keying conference with Owner prior to final approval of doors and hardware.

F. Security:

1. Glass panels in doors:

a. Shall be no larger than 96 square inches.

b. Where larger than 96 square inches, glass panels in doors shall have a physical treatment to prevent unauthorized access or increase delay time for unauthorized access attempts. Physical treatments may include burglar-resistant fil or glazing, security bars, and/or expanded metal mesh.

B2050.3 REFERENCES

A. ANSI/BHMA A156 – Builders Hardware Manufacturers Association Builders Hardware Standards.

B. NFPA – National Fire Protection Association:

1. NFPA 80 – Fire Doors and Windows.

2. NFPA 105 – Smoke and Draft Control Door Assemblies.

3. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.

4. NFPA 101 – Life Safety Code.

C. UL – Underwriters Laboratories:

1. UL10C – Fire Tests of Door Assemblies (Positive Pressure).

2. UL 1784 - Air Leakage Tests of Door Assemblies.

D. ANSI A117.1 – Accessible and Usable Buildings and Facilities.

E. ADA – Americans with Disabilities Act.

F. DHI – Door and Hardware Institute.

G. SDI – Steel Door Institute.

1. WDMA – Window and Door Manufacturers Association.

B2050.4 WARRANTY

A. Provide written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.

2. Faulty operation of operators and door hardware.

3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

B. Warranty Period: 2 years from date of Substantial Completion, unless otherwise indicated.

1. Warranty Period for Manual Closers: 10 years from date of Completion.

2. Warranty Period for Exit Devices: 3 years from date of Completion.

3. Warranty Period for Locksets: 5 years, blanket coverage, from date of Completion.

B2050.5 THERMAL PERFORMANCE

A. Exterior Doors shall comply with Energy Star requirements based on glazing level for the zone the project is located as listed below:

1. Opaque doors (no glass) must have a U-factor of 0.17 or less (no SHGC requirement).

2. 1/4- or 1/2-Lite doors (about 50% glass or less) must have a U-factor of 0.25 or less and an SHGC of 0.25 or less.

3. 3/4- or Full-Lite doors (more than 50% glass) must have a U-factor of 0.30 or less and an SHGC of 0.40 or less.

4. U Value determined in accordance with NFRC 100 and SHGC in accordance with NRFC 200.

B2050.6 QUALITY ASSURANCE

A. Keying Conference: Conduct conference with Owner to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.

2. Plans for existing and future key system expansion.

3. Requirements for key control storage and software.

4. Installation of permanent keys, cylinder cores and software.

5. Address location and requirements for delivery of keys.

B. Commissioning:

1. The General Contractor in conjunction with the lock manufacturer’s representative, hardware installer and supplying distributor shall commission hardware.

a. Test door hardware operation with climate control system both at rest and while in full operation.

b. Test electrical and electronic hardware systems for satisfactory operation.

c. Test hardware interfaced with fire/life-safety system for proper operation and release.

B2050.7 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

B2050.8 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer’s Catalog Data:

1. Door hardware, with schedule:

a. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

b. Details of electrified access control hardware indicating the following:

i. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

A) Elevation diagram of each unique access-controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

B) Complete (risers, point-to-point) access control system block wiring diagrams.

C) Wiring instructions for each electronic component scheduled herein.

ii. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

c. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

d. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

i. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third-party source will not be accepted.

ii. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

2. Lock box.

C. Operation and Maintenance Data:

1. Doors.

2. Hardware.

D. Samples:

1. Paint color samples.

B2050.9 SYSTEM COMPONENTS

A. General:

1. Performance Requirements:

a. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated on Drawings, based on testing at positive pressure according to NFPA 252 or UL 10C.

b. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

c. Temperature-Rise Limit: At exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.

d. Fire-Rated, Borrowed-Lite Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

2. Identifying devices/signage:

a. Install signage in accordance with ADA and manufacturer's instructions.

b. Entry Glass Doors: Install vinyl die cut and reverse vinyl die cut letter signs on glazing on doors centered on doors at 54” above finished floor.

B. Glazing:

1. Exterior Doors: 5/8" total, 1/4" laminated at exterior, 1/8" air space.

2. Seal: Dual seal consisting of butyl primary seal and silicone secondary seal required. Provide spacers filled with desiccant and bent or soldered corners to provide a sealed edge.

3. Provide flush integral stops on one side and flush screw on stops on the opposite side. This includes windows in doors. Provide removable stop at building interior of exterior windows.

Provide stops, shaped as required and hand fitted with butt joints that are square and true and tightly fitted. Gaps at stops will not be permitted.

a. Stiles and rails: Widths to be determined by the DBC.

b. Fasten to frame with metal screws at 18" o.c. maximum, flathead, countersunk. Do not over-tighten to cause indentations or puckering. Provide vandal proof screws at exterior stops when the drawings specifically require removable stops at the exterior.

C. Hollow Metal Doors and Frames:

1. General: Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

2. Standard Steel Doors:

a. Type: To be determined by the Design Build Contractor (DBC).

b. Thickness: 1-3/4 inches.

c. Face: Metallic-coated steel sheet, minimum 16 gauge (0.053”), with minimum G90 coating.

d. Edge Construction: Model 2, Seamless.

e. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets. Seal joints against water penetration.

f. Bottom Edges: Close bottom edges of doors where required for attachment of weather stripping with end closures or channels of same material as face sheets. Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape.

g. Core: Polystyrene and Vertical steel stiffener.

h. Fire-Rated Core: Manufacturer's standard vertical steel stiffener with insulation core for fire rated doors.

3. Standard Steel Door Frames:

a. Materials: Metallic-coated steel sheet, minimum 14 gage (0.067”), with minimum G90 coating.

b. Construction: Fully welded and ground smooth.

c. Head reinforced for closer.

d. Fill door jambs solid with rock wool.

D. Extruded Aluminum Storefront Doors and Frames:

1. General: Construct extruded aluminum storefront doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

2. Extruded aluminum doors shall be fabricated and installed by the same manufacturer and installer as the extruded aluminum exterior window assemblies. Doors and windows shall be from the same product line.

3. Standard Aluminum Storefront Doors:

   a. Type: To be determined by the Design Build Contractor (DBC).

   b. Thickness: 1-3/4 inches minimum.

   c. Face: Extruded aluminum sheet, minimum 0.125 inches (1/8 inch) thickness, with clear anodized finish or painted finish.

   d. Edge Construction: Seamless, with integral weather-stripping grooves.

4. Standard Aluminum Storefront Frames:

   a. Materials: Extruded aluminum, minimum 0.125 inches (1/8 inch) thickness, with a clear anodized finish or painted finish.

   b. Construction: Fully welded or mechanically fastened as necessary for structural integrity.

   c. Head reinforced for closer and hardware support as required.

   d. Provide thermal break in frames as required for energy efficiency.

E. Fire Department Lock Box:

1. Provide Knox Model No. 3200 Knox Vault (recessed or surface mount as required by Owner) or other lock box as required by local fire department, in quantity and location as directed by the fire department and approved. Recessed mount shall be furnished with recessed mounting kit (RMK) for new concrete or masonry construction.

F. Hardware:

1. General: The Design Build Contractor (DBC) is responsible for selecting and providing all necessary door hardware for each door type in compliance with applicable industry standards and project specifications. Hardware must be appropriate for the intended use and performance level of the doors installed.

2. Key Control Systems: The DBC shall determine and provide an effective key numbering and key control system for each entry type. The system should comply with the Government's physical security requirements.

3. Hinges:

    a. Standards: Provide hinges that comply with ANSI/BHMA A156.1, certified for durability and performance.

    b. Quantity:

        i. Two hinges for doors up to 60 inches in height.

        ii. Three hinges for doors 61 to 90 inches in height.

        iii. Four hinges for doors 91 to 120 inches in height.

4. Door Push Plates and Pulls: Provide ANSI/BHMA A156.6 certified push plates and pulls as determined by the DBC, ensuring that sizes and designs accommodate clearance needed for conflicting hardware installations.

5. Lock Cylinders: The DBC shall select lock cylinders from a single source corresponding to the locksets and exit devices, ensuring uniform keying within the facility.

6. Keys: Provide keys for each door type, including the establishment of a keying system and the required quantity of keys as deemed necessary for building security.

7. Exit Devices: Provide exit devices, where required, that meet or exceed NFPA 101 requirements and are listed for "Panic Hardware" according to UL305.

8. Door Closers: Door closers must be from a single manufacturer.

9. Architectural Seals: Provide the appropriate thresholds, weatherstripping, and gasket seals that comply with relevant building codes and standards for energy efficiency and environmental control.

10. Finishes: All hardware finishes shall comply with the relevant ANSI/BHMA standards, including protection during shipping and installation.

--- END OF SECTION ---

B3010 ROOFING

B3010.1 SYSTEM DESCRIPTION

A. This system consists of waterproof roof coverings, including gutters, downspouts, flashings, fascia, soffit, and all required trim.

B3010.2 GENERAL REQUIREMENTS

A. Determination of the roofing requirements shall be the responsibility of the Design-Build Contractor (DBC), but shall meet the following base requirements:

1. Replacement of existing roofing: Provide asphalt architectural shingles.

2. New roofing over addition: Provide asphalt shingles, flat membrane roof, or combination of the two to achieve proper drainage and aesthetics.

B3010.3 SYSTEM REQUIREMENTS

A. Roofing materials shall be delivered in manufacturer's original, unopened, protective packaging. Comply with manufacturer's recommendations for protection of roofing material before installation.

B. Follow recommendations in applicable ARMA and NRCA guidelines.

C. Asphalt Roofing:

1. Warranty: Furnish a written 30-year minimum warranty from date of substantial completion on roofing materials and a 2-year guarantee against a defective roofing system, including any repairs necessary to maintain a watertight condition. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 135 mph for 15 years from date of Substantial Completion. Algae-Resistance Warranty Period: Asphalt shingles will not discolor for 10 years from date of Substantial Completion. Workmanship Warranty Period: Two years from date of Substantial Completion.

D. Membrane (Flat) Roofing:

1. Warranty: Furnish a written 15-year minimum warranty from date of substantial completion on roofing materials and a 2-year guarantee against a defective roofing system, including any repairs necessary to maintain a watertight condition.

B3010.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

B3010.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

1. Manufacturer’s Catalog Data:

    a. Underlayment.

    b. Asphalt shingles.

2. Membrane roofing:

    a. Product test reports.

3. Shop drawings of tapered insulation.

4. Samples:

    a. Roofing, for each type.

B3010.6 SYSTEM COMPONENTS

A. Asphalt Shingles:

1. General: Roof covering color shall be as selected by the Government.

2. Glass Fiber Reinforced Asphalt Shingles: Laminated-Strip Asphalt Shingles: ASTM D 3462/D 3462M, laminated, multi-ply overlay construction, glass-fiber reinforced, mineral-granule surfaced, and self-sealing, dimensional asphalt shingles.

3. Provide shingles with the appropriate fire resistance, impact resistance, and wind resistance ratings.

4. Asphalt shingles shall be applied over fully adhered ice and water shield underlayment. All valleys shall be closed cut type

5. Hip and Ridge Shingles: Manufacturer's standard units to match asphalt shingles

6. Underlayment:

    a. Apply self-adhering at eaves (extend to minimum 3ft inside exterior wall inside face), valleys, eaves, rakes and at skylights (3ft all sides).

        i. Synthetic Underlayment: UV-resistant polypropylene, polyolefin, or polyethylene polymer fabric with surface coatings or treatments to improve traction underfoot and abrasion resistance; evaluated and documented to be suitable for use as a roof underlayment under applicable codes by a testing and inspecting agency acceptable to authorities having jurisdiction.

ii. Self-Adhering Sheet Underlayment, Granular Surfaced: ASTM D1970/D1970M, minimum of 40-mil thick sheet; glass-fiber-mat-reinforced, SBS-modified asphalt; mineral-granule surfaced; with release backing (ice and water shield); cold applied at roof perimeter, rake edges, hips, valleys and ridges and other penetrating elements.

B. Membrane (Flat) Roofing:

1. General: Roof covering color shall be as selected by the Government.

2. Membrane Roofing: PVC sheet meeting ASTM D4434, Type III or IV, fabric reinforced with a minimum thickness of 60 mil nominal.

3. Provide membrane roofing with the appropriate fire resistance, impact resistance, and wind resistance ratings.

4. Install over rigid insulation board as required by applicable energy codes.

5. Slope roof insulation (min. 1/4 inch per foot) away from building interior and provide exterior drainage. Provide roof crickets as necessary to ensure positive drainage away from all vertical surfaces.

6. No roof drains shall be permitted.

C. Roofing Accessories:

1. General: Provide materials and types of fasteners, protective coatings, separators, sealants, and other miscellaneous items required by manufacturer for a complete installation. Flashing, trim, gutter, scupper, and downspout colors shall be as selected by the Government.

2. Flashing and Trim: Furnish prefinished G90 hot-dip galvanized steel drip edge and rake eave flashing at all roof edges and G90 hot-dip galvanized steel flashing systems with an epoxy finish with elastomeric collars for pipe penetrations.

3. Flat Roof Drainage: Provide parapet walls with scuppers and overflow capabilities at flat roof edges.

4. Gutters and Downspouts: Commercial Grade aluminum with an epoxy exterior finish with hidden hangers and prefinished rectangular open-faced steel downspouts at all eaves spaced as determined by rain fall calculations. Downspouts minimum of 3”X4”.

5. Furnish concrete splash blocks at all downspout terminations. Provide for underground drainage away from building. Where splash blocks would create drainage issues or hazardous conditions for occupants.

6. De-Icing requirements (self-regulating heating cables) shall be provided at structure access points at “cold” locations at building perimeter for certain environments with ice damming issues.

7. Tubular Skylights: Tubular skylight system consisting of collector dome, roof flashing unit, light pipe, and diffuser assembly. Collector dome shall be impact resistant and light pipe shall have specular interior surface with total reflectivity of no less than 98 percent. Furnish roof flashing units in materials appropriate for asphalt shingle or membrane roof coverings.

8. Eaves and Soffits:

    a. ASTM C1186-08 1x fiber reinforced cement fascia board and 1/4-inch fiber cement soffit board, factory-primed for paint. Fascia and soffit boards shall be fastened in accordance with the board manufacturer's installation instructions. Caulk gap between soffit and the siding or frieze board at top of wall.

9. Paint: Factory-primed siding and trim shall be painted with two coats of exterior grade latex (100% acrylic) paint. Color and sheen shall be as selected by the Government.

--- END OF SECTION ---

C1010 INTERIOR PARTITIONS

C1010.1 SUMMARY

A. This system includes interior partitions.

C1010.2 GENERAL REQUIREMENTS

A. Determination of the interior wall framing system requirements shall be the responsibility of the Design Build Contractor (DBC) where not explicitly stated in this section.

B. Interior partitions shall be constructed utilizing at a minimum the following options:

1. Either wood or steel construction framing.

2. Minimum interior wall/ceiling height shall be 8 feet in occupied areas, and higher where feasible.

C. The interior partitions included in this contract shall be designed to conform with all applicable building codes and regulations.

D. Performance Requirements:

1. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.

2. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

C1010.3 WOOD SYSTEM REQUIREMENTS

A. As specified in Section B1010 and B2010.

C1010.4 METAL SYSTEM REQUIREMENTS

A. As specified in Section B1010 and B2010.

B. Cold Formed Metal Framing.

1. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure.

2. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:

a. Wall Studs: AISI S211:

i. Max Spacing: 24 inches.

ii. Depth: Minimum 3 5/8”.

iii. Gage: Minimum 20 gage.

iv. Minimum 18 Gage for weldable construction.

b. Headers: AISI S212.

c. Lateral Design: AISI S213.

C1010.5 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

C1010.6 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Metal Systems

1. Structural Steel: As specified in Section B10.

2. Cold Formed Metal Framing

a. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.

b. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

C. Manufacturer’s Catalog Data:

1. Wall cavity insulation.

D. Operation and Maintenance Data:

1. Exterior windows.

E. Samples:

1. Wall color samples.

F. Certificates:

1. Framing lumber, including species, grade, and treatment.

C1010.7 INTERIOR PARTITION COMPONENTS

A. General: Wall framing shall be 2x4 wood studs or equivalent, maximum 24 inches on center, with 5/8-inch Type-X ASTM C1396 gypsum board on both faces, screwed to studs, with all joints taped and all screw heads spotted with joint compound to a Level 4 finish suitable for light texture application. Furnish 2x6 wood studs or equivalent, maximum 24 inches on center in plumbing walls. Furnish 5/8 inch Type-X water resistant gypsum board on the walls in bathrooms and in custodial room, screwed to studs, with all joints taped and all screw heads spotted with joint compound to a Level 4 finish suitable for light texture application.

B. Tile Backing Panels: Cementitious Backer Units: ANSI A118.9 and ASTM C1288 or ASTM C1325, with manufacturer's standard edges. Thickness ½ inch.

C. Sound Insulation: Furnish sound attenuation insulation batts (full stud cavity depth thickness) and shall have a minimum STC rating of 50.

1. Resilient Channels (1/2”): Utilize as necessary to achieve the STC rating.

2. Utilize sound attenuation techniques to achieve this rating in the following locations:

a. Bathroom walls and ceilings.

b. Conference, Break Room, Private Offices, Meeting Room and Law Enforcement Space walls and ceilings.

--- END OF SECTION ---

C1030 INTERIOR DOORS

C1030.1 SUMMARY

A. This section consists of Interior Doors and Hardware:

1. Flush Wood Doors.

2. Commercial door hardware and electrified door hardware as shown or specified for interior doors.

C1030.2 GENERAL REQUIREMENTS

A. Determination of interior doors and hardware products shall be the responsibility of the Design Build Contractor (DBC) where not explicitly stated in this section.

B. Interior doors shall be flush wood doors with glazing in locations deemed appropriate by the Government and in accordance with BLM Physical Security standards.

C. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.

D. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.

E. Coordination: Hardware and keying conference with Owner prior to final approval of doors and hardware.

F. Security:

1. Glass panels in doors:

a. Shall be no larger than 96 square inches.

b. Where larger than 96 square inches, glass panels in doors shall have a physical treatment to prevent unauthorized access or increase delay time for unauthorized access attempts. Physical treatments may include burglar-resistant fil or glazing, security bars, and/or expanded metal mesh.

C1030.3 REFERENCES

A. ANSI/BHMA A156 – Builders Hardware Manufacturers Association Builders Hardware Standards.

B. NFPA – National Fire Protection Association:

1. NFPA 80 – Fire Doors and Windows.

2. NFPA 105 – Smoke and Draft Control Door Assemblies.

3. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.

4. NFPA 101 – Life Safety Code.

C. UL – Underwriters Laboratories:

1. UL10C – Fire Tests of Door Assemblies (Positive Pressure).

2. UL 1784 - Air Leakage Tests of Door Assemblies.

D. ANSI A117.1 – Accessible and Usable Buildings and Facilities.

E. ADA – Americans with Disabilities Act.

F. DHI – Door and Hardware Institute.

G. WDMA – Window and Door Manufacturers Association.

C1030.4 WARRANTY

A. Provide written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.

2. Faulty operation of operators and door hardware.

3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

B. Warranty Period: 2 years from date of Substantial Completion, unless otherwise indicated.

1. Warranty Period for Manual Closers: 10 years from date of Completion.

2. Warranty Period for Exit Devices: 3 years from date of Completion.

3. Warranty Period for Locksets: 5 years, blanket coverage, from date of Completion.

C1030.5 QUALITY ASSURANCE

A. Keying Conference: Conduct conference with Owner to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.

2. Plans for existing and future key system expansion.

3. Requirements for key control storage and software.

4. Installation of permanent keys, cylinder cores and software.

5. Address location and requirements for delivery of keys.

B. Commissioning:

1. The General Contractor in conjunction with the lock manufacturer's representative, hardware installer and supplying distributor shall commission hardware.

a. Test door hardware operation with climate control system both at rest and while in full operation.

b. Test electrical and electronic hardware systems for satisfactory operation.

C. Test hardware interfaced with fire/life-safety system for proper operation and release.

C1030.6 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

C1030.7 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph "Submittals During Construction".

B. Manufacturer's Catalog Data:

1. Door hardware, with schedule:

a. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

b. Details of electrified access control hardware indicating the following:

i. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

A) Elevation diagram of each unique access-controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

B) Complete (risers, point-to-point) access control system block wiring diagrams.

C) Wiring instructions for each electronic component scheduled herein.

ii. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

c. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

d. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

i. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third-party source will not be accepted.

ii. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

C. Operation and Maintenance Data:

1. Doors.

2. Hardware.

D. Samples:

1. Paint color samples.

C1030.8 SYSTEM COMPONENTS

A. General:

1. Performance Requirements:

a. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated on Drawings, based on testing at positive pressure according to NFPA 252 or UL 10C.

b. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.

c. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.

d. Fire-Rated, Borrowed-Lite Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

2. Clearances:

a. Edge clearances between doors and frames: 1/8 inch.

b. At door sills with no threshold: 1/2-inch standard unless noted otherwise.

c. At door sills with threshold: 1/4-inch maximum between door and threshold.

d. At door sills at carpet: 1/4-inch higher than the thickness of the carpet.

e. Between meeting edges of pairs of doors: 1/8-inch.

3. Identifying devices/signage: Install signage in accordance with ADA and manufacturer's instructions.

B. Glazing:

1. Interior Doors: Laminated Glass of equal thicknesses (1/8" minimum) inner and outer faces of heat strengthened float glass laminated in autoclave under heat and pressure to a clear polyvinyl butyl sheet.

C. Flush Wood Interior Doors:

1. Thickness: 1-3/4 inches.

2. Performance Grade: WDMA I.S. 1A Heavy Duty.

3. Architectural Woodwork Standards Grade: Premium, Grade A.

4. Faces: Single-ply wood veneer not less than 1/50 inch thick.

5. Exposed Vertical and Top Edges: Same species as faces or a compatible species – Architectural Woodwork Standards edge Type A.

6. Core for Non-Fire-Rated Doors: ANSI A208.1, Grade LD-1 particleboard.

7. Finish:

a. Factory finish doors including face, all four edges, edges of cutouts, and mortises.

b. Transparent finish, Architectural Woodwork Standards Grade: Premium.

c. Sheen: Satin.

8. Frames: Hollow metal.

D. Hardware: Refer to Section B20.

--- END OF SECTION ---

C1090 INTERIOR SPECIALTIES

C1090.1 SUMMARY

A. This section consists of interior specialties, including bathroom accessories, horizontal blinds, identifying devices/signage, and fixed furnishings.

C1090.2 GENERAL REQUIREMENTS

A. Determination of interior specialty requirements shall be the responsibility of the Design Build Contractor (DBC) where not explicitly stated in this section.

C1090.3 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

C1090.4 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Shop Drawings:

1. Countertops and cabinets.

2. Identifying devices/signage: Submit shop drawings listing message, sign styles, lettering and locations, color, finish, overall dimensions of each sign and details of construction, including reinforcement and accessories. Submit complete sign schedule indicating type of sign, location, message and symbol, anchoring system.

C. Manufacturer's Catalog Data:

1. Bathroom accessories.

2. Window blinds.

D. Operation and Maintenance Data:

1. Window blinds.

E. Samples:

1. Horizontal blind color samples.

2. Signage: Submit three samples illustrating full size sample sign, of type, style and color specified including method of attachment.

C1090.5 FITTINGS AND SPECIALTIES

A. Bathroom Accessories:

1. General: Furnish Bathroom accessories from one manufacturer as far as possible. Accessories shall be ASTM A240-18 Type 302/304 stainless steel, with satin finishes on exposed surfaces.

2. Furnish the following accessories in the bathrooms:

   a. Toilet paper holder; one per toilet.

   b. Paper towel dispenser and waste receptacle; one per bathroom.

   c. 5’-0” x 3’-0” mirror; one per lavatory.

   d. Soap dispensers; one per lavatory.

   e. Feminine napkin dispenser; one per toilet.

3. Grab bars per ADA/ABA; one set per accessible toilet and shower.

B. Horizontal Blinds:

1. General: Metal mini-blinds shall have 1 inch wide horizontal aluminum slats supported by braided ladders, with operating hardware enclosed in a metal head, tubular bottom rail, and cord and wand controls for raising, lowering, and tilting the blinds. Color shall be as selected by the Government.

2. Furnish mini-blinds at all exterior windows.

C. Identifying devices/signage:

1. Install signage in accordance with ADA and manufacturer's instructions.

2. Entry Glass Doors: Install vinyl die cut and reverse vinyl die cut letter signs on glazing on doors centered on doors at 54” above finished floor.

D. Fixed Furnishings:

1. Locations: Provide built-in cabinetry and countertops in the following locations:

   a. Break Room.

   b. Bathrooms.

   c. Public Meeting Room.

   d. Wellness.

e. Reception.

f. Minimum two (2) locations throughout open offices for print/office supplies.

2. Installation: ANSI/AWI 0620-2018 - Finish Carpentry/Installation Standard shall be custom quality.

3. Countertops:

a. Countertops, with bullnose edge and 4-inch-high integral backsplash.

b. Plastic Laminate (not paired with sinks): ISFA 2-01 Standard Type solid surface sheets are designed for horizontal, vertical, wet, and dry applications which do not require a full substrate to perform in horizontal applications.

c. Break Room counters and bath lavatories: Solid surface, nonporous, homogeneous material maintaining the same composition throughout.

4. Cabinets:

a. Material; NAAWS 3.1 Custom Grade pre-manufactured laminate base cabinets and wall cabinets.

5. Installation: ANSI/AWI 0620-2018 - Finish Carpentry/Installation Standard.

--- END OF SECTION ---

C2010 INTERIOR WALL FINISHES

C2010.1 SUMMARY

A. This system includes interior wall finishes.

C2010.2 GENERAL REQUIREMENTS

A. Determination of all interior wall finish requirements shall be the responsibility of the Design Build Contractor (DBC) where not explicitly stated in this section.

B. Interior walls finishes shall be Painted Gypsum Wall Board with Resilient Cove Base.

1. Exception: Bathrooms and Custodial Room shall be Ceramic Tile.

C. The interior wall finishes included in this contract shall be designed to conform with all applicable building codes and regulations.

C2010.3 SYSTEM COMPONENTS

A. Gypsum Board:

1. All walls (other than Bathrooms and Custodial Room) shall have orange-peel texture applied and shall be painted with one coat of primer and two coats of interior grade latex (100% acrylic) satin finish paint. Color shall be as selected by the Government.

2. Bathrooms and Custodial Room: Walls shall have orange-peel texture applied and shall be painted with one coat of primer and two coats of epoxy satin finish paint. Color shall be as selected by the Government.

3. Control Joints: Install control joints according to ASTM C840.

B. Ceramic Tile:

1. Tile: ANSI A137.1 complying with Standard grade requirements, color and pattern shall be as selected by the Government.

2. Glazed Ceramic minimum 1/4 inch thickness.

3. Color of tile and grout shall be selected by the Government.

4. Mortar: Provide premium grade non-sag, non-slump mortar complying with ANSI A118.1.

5. Grout: Polymer Modified Portland Cement complying with ANSI A118.

C. Resilient Cove Base:

1. Furnish 4 inch vinyl wall base in all rooms except Bathrooms and Custodial Room. Color shall be as selected by the Government.

C2010.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

C2010.5 SUBMITTALS DURING CONSTRUCTION

B. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

C. Manufacturer’s Catalog Data:

1. Interior paint.

2. Wall base.

D. Samples:

1. Paint color samples.

2. Wall base samples.

3. Ceramic Tile: Full-size units of each type and composition of tile and for each color and finish required

--- END OF SECTION ---

C2030 FLOORING

C2030.1 SUMMARY

A. This system includes flooring finishes.

C2030.2 GENERAL REQUIREMENTS

A. Determination of all interior floor finish requirements shall be the responsibility of the Design Build Contractor (DBC) where not explicitly stated in this section.

B. Interior floor finishes shall be as follows:

1. Provide Vinyl Composition Tile (VCT) in the following spaces:

    a. Lobby

    b. Public Bathroom.

    c. Break Room.

    d. Law Enforcement Evidence Storage.

    e. Server / Network.

2. Provide Carpet Tile in the following spaces:

    a. Offices (open and private).

    b. Conference Rooms and Meeting Rooms.

    c. Huddle, Wellness, Print Area, Library and IT Rooms.

    d. Office Storage Rooms.

3. Provide Ceramic Tile in the following spaces:

    a. Custodial.

    b. Bathrooms.

C. Existing Mechanical / Electrical Room floor finish shall remain as is.

D. The interior floor finishes included in this contract shall be designed to conform with all applicable building codes and regulations.

C2030.3 SYSTEM COMPONENTS

A. Vinyl Composition Tile (VCT):

1. General: 1/8 inch minimum thickness. Length and width of tiles to be selected by the Government from the DBC's design options. Design elements shall extend throughout the thickness of the wear layer. Composition flooring materials of the same type, pattern, and color shall be from the same production run or lot and shall be so marked. Variations in shades and off-pattern matches between containers will not be acceptable.

2. Material shall exceed minimum wear layer thickness and binder content required as per ASTM F 1066, Class 2.

B. Carpet Tile:

1. General: 24 inch x 24 inch x 1/4 inch minimum thickness carpet tiles, high-performance nylon loop pile bonded to resilient backing. Color and pattern shall be as selected by the Government.

2. Applied Soil-Resistance Treatment: Manufacturer's standard material.

3. Antimicrobial Treatment: Manufacturer's standard material.

C. Ceramic Tile:

1. Tile: ANSI A137.1 complying with Standard grade requirements, color and pattern shall be as selected by the Government.

2. Unglazed Ceramic minimum 3/8 inch thickness.

3. General Tile Types, thin-set installation, heavy performance level, dry interior locations over slab on grade.

D. Furnish ABA-compliant transition strips where carpet meets vinyl flooring.

C2030.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

C2030.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph "Submittals During Construction".

B. Manufacturer's Catalog Data:

1. Flooring (tile, carpet, VCT, sheet vinyl).

C. Samples:

1. Carpet, VCT, sheet vinyl.

2. Ceramic Tile: Full size units of each type and composition of tile for each color and finish required.

--- END OF SECTION ---

C2050 CEILING FINISHES

C2050.1 SUMMARY

A. This system includes interior ceiling finishes.

C2050.2 GENERAL REQUIREMENTS

A. Determination of all interior ceiling finish requirements shall be the responsibility of the Design Build Contractor (DBC) where not explicitly stated in this section.

B. All interior ceiling finishes shall be Acoustical Ceiling Tiles.

1. Exception: Public Lobby ceiling shall be designed in a manner that enhances the aesthetic appeal of the space. Options may include the use of exposed structural trusses, wood paneling or other architectural features.

C. The interior ceiling finishes included in this contract shall be designed to conform with all applicable building codes and regulations.

C2050.3 SYSTEM COMPONENTS

A. Acoustical Ceiling Tiles (ACT):

1. General: All ceilings shall have acoustical tile ceilings conforming to ASTM E1264 with standard direct-hung metal suspension system conforming to ASTM C635. Acoustical Tile Ceiling systems shall comply with project seismic requirements.

2. Color: White.

3. NRC: 0.70.

4. Edge/Joint Detail: Shadowline Tapered (SLT).

5. Thickness: 3/4 inch.

6. Modular Size: 24 x 24 inches.

C2050.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

C2050.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer's Catalog Data:

1. Acoustical ceiling tile system.

C. Samples:

1. Acoustical ceiling grid and tile sample.

--- END OF SECTION ---

D2010 DOMESTIC WATER DISTRIBUTION

D2010.1 SYSTEM DESCRIPTION

A. This system consists of plumbing fixtures, domestic cold and hot water piping, domestic water heating equipment, pipe insulation, and plumbing specialties.

D2010.2 GENERAL REQUIREMENTS

B. Determination of plumbing system requirements shall be the responsibility of the Design Build Contractor (DBC).

C. The plumbing systems for all structures included in this contract shall be designed to conform to the codes and standards listed in Section 1030 “Design Criteria” and below:

1. 2024 International Plumbing Code (IPC).

2. 2004 ABA Accessibility Guidelines.

3. 2016 CAGI Compressed Air and Gas Handbook.

D. Design Requirements:

1. Design plumbing systems such that they can be easily maintained. Provide shutoff valves to isolate convenient portions of piping systems (other than drainage systems) so that small portions of the systems may be deactivated for service or repair, leaving the remainder of the system in operation. Provide access doors for all devices, valves, and pieces of equipment that require access for operation, maintenance, or adjustment.

2. Maximum design velocity in domestic water supply piping shall be 6 feet per second. Design the domestic water systems to provide a minimum pressure of 20 psig at the most remote fixture.

3. All plumbing fixtures and fittings shall meet EPA WaterSense requirements. Include the gallons per flush and gallons per minute values in the plumbing schedule.

4. Design domestic water systems such that they are easily drainable. Provide accessible drain valves at all low points.

D2010.3 DOMESTIC WATER SYSTEM REQUIREMENTS

E. Provide cold water and hot water supply distribution systems to all plumbing fixtures, wall hydrants, and all other devices, equipment, and appliances requiring water supply.

F. Provide point-of-use thermostatic mixing valves on all lavatories and sinks.

G. Provide main shutoff valve, strainer, reduced pressure zone backflow preventer assembly, and positive displacement water meter (for domestic water systems connected to municipal water supply) on each domestic water service.

H. Only the main building water service will be permitted under slab-on-grade construction. All other domestic water piping shall be installed above grade.

I. Provide freeze-proof wall hydrants every 75 to 100 feet on the building perimeter, with mounting height 18 inches above finished grade. As a minimum, one wall hydrant shall be located on the front of the building, and one shall be located on the back of the building.

J. Provide pressure reducing valve(s) in domestic water service if water supply pressure is greater than 80 psig. Provide domestic water pressure booster pump system if water supply pressure is insufficient to meet domestic water system demands.

K. Provide water hammer arresters on all domestic water branches serving fixtures and equipment utilizing automatic closing valves, i.e., water closets, urinals, washing machines, dishwashers, etc. Numbers and sizes of water hammer arresters shall be in accordance with PDI WH 201-17.

L. Provide individual supply line stops at each plumbing fixture.

M. Provide pressure gauges at domestic water service connections and on either side of pressure reducing valves.

N. Provide dielectric unions or flanges where ferrous and non-ferrous piping materials are joined.

O. Tank-type waters heaters shall be seismically braced to prevent tipping over.

D2010.4 SUBMITTALS DURING DESIGN

P. Refer to Project Statement of Work.

D2010.5 SUBMITTALS DURING CONSTRUCTION

Q. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

R. Manufacturer’s Catalog Data:

1. Plumbing fixtures, including fitting and trim packages associated with each plumbing fixture.

2. Pipe and fittings

3. Valves

4. Backflow preventers

5. Pressure reducing valves (if used)
6. Wall hydrants
7. Domestic water heaters
8. Hot water expansion tank
9. Thermostatic mixing valves
10. Floor drains and floor sinks
11. Air compressors
12. Air pressure regulators

S. Operation and Maintenance Data:

1. Domestic water heaters
2. Thermostatic mixing valves
3. Backflow preventers
4. Pressure reducing valves (if used)
5. Wall hydrants
6. Air pressure regulators

D2010.6 SYSTEM COMPONENTS

T. Plumbing Fixtures:

1. Determination of plumbing fixtures not listed in this Section shall be the responsibility of the DBC and shall be as approved by the Government.

2. General: Provide plumbing fixtures of the types listed below with quantities of fixtures as shown on the drawings and required by Code. Provide plumbing fixtures complete with all required supplies, stops, drains, vacuum breakers, traps, carriers, etc.

3. Water Closet: Water Sense labeled 1.28-gallons per flush, elongated bowl, white vitreous china, floor mounted, manually operated, with 16½-inch rim height for ABA compliance. Provide with slow-close seat with open front. Minimum MaP rating of 800 grams.

4. Urinal: 0.125 gallons per flush, top spud, white vitreous china, wall mounted, battery operated sensor flush valve type, ADA compliant. Furnish with Type I concealed adjustable floor-mounted urinal carriers.

5. Lavatory: 0.5 gallons per minute, White vitreous china or Corian; wall hung with concealed adjustable floor-mounted fixture carriers. Furnish with single-lever 4-inch center set faucet, pop-up drain, and insulation kit on hot water supply and trap.

6. Break Room Sink: 2.2 gallons per minute, Stainless steel, countertop mounted, undermount, double compartment type. Furnish with single-lever swing spout faucet, hand-held spray attachment, and strainer drain with removable strainer.

    a. Provide Garbage Disposer: 1/2 HP, 120V, single phase.

7. Mop Service Basin: Enameled cast iron, floor-mounted, corner type. Furnish with dual-handle hose-end swing spout faucet, 30-inch long faucet hose with wall clamp, mop hanger with 3 spring loaded handle holders, and 4'-0" high fiber-reinforced plastic (FRP) panels on walls above two sides.

8. Electric Water Cooler: Wall mounted, dual height two receptor, barrier-free, air-cooled condenser, rated for 8.0 gallons per hour at ARI 1010-02 conditions, with stainless steel tops, water filter, water bottle fill station, all copper cooling coil, adjustable thermostat, pressure regulator, and wheelchair accessible. Bubblers shall be controlled by push levers, push bars, or touch pads, one on each side of the cabinet and one on the front of the cabinet. Provide concealed adjustable floor-mounted fixture carrier.

9. Wall Hydrant: Freeze-proof type, with integral vacuum breaker/backflow preventer.

U. Domestic Water Supply Piping:

1. Copper: ASTM B88-16, Type L hard drawn copper tubing with wrought copper solder joint fittings. Use 95/5 tin-antimony or other code approved lead-free solder for joints.

2. PEX: ASTM F876-17, cross-linked polyethylene tubing with brass crimp fittings.

3. Shutoff Valves: Two-piece bronze ball valves, full port.

4. Pressure Reducing Valves: Cast bronze, adjustable diaphragm type. Provide multiple pressure reducing valves in parallel for water services with demand flowrates greater than 20 GPM.

5. Backflow Preventers: Reduced pressure zone principle backflow prevention assembly, with shutoff valves and test ports. Furnish with air gap drain fitting, piped to the nearest floor drain.

6. Thermostatic Mixing Valves: ASSE 1070-18, point-of-use thermostatic mixing valve, with brass body, locking adjustment nut, check valves, and strainer.

7. Water Hammer Arresters: Engineered mechanical type with bellows or pistons. Air chambers will not be acceptable. Provide shutoff valves at each water hammer arrester connection.

8. Hot Water Recirculation System: Provide system with dedicated hot water return line that serves all lavatories, showers and kitchen / break room sinks mop service basin, and laundry

tub. Recirculating pump shall be maximum 8.5-watt with built-in automatic mode that learns, stores, and adapts operation time to the consumption pattern of the occupants.

9. Water Piping Insulation: Provide elastomeric pipe insulation on all aboveground domestic cold water and domestic hot water piping. Provide continuous vapor barrier on all cold water piping. Provide rigid insulation inserts at all pipe clamps and pipe hangers.

V. Domestic Water Heater:

1. General: Gas, Heat Pump, or Electric type (based on energy use, Government input, local utility availability, and cost), Energy Star certification, and minimum Uniform Energy Factor (UEF) minimum of 3.75.

2. Hot Water Expansion Tank: Diaphragm type, with butyl diaphragm and Schrader air charging valve, suitable for use in potable water systems.

3. Pressure Relief Valve Piping: Type L copper pipe, with soldered fittings, piped to the nearest floor sink. Pressure relief valve piping shall be terminated pointing down into the floor sink.

4. Seismic Bracing: Furnish seismic straps for the domestic water heater, with one strap located in the upper one-third of the tank and the other strap located in the lower one-third of the tank, both anchored securely to the adjacent wall structure

--- END OF SECTION ---

D2020 SANITARY DRAINAGE

D2020.1 SYSTEM DESCRIPTION

A. This system consists of sanitary waste and vent piping.

D2020.2 GENERAL REQUIREMENTS

A. Determination of plumbing system requirements shall be the responsibility of the Design Build Contractor (DBC).

B. The plumbing systems for all structures included in this contract shall be designed to conform to the codes and standards listed in Section 1030 “Design Criteria” and below:

1. 2024 International Plumbing Code (IPC).

2. 2004 ABA Accessibility Guidelines.

3. 2016 CAGI Compressed Air and Gas Handbook.

C. Design Requirements:

1. As outlined in Section D2010.

D2020.3 SANITARY WASTE AND VENT SYSTEM REQUIREMENTS

A. Connect sanitary waste and vent systems to all drains, fixtures, and all other equipment requiring sanitary waste disposal.

B. Connect building drains to the sanitary sewer services provided for each building. Coordinate the exact service entrance locations, sizes, and invert elevations with site utilities.

C. Provide two-way cleanouts at points of connection of building sewers to sanitary sewer services, 5 feet beyond faces of buildings. Extend cleanout access to grade and provide with suitable access boxes or covers.

D. All sanitary vent terminations through the roof shall be located within 2 feet of the roof ridge line, a minimum of 25 feet away from any outdoor air intake, and a minimum of 15 feet away from exterior walls.

E. Provide floor drains of the types listed and at the locations indicated below, and elsewhere as required for proper drainage:

Location	Floor Drain Type
Utility / Custodial Rooms	8-inch square top floor sink

Restrooms	6-inch diameter strainer

F. Provide floor drains with mechanical trap seals, except where floor drains are used as shower drains.

D2020.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

D2020.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer’s Catalog Data:

1. Pipe and fittings
2. Valves
3. Backflow preventers
4. Floor drains and floor sinks
5. Cleanouts

C. Operation and Maintenance Data:

1. Backflow preventers

D2020.6 SYSTEM COMPONENTS

A. Sanitary Waste:

1. Drain, Waste, and Vent Piping: ASTM D2665-14, Schedule 40 solid-core PVC piping, with DWV pattern solvent-weld fittings. Pipe and fittings shall be joined with primer and solvent cement suitable for use with PVC piping systems.
2. Waste Piping Specialties:
    a. Floor Drains: PVC body, with nickel-bronze strainer.
    b. Floor Sinks: PVC body, with half or three-quarter grate as necessary.
    c. Wall Cleanouts: PVC body, with chrome-plated wall cover.
    d. Floor Cleanouts: PVC body, with nickel-bronze cover.

--- END OF SECTION ---

D3020 HVAC

D3020.1 SYSTEM DESCRIPTION

A. This system consists of all equipment, distribution systems, controls, energy supply systems, and specialties required for the heating, ventilating, and air conditioning (HVAC) system.

B. These performance specifications lay out requirements for several types of HVAC systems. The HVAC system selection will be accomplished via an Energy Life Cycle Cost Analysis (as outlined in the SOW) review with the Government.

D3020.2 GENERAL REQUIREMENTS

A. Determination of HVAC system requirements shall be the responsibility of the Design Build Contractor (DBC).

B. The HVAC systems for all structures included in this contract shall be designed to conform to Section 2300 Design Project Criteria and to the codes, standards, and guidelines listed below:

1. 2024 International Mechanical Code (IMC).
2. 2024 International Fuel Gas Code (IFGC).
3. 2024 International Energy Conservation Code (IECC).
4. National Fire Protection Association (NFPA) 90A-21, “Standard for the Installation of Air-Conditioning and Ventilating Systems”.
5. NFPA 90B-21, “Standard for the Installation of Warm Air Heating and Air-Conditioning Systems”.
6. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 15-19, “Safety Standard for Refrigeration Systems”.
7. ASHRAE 62.1-19, “Ventilation for Acceptable Indoor Air Quality”.
8. ASHRAE 90.1-19, “Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings”.
9. 2005 Sheet Metal and Air Conditioning Contractors’ National Association (SMACNA), “HVAC Duct Construction Standards, Third Edition”.
10. NFPA 54-21, “National Fuel Gas Code”.
11. NFPA 58-20, “Liquefied Petroleum Gas Code”.

C. Design Requirements:

1. Thermal Design Criteria:

    a. Coordinates: 43.9867° N -117.2394° W.

    b. Elevation: 2,245’

    c. Winter Design:

        i. Outdoor Temperature: 6.5°F

        ii. Indoor Temperature: 70°F.

        iii. Annual Heating Degree Days (base 65°F): 5,566

    d. Summer Design:

        i. Outdoor Temperature, Dry Bulb: 98.7°F

        ii. Mean Coincident Wet Bulb: 65.9°F

        iii. Design Wet Bulb: 68.7°F

        iv. Indoor Temperature: 75°F.

D. Provide seismic restraints and bracing for all HVAC equipment and piping in accordance with 2019 ASHRAE Applications Handbook, Chapter 56, “Seismic and Wind Restraint Design”.

E. Provide vibration and acoustic isolation for all vibrating or rotating equipment in accordance with 2019 ASHRAE Applications Handbook, Chapter 49, “Noise and Vibration Control”.

F. Transfer air grilles and transfer ducts shall be provided as necessary to balance airflows into and out of each conditioned and ventilated space.

D3020.3 SYSTEM REQUIREMENTS

G. General:

1. Condensing Units: Split-system condensing units shall be located on concrete pads outdoors, as close to the mechanical/electrical room as possible to keep refrigerant piping runs short. Provide adequate clearance around condensing units for service and air flow in accordance with the manufacturer’s installation instructions. In areas where snow can slide off the roof and damage the condensing units, either locate the condensing units further away from the building wall or furnish snow stops on the roof where the condensing units are positioned.

H. Natural Gas Systems:

1. Provide natural gas supply distribution systems to all devices, equipment, and appliances requiring natural gas.

2. Connect natural gas systems to the natural gas services provided for each building. Coordinate the exact service entrance locations, sizes, and invert elevations with site utilities. Provide main shutoff valve, regulator, positive displacement gas meter, and earthquake valve outside the building on each natural gas service. Provide bollards around gas regulator/gas meter equipment at each building for protection from vehicular damage.

3. Provide shutoff valves and dirt legs at each connection to gas fired devices, equipment, or appliances.

4. Design natural gas systems with total friction losses not to exceed 10 percent of the natural gas supply pressure.

5. Paint all exterior gas piping with one coat primer and two coats of corrosion resistant exterior enamel.

6. Propane gas systems shall be designed for primary-secondary gas pressure regulation, with a tank pressure to 10 psig regulator at the propane storage tank and a 10 psig to 11-inch water column regulator at the building gas service connection.

I. Air Distribution Systems:

1. Provide all dampers required to properly balance the air distribution systems.

2. Insulate all supply air ductwork and outside air ductwork. Insulate all exhaust air ductwork leaving the ERV; if a tempering coil is not used in the ERV, insulate all fresh air ductwork leaving the ERV. Duct liner shall only be installed immediately downstream of supply air fans or in return air plenums for sound attenuation.

3. Seal all duct seams and joints in accordance with SMACNA Seal Class A requirements.

D3020.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

D3020.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer’s Catalog Data:

1. Gas piping.

2. Gas pressure regulators.

3. Furnaces.

4. Cased evaporator coils.
5. Condensing units.
6. Exhaust fans.
7. Air inlets and outlets.
8. Thermostats.
9. Radiant tube heaters.
10. Evaporative coolers.
11. ERVs.
12. Area filtration systems.
13. VRF Equipment.
14. Packaged Units

C. Test Reports:

1. Certified TAB report.
2. Certified commissioning report

D. Operation and Maintenance Data:

1. Gas pressure regulators.
2. Furnaces.
3. Condensing units.
4. Exhaust fans.
5. Thermostats.
6. Radiant tube heaters.
7. ERVs.
8. Area filtration systems.
9. VRF Equipment
10. Packaged Units

D3020.6 SYSTEM COMPONENTS

A. Energy Supply:

1. Natural Gas Systems:

a. Piping:

i. Aboveground Piping: ASTM A53-18, Schedule 40 black steel pipe with Class 150 threaded malleable iron fittings. Cast iron fittings shall not be used.

ii. Underground Piping: As specified in Section G30.

b. Valves:

i. Building Service Shutoff Valves: Cast iron lubricated plug valves with lockwings.

ii. Ball Valves: Two-piece bronze, full port.

c. Gas Pressure Regulators: Adjustable diaphragm type, with integral high-capacity relief valve, straight pattern body, and 360-degree union ring.

d. Propane Storage Tank:

i. General: Horizontal type propane storage tank suitable for aboveground installation, constructed of steel, with hemispherical end shells, mounting legs, lifting lugs, and hinged dome with hasp and eye for padlocking. Tanks shall be marked with nameplates in accordance with NFPA 58 and shall be constructed in accordance with UL 644 and Section VIII of the ASME Boiler and Pressure Vessel Code for a minimum design pressure of 250 psi; tanks without nameplates shall not be acceptable.

ii. Tank Fittings: Propane storage tanks shall be provided with combination valve, filler valve, vapor relief valve, liquid withdrawal valve, and tank float gauge.

iii. Labels: Furnish danger and hazard labels on both sides of propane storage tank

B. Heat Generation Systems:

1. Furnaces:

a. General: High-efficiency, two-stage, condensing, closed-combustion furnaces, with minimum 96% annual fuel utilization efficiency (AFUE), suitable for firing with natural gas.

b. Vents: Schedule 40 PVC pipe, with solvent-weld fittings for furnace flue gas vent and combustion air. Furnish with concentric venting kit.

c. Condensate Drain Piping: Schedule 40 PVC pipe, with solvent-weld fittings. Furnish condensate neutralizer in the furnace condensate drain line and pipe the neutralized condensate to the nearest floor sink.

2. Radiant Tube Heaters:

a. General: High-efficiency, closed-combustion, suitable for firing with natural gas.

C. Cooling Generation Systems:

1. Air Conditioner:

a. General: High-efficiency, two-stage, split-system air conditioners, with minimum 19 seasonal energy efficiency ratio (SEER), R-32 or R-454b refrigerant, and matching cased evaporator coils mounted on furnaces.

b. Refrigerant Piping: ASTM B88-16, copper tubing for air-conditioning and refrigeration (ACR) service.

c. Refrigerant Piping Insulation: Provide elastomeric pipe insulation on all refrigerant piping. Provide continuous vapor barrier and rigid insulation inserts at all pipe clamps and pipe hangers. Refrigerant piping insulation exposed outside the building shall be painted with a protective coating or covered with aluminum jacketing.

d. Refrigerant Accessories: Furnish air conditioning system with all necessary refrigerant service valves, thermostatic expansion valves, and liquid line filter-driers

e. Condensate Drain Piping: Schedule 40 PVC pipe, with solvent-weld fittings. Furnish vented traps at condensate drain connections to evaporator coils and pipe the condensate to the nearest floor sink.

D. Variable Refrigerant Flow (VRF):

1. Configuration: The VRF system shall consist of outdoor units, branch circuit controllers, and multiple indoor units, with an integrated direct digital control (DDC) system. Provide individual thermostatic control break room, workspaces, and conference/meeting rooms. Each indoor unit or group of indoor units shall be capable of operating in heating or cooling mode independently of other indoor units or groups of indoor units. Each system shall be capable of changing mode (cooling to heating, heating to cooling) with no interruption to system operation. Each indoor unit or group of indoor units shall be independently controlled with a wall-mounted wired remote thermostat controller and shall be capable of changing mode automatically. Include multiple branch connections on the branch circuit controllers allowing for simultaneous heating and cooling utilizing hot gas refrigerant or sub-cooled liquid. The total capacity of the branch controllers shall be between 50 and 150 percent of the rated capacity. Provide washable air filters for wall-mounted inside units, and filter kits with replaceable MERV 8 air filters for ceiling

cassettes and ducted inside units. All air filters shall be accessible from main floor below (not from attic) to simplify future maintenance. Provide spare air filter and condensate lift pump if required for each indoor unit.

2. Design: VRF systems shall meet ASHRAE 15 and IMC safety requirements pertaining to leakage to rooms and spaces. Calculations shall be performed in accordance with ASHRAE 15 and IMC and shall be provided to demonstrate these requirements are met. Design each system to meet Refrigerant Piping and Heat Transfer Components ASME B31.9, Building Services Piping Code, and design to allow for expansion and contraction. Efficiency: Provide inverter driven heat pump units that utilize R-32 or R-454b refrigerant. In order to meet Energy Star requirements, heat pumps smaller than 65,000 Btuh shall have a minimum SEER of 15, EER of 12.5, and HSPF of 8.2; heat pumps that are sized from 65,000 Btuh up to 135,000 Btuh shall have an EER of 11.8, an IEER of 17.4, and a COP of 3.4 (rated at 47°F); heat pumps that are sized from 135,000 Btuh up to 240,000 Btuh shall have an EER of 10.9, an IEER of 16.4, and a COP of 3.3 (rated at 47°F).

3. Refrigerant Piping: Size and install refrigerant piping in strict compliance with the manufacturer's requirements. Refrigerant piping must be clean, dry, and leak free. Prior to installation all refrigerant pipes must remain sealed. During installation and prior to filling use nitrogen to maintain cleanliness and prevent oxidation and scaling while brazing. Install each system to provide proper oil return. Refrigerant piping must be copper, ACR type, ASTM B280. All joints must be sil-brazed in accordance with ASME B31.5 requirements and the manufacturer’s installation requirements. All thicknesses of piping must remain the same throughout the system. Individually pressure test and commission each refrigerant circuit. Perform pressure testing using nitrogen at 1-1/2 times the system operating pressure. Provide refrigerant line vibration isolation at all connections to motorized equipment, including but not limited to the refrigerant line connections at each fan coil unit.

4. Refrigerant Piping Insulation: Provide elastomeric pipe insulation on all refrigerant piping. Provide continuous vapor barrier and rigid insulation inserts at all pipe clamps and pipe hangers. Refrigerant piping insulation exposed outside the building shall be covered with aluminum jacketing with preformed aluminum elbows

5. Condensate Drain Piping and Piping Insulation: Condensate drain piping shall be Schedule 40 PVC with solvent-weld socket fittings. Pipe insulation shall be 1” thick fiberglass with all-service jacket. Fiberglass insulation with molded PVC covers shall be provided at all fitting locations. Furnish and install rigid insulation inserts and insulation shields at all hanger locations.

E. Air Distribution Systems:

1. Air-to-Air Energy Recovery Ventilator (ERV): Factory assembled and tested, consisting of a fixed-plate crossflow heat exchanger with no moving parts, an insulated single wall G90 galvanized 20-gauge steel cabinet with 1-inch, 4 pound density, foil/scrim faced, high density fiberglass board insulation and airtight sealed access doors, 2-inch thick MERV 8 filter assemblies and motorized isolation dampers for both intake and exhaust air, enthalpy core, blower assemblies for both supply air and exhaust air with premium efficiency ECM motors and direct driven forward-curved blowers, and electrical control box with all components required

to comply with the sequence of operations specified below and internal accessories factory installed and tested. Entire unit with the exception of field installed components shall be assembled and test operated at the factory. Ventilation air for VRF shall be ducted to inside units if connection is available, to air intake ductwork on ducted inside units, or to ceiling diffusers if neither of the preceding is available.

2. Provide a ceiling mounted filtration system that removes airborne pollutants, gaseous contaminants, and airborne pathogens.

3. Ceiling Exhaust Fans: Direct-driven, forward-curved, centrifugal type, with built-in backdraft damper and white plastic ceiling grille. Fans shall have built-in disconnecting means.

4. Ductwork: Lock-forming quality, galvanized steel sheetmetal ducts, with G90 hot-dip galvanized coating. Round ductwork shall be spiral-wound lock-seam type.

5. Duct Insulation: R-6 duct wrap with fiber-scrim-kraft (FSK) jacket.

6. Flexible Duct: Limit to no longer than 5 ft in length for each occurrence.

7. Volume Dampers: Single blade or opposed blade type, with locking position indicating quadrant lever.

8. Air Inlets and Outlets:

    a. General: Registers, grilles, and diffusers shall be factory fabricated of steel and shall be factory coated with white baked acrylic finish for wall grilles and ceiling diffusers, and bronze baked acrylic finish for floor registers.

    b. Filter Grilles: Return air grilles with integral filters and swing-out face panels for filter service and replacement. Filters shall be 1 inch thick with minimum efficiency reporting value (MERV) 8 rating.

    c. Louvers: Fixed drainable blade type, with formed galvanized steel 45 degree blades galvanized steel box frame, and perimeter flange. Provide louvers with bird screens in removable frames, and zinc chromate primer finish suitable for field painting to match building color.

F. Controls:

1. Thermostats: 7-day programmable thermostats, with automatic heating-cooling changeover, two stages of heating, and two stages of cooling. Furnish one thermostat for the following zones:

    a. Each workspace office suite – based on approval of Government.

    b. Large conference room / public meeting area.

    c. Public lobby.

2. Duct Smoke Detectors: Furnish duct smoke detectors on all air handling systems with air flow capacities greater than 2,000 CFM.

3. The DDC system must include stand-alone digital controllers, a communication network, and gateways to packaged equipment. Provide stand-alone control routines that operate without connection to the network during a loss of communication. Provide trending, scheduling, and alarm tables (may be included with the sequence of operation). Use alarming and trending services during performance testing or commissioning. Display all graphic floor plans, equipment graphics, DDC ladder diagrams, and sequence of operations graphic pages. The system shall monitor OA temperature inputs and CO2 levels in the building.

4. Bid Alternate 1: Upgrade all controls to the BLM JCI MetaSys network. Include all points and graphics and integrate to the BLM NOC Denver server. The BLM has standardized on Johnson Controls Metasys for building management systems throughout the Bureau. Provide a Johnson Controls Metasys supervisory controller for connection to the existing BLM Metasys ADX server in Denver. Provide a BACnet to MS/TP router, suitable for connecting proprietary equipment centralized controllers (i.e., VRF or other unitary equipment) to the Metasys supervisory controller. Control system graphics for the facility BAS system shall be developed, integrated into the system, and shall reside on the BLM Metasys ADX server. The controls contractor, under the DBC's contract, is required to work with the BLM IT POC to upload the new graphics and bind the points.

G. Testing and Balancing:

1. Agency Qualifications: The DBC shall obtain the services of a qualified testing, adjusting, and balancing (TAB) organization to test, adjust, and balance the HVAC systems. The TAB organization shall be independent of the HVAC system installers or equipment suppliers for this project.

2. Balancing: Upon completion of the installation of the HVAC systems and after startup testing, test and adjust the supply air, return air, ventilation air, and exhaust air systems to provide the air flowrates as designed for this project. Correct any HVAC system performance deficiencies disclosed by the startup testing before balancing the HVAC systems.

3. Commissioning:

4. Commission the HVAC and controls systems per New Construction & Modernization Guiding Principle 1.5 Commissioning and ASHRAE 90.1-2019 paragraph 4.2.5.2 Building Commissioning Requirements.

--- END OF SECTION ---

D4010 FIRE SUPPRESSION

D4010.1 SYSTEM DESCRIPTION

A. This system includes fire protection systems.

D4010.2 GENERAL REQUIREMENTS

A. Determination of fire protection system requirements shall be the responsibility of the Design Build Contractor (DBC).

B. The fire protection systems for all structures included in this contract shall be designed to conform to the codes and standards as specified in Section 1030 “Project Criteria” and as listed below:

1. National Fire Protection Association (NFPA) 1-18 “Fire Code”.

2. NFPA 13-19, “Standard for the Installation of Sprinkler Systems”.

C. All fire protection devices, valves, and equipment shall be UL listed or FM approved.

D4010.3 SYSTEM REQUIREMENTS

A. Building Fire Protection Water Services:

1. Connect fire protection systems to the fire water services provided for the building. Provide double check valve backflow preventer assemblies with supervised shutoff valves on each fire protection water service.

2. For systems connected to a municipal water supply, perform hydrant flow tests using existing fire hydrants at the project site to determine actual flow and pressure available from the water supply system. For systems connected to a site well water system, perform a calculation based on the well pump curve, depth to water surface at maximum drawdown, and length and size of pipe to determine flow and pressure available from the water supply system.

B. Sprinkler Systems:

1. Provide hydraulically designed wet-pipe automatic sprinkler systems for the buildings, designed in accordance with NFPA 13.

2. Provide upright sprinklers in all open ceiling areas. Provide recessed pendent sprinklers in all finished ceiling areas. Sidewall sprinklers may be used where upright or pendent sprinklers are not suitable for the piping or space configuration.

3. All sprinkler systems shall be designed and installed to be easily drainable with a minimum number of low point drains.

D4010.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

D4010.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer’s Catalog Data:

1. Pipe and fittings.

2. Valves.

3. Backflow preventers.

4. Riser assemblies.

5. Sprinklers.

6. Fire department connections.

C. Shop Drawings:

1. Sprinkler system shop drawings showing pipe routing and coordination of all building components.

D. Operation and Maintenance Data:

1. Backflow preventers.

2. Riser assemblies.

D4010.6 SYSTEM COMPONENTS

A. Fire Protection Sprinkler Systems:

1. Piping: ASTM A53-18, Schedule 40 black steel pipe for piping 2 inch and smaller, and Schedule 10 piping for piping 2-1/2 inch and larger. Thinwall (Schedule 7 or Schedule 5) or threadable thinwall (Schedule 30) pipe will not be acceptable.

2. Fittings:

a. Threaded: Class 125 cast iron or Class 150 malleable iron threaded fittings.

b. Grooved Couplings and Mechanical Fittings: Ductile iron or malleable iron, with enamel finish and grooves or shoulders designed to accept grooved couplings, synthetic-rubber gasket with central-cavity (pressure-responsive design), and carbon-steel bolts and nuts.

3. Underground Fire Protection Piping: Section G30.

4. Valves:

   a. Drain Valves: Two-piece bronze, full port ball valves.

   b. Check Valves: Bronze swing type.

5. Backflow Preventers: Double check valve backflow preventer assembly. The shutoff valves on either end of the backflow preventer shall have tamper switches for connection to the fire alarm system to indicate a trouble alarm.

6. Riser Assemblies: Factory-built NFPA 13 compliant (for Fire Station) and NFPA 13R compliant (for Crew Quarters) fire sprinkler riser assembly, with flow switch, pressure gauge and gauge valve, and test and drain valve. The flow switch shall be connected to fire alarm system to provide an alarm for remote annunciation and a weatherproof horn/strobe shall be installed on the front of the building to provide a local alarm annunciation for a sprinkler flow condition.

7. Sprinklers:

   a. Upright Sprinklers: Glass bulb type, with natural bronze finish.

   b. Pendent Sprinklers: Glass bulb recessed pendent type, with white finish and factory painted white escutcheon.

   c. Sidewall Sprinklers: Glass bulb recessed sidewall type, with white finish and factory painted white escutcheon.

   d. Spare Sprinklers: Provide extra sprinklers and special sprinkler wrenches in a steel cabinet adjacent to the fire sprinkler riser.

8. Fire Department Connections: Single inlet brass fire department connection, with brass identification plate.

--- END OF SECTION ---

D4030 FIRE PROTECTION SPECIALTIES

D4030.1 SYSTEM DESCRIPTION

A. This system includes fire protection specialties, including extinguishers and cabinets, and fire detection and alarm systems.

D4030.2 GENERAL REQUIREMENTS

A. Determination of fire protection system requirements and associated electrical requirements shall be the responsibility of the Design Build Contractor (DBC).

B. The fire protection systems for all structures included in this contract shall be designed to conform to the codes and standards as specified in Section 1030 “Project Criteria” and as listed below:

1. National Fire Protection Association (NFPA) 1-18 “Fire Code”.

2. NFPA 10-18, “Standard for Portable Fire Extinguishers”.

C. Electrical systems for all work associated with Fire Protection Specialties shall be designed to conform to the codes and standards as specified in Section 1030 “Project Criteria” and as listed below:

1. National Electrical Contractors (NECA) National Electrical Installation Standards (NEIS), as applicable.

D. All electrical materials and equipment shall be UL listed.

D4030.3 SYSTEM REQUIREMENTS

A. Building Fire Protection Water Services:

1. Connect fire protection systems to the fire water services provided for the building. Provide double check valve backflow preventer assemblies with supervised shutoff valves on each fire protection water service.

2. For systems connected to a municipal water supply, perform hydrant flow tests using existing fire hydrants at the project site to determine actual flow and pressure available from the water supply system. For systems connected to a site well water system, perform a calculation based on the well pump curve, depth to water surface at maximum drawdown, and length and size of pipe to determine flow and pressure available from the water supply system.

B. Sprinkler Systems:

1. Provide hydraulically designed wet-pipe automatic sprinkler systems for the buildings, designed in accordance with NFPA 13.

2. Provide upright sprinklers in all open ceiling areas. Provide recessed pendent sprinklers in all finished ceiling areas. Sidewall sprinklers may be used where upright or pendent sprinklers are not suitable for the piping or space configuration.

3. All sprinkler systems shall be designed and installed to be easily drainable with a minimum number of low point drains.

D4030.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

D4030.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer’s Catalog Data:

1. Fire alarm system.

2. Fire extinguishers and cabinets.

C. Operation and Maintenance Data:

1. Fire alarm system.

D4030.6 SYSTEM COMPONENTS

A. Fire Detection and Alarm:

1. General: Microprocessor-based, addressable, and programmable fire detection and alarm system. System shall monitor all initiating circuits and supervisory circuits including those for fire sprinkler flow switch and valve tamper switches. System shall be capable of transmitting system status to a central station via the public switched telephone network.

2. Fire Alarm Control Panel: Modular type installed in steel cabinet with hinged doors and cylinder lock. Battery backup, alarm silence

3. Fire Detection Devices:

a. General: Each fire detection device shall have a unique address. Activation of any manual station, smoke detector, or fire sprinkler system flow switch shall cause building alarm notification devices to activate and shall initiate the fire alarm remote reporting system. Activation of the fire sprinkler valve tamper switches shall initiate a dedicated supervisory alarm (trouble alarm).

b. Smoke Detectors: Photoelectric type smoke detectors.

c. Pull Stations: Manual pull stations.

d. Fire Sprinkler Flow Switch: Section D4010.

e. Fire Sprinkler Valve Tamper Switches: Section D4010.

f. Fire Department Lock Box: If required by a municipal or county fire department, a flush-mount fire department lock box shall be installed next to the main building entry. The fire department lock box shall be keyed to the city or county standard and shall be monitored by the fire alarm control panel to provide a supervisory (tamper) alarm.

4. Fire Alarm Notification Devices: Fire alarm notification devices shall be both audible and visible (horn/strobe).

5. Remote Annunciator Panel: Remote annunciator panel fire alarm zone description shall correspond to the fire alarm control panel zone descriptions. Annunciator panel shall be capable of alarm silence and reset functions by operation of a keyed switch; the annunciator panel keys shall match the fire alarm panel cabinet keys. The remote annunciator panel shall be installed in a location determined appropriate and compliant by the DBC.

B. Fire Extinguishers and Cabinets:

1. Fire Extinguishers: 10-pound dry chemical type, with 4-A:60-B:C UL rating.

2. Cabinets: 20-gauge steel semi-recessed style, with white polyester coating, full flush steel door with identifying decal, and continuous steel hinge.

--- END OF SECTION ---

D5020 ELECTRICAL SERVICE AND DISTRIBUTION

D5020.1 SYSTEM DESCRIPTION

A. This system consists of electrical power distribution, lighting, lighting control, lightning protection, fire detection and alarm, security, and telecommunication.

D5020.2 GENERAL REQUIREMENTS

A. All permitting, utility coordination, fees and costs associated with utility connections, distribution, metering and installation shall be the responsibility of the Design Build Contractor (DBC). See Section G40 for further utility details.

B. Determination of electrical system requirements shall be the responsibility of the DBC.

C. The electrical systems for all structures included in this contract shall be designed to conform to codes and standards as specified in Section 1030 “Project Criteria” and those listed below:

1. National Electrical Contractors (NECA) National Electrical Installation Standards (NEIS), as applicable.

D. All electrical materials and equipment shall be UL listed.

E. Design Requirements:

1. Electrical system voltage drop shall not exceed a maximum of 3% for branch circuits and a maximum of 5% for the total combined voltage drop of feeders and branch.

2. Phases shall be balanced with respect to load.

3. Separate meters shall be provided for each building with associated exterior electrical loads partitioned to each structure in a reasoned manner

4. Existing electrical distribution shall be evaluated for additional life expectancy of 50 years. DBC shall evaluate the following factors:

    a. Maintenance Costs
    b. Reliability
    c. Availability of Spares
    d. Safety
    e. Technological Advancements

5. The existing electrical distribution cannot provide an additional 50 years, the DBC shall update the existing distribution equipment.

6. The distribution equipment shall be able to accept a photovoltaic load equal to 100 percent of the designed electrical load on the building.

D5020.3 SYSTEM REQUIREMENTS

A. Enclosures shall meet NEMA Type 1 requirements in dry locations, NEMA Type 3R requirements in wet locations, and NEMA Type 3RX when installed within 3000 ft of a coastline.

B. All wiring shall be run concealed in all finished spaces.

C. A megger test shall be performed to determine ground resistance. Ground resistance shall be 25 ohms or less under dry soil conditions.

D. All conductors shall be copper. Aluminum or copper clad conductors will not be acceptable.

E. The DBC shall determine the maximum short circuit interrupting rating and withstand ratings of all electrical equipment, including, but not limited to, panelboards and other protective devices provided under this contract. Panelboards, overcurrent protection devices, and other electrical distribution system equipment shall be capable of withstanding and interrupting the maximum available short circuit current (SCC).

F. Feeder and branch circuit conductors shall be No. 12 AWG minimum.

G. Maximum number of 20A duplex receptacles per 20A, 120V circuit shall be eight.

H. Receptacles on opposite sides of common walls shall be offset a minimum of 12 inches on center.

D5020.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

D5020.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer’s Catalog Data:

1. Wire and cable.

2. Wiring devices.

3. Outlet, and junction boxes.

4. Conduit and raceway.

5. Panelboards, disconnects, and meter bases with arc flash category labels.

6. Fire Alarm System.

7. Transient voltage surge suppressor.

8. Lightning protection system.

9. Back-Up Power Systems.

C. Test Reports:

1. Ground resistance test.

D. Operational and Maintenance Data.

1. Fire alarm system.

2. Security system.

3. Lighting Control System.

D5020.6 SUBMITTALS UPON CONSTRUCTION COMPLETION

A. Submit as-built versions of one-line diagrams and panel schedules to government matching final installation in CAD format.

D5020.7 SYSTEM COMPONENTS

A. Electrical Service and Distribution:

1. Office Buildings - Minimum Electrical service for the office building shall be 400 ampere, 240/120 volt single-phase [400 ampere, 240/120 volt three-phase if available], with the panelboard located in mechanical/electrical room and the meter socket located on the exterior of the building. Furnish disconnect switch for the electrical service adjacent to the meter socket

2. Conduit: Unless otherwise noted, the following raceways should be used in the associated applications. RGS for service mast, between meter socket and main disconnecting switch, and between main disconnecting switch and panelboard only. Provide grounding bushings where conduit terminates at concentric knockouts. Utilize EMT for all other building conduit as permitted by code and FMT for appliance connections as permitted by code. Utilize PVC for all underground installations. When installed within 3000 ft of a coastline, all metal outside the building or exposed directly to outside air shall be stainless steel.

3. Wiring: Copper wire, with THHN/THWN insulation.

4. Panelboards: Flush-mount panelboard, with minimum 42 circuits and plug-in thermal-magnetic circuit breakers for office buildings GFCI breakers in accordance with NFPA 70 requirements. Surface-mounted panelboard, with minimum 42 circuits and bolt-in thermal-magnetic circuit breakers.

5. Disconnect Switches and Breakers: Sized appropriately for the connected load, NEMA 3R disconnect switch. All switches and breakers shall include a dead front for maintenance operation.

6. Grounding: Minimum (2) Copper-clad steel ground rods, with minimum diameter of 3/4 inch and minimum length of 10 feet. Additional ground rods shall be installed as necessary to minimize ground resistance. Grounding conductor shall extend and connect to point of entrance of metallic water service, building steel, include a ground ring to protect sensitive electronic equipment and bonded to lightning protection system if applicable. When Lightning Protection is required, grounding design shall be driven by NFPA 780. Utilize exothermic welding to create permanent electrical connections, particularly in grounding and cathodic protection systems.

7. Surge Suppression: Metal oxide varistor (MOV) transient voltage surge suppressor (TVSS), connected to the panelboard phase buses via a circuit breaker.

8. Uninterruptible Power Supply (UPS): Provide for instantaneous backup power when the normal power source goes downsized to provide 1-hour operational time for computers & communications to be shut down.

B. Lighting and Branch Wiring:

1. Wiring: MC cable EMT conduit with copper conductors where not exposed or visible are acceptable in office buildings. Cable ties will not be accepted for supporting MC and FMC. Brackets for single, double, and 3 or more cables shall be used

2. Outlet and Junction Boxes: Provide galvanized sheet metal boxes for each outlet, switch, receptacle, or combination, and for each junction point.

   Receptacle Wall Plates:

   a. Indoors: Nylon, with color to match switches and receptacles.

   b. Outdoors: Weatherproof, cast metal.

3. Disconnect Switches: Furnish disconnect switches for domestic water heater, furnaces, and air conditioning condensing units and all mechanical equipment within the building.

4. Receptacles: UL 498, specification grade receptacles. Ground-fault circuit interrupter (GFCI) receptacles shall comply with UL 943. Listed locations/quantities are minimums with the intent that this information will be provided on the DBC drawings.

   a. Receptacles shall be provided as required by NFPA 70 and specifically as follows:

      i. Mechanical/Electrical Room – Four 20A duplex.

      ii. Automatic Receptacle Control- At least 50% of all 125V, 20A duplex receptacles in enclosed offices, conference rooms, breakrooms, and workstations must have automatic receptacle control.

iii. Halls – One 20A duplex each end and space intermediately no more than 15'-0" on center.

iv. Workspaces – Minimum one 20A duplex per Cubicle or be coordinated with the office layout and furniture layout plans.

v. Break Room- One 20A simplex for refrigerators, two 20A simplex for microwaves, six 20A duplex above countertop, one 20A simplex for garbage disposer. All loads within Kitchen to be protected by GFCI. Garbage disposer receptacle shall be wired through a switch above the counter. Four (2 dedicated circuits) for counter duplex. All receptacles in rooms containing sinks shall be GFCI. Bathrooms – One 20A duplex GFCI per bathroom, located adjacent to lavatories

vi. Meeting Rooms – Meeting rooms not exceeding 1000 square feet require nonlocking-type, 125-volt, 20A duplex.

A) The total number of required receptacle outlets (including floor outlets and receptacles in fixed furniture) is determined by NFPA Section 210.52(A)(1) through (A)(4).

B) Meeting rooms at least 12 feet wide with a floor area of at least 215 square feet, at least one floor receptacle outlet is required, located not less than 6 feet from any fixed wall for each 215 square feet or major portion of floor space

vii. Bathrooms – One 20A duplex GFCI per bathroom, located adjacent to lavatories.

viii. Attic – New 20A duplex outlets spaces appropriately throughout existing attic.

ix. Exterior – Twelve (12) 20A weatherproof GFCI:

A) Four on both front and back of building.

B) Two on each side.

x. Where not specified in this section: To be approved and coordinated with the Government.

C. Fire Detection and Alarm

a. General: Microprocessor-based, addressable, and programmable fire detection and alarm system. The system should monitor all initiating circuits and supervisory circuits including those for fire sprinkler flow switch and valve tamper switches. The system shall be capable of transmitting system status to a central station via the public switched telephone network. Integrate all access controls systems with the fire alarm control panel

b. Fire Alarm Control Panel: Modular type installed in steel cabinet with hinged doors and cylinder lock. Battery backup, alarm silence

c. Fire Detection Devices:

d. General: Each fire detection device shall have a unique address. Activation of any manual station, smoke detector, or fire sprinkler system flow switch shall cause building alarm notification devices to activate and shall initiate the fire alarm remote reporting system. Activation of the fire sprinkler valve tamper switches shall initiate a dedicated supervisory alarm (trouble alarm).

e. Smoke Detectors: Photoelectric type smoke detectors.

f. Pull Stations: Manual pull stations.

g. Fire Sprinkler Flow Switch: Section D4010.

h. Fire Sprinkler Valve Tamper Switches: Section D4010.

i. Fire Department Lock Box: If required by a municipal or county fire department, a flush-mount fire department lock box shall be installed next to the main building entry. The fire department lock box shall be keyed to the city or county standard and shall be monitored by the fire alarm control panel to provide a supervisory (tamper) alarm.

j. Fire Alarm Notification Devices: Fire alarm notification devices shall be both audible and visible (horn/strobe).

k. Remote Annunciator Panel: Remote annunciator panel fire alarm zone description shall correspond to the fire alarm control panel zone descriptions. Annunciator panels shall be capable of alarm silence and reset functions by operation of a keyed switch; the annunciator panel keys shall match the fire alarm panel cabinet keys. The panel shall be located by the main entrance of the office building.

D. Physical Access Control and Security System, per Site Security assessment.

1. Provide a FICAM compliant physical access control system from the GSA Approved Product List. Design and installation of the system shall be performed by CSEIP contractor. All exterior doors shall have contacts and security cameras mounted on corners of both crew quarters and fire station buildings with 48 hours of recording data on site. Cameras shall be powered over the ethernet. Integrate access control system with fire alarm.

E. Renewables – Photovoltaics

1. Building shall at a minimum be made “Solar Ready” by providing enough capacity in the electrical system to support additional solar to be added to achieve building net zero and provide 4” conduit between a proposed array location and the main electrical distribution. Leave adequate wall space for future net metering equipment and installation of photovoltaic appurtenances at a future date.

F. Lightning Protection:

1. Perform a simplified lightning risk assessment. Provide a UL Master Label lightning protection system complying with NFPA 780 recommendation, consisting of roof mounted air terminals, down conductors, ground rods, inspection sleeves, and accessories as required for a complete system.

--- END OF SECTION ---

D5040 LIGHTING

D5040.1 SYSTEM DESCRIPTION

A. This system consists of lighting and lighting controls.

D5040.2 GENERAL REQUIREMENTS

A. Determination of lighting and lighting control requirements shall be the responsibility of the DBC.

B. The electrical systems for all structures included in this contract shall be designed to conform to codes and standards as specified in Section 1030 “Project Criteria” and those listed below:

1. National Electrical Contractors (NECA) National Electrical Installation Standards (NEIS), as applicable.

C. All electrical materials and equipment shall be UL listed.

D5040.3 SYSTEM REQUIREMENTS

A. Enclosures shall meet NEMA Type 1 requirements in dry locations and NEMA Type 3R requirements in wet locations.

B. All wiring shall be run concealed in all finished spaces.

D5040.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

D5040.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer’s Catalog Data:

1. Lighting fixtures.

D5040.6 SYSTEM COMPONENTS

A. Lighting and Branch Wiring:

1. Wiring: MC cable and EMT conduit (flexible metal lighting whips <6' length are acceptable where concealed) with copper conductors where not exposed or visible. Cable ties will not be accepted for supporting FMC. Brackets for single, double, and 3 or more cables shall be used.

2. Junction Boxes: Provide galvanized sheet metal boxes for each outlet, switch, receptacle, or combination, and for each junction point.

3. Light Switches: UL 20, specification grade snap switches, quiet type. All meeting rooms, restrooms, private offices shall be equipped with manual on vacancy sensors (& adjustable time delay off after up to 5 minutes of inactivity detected).

4. Occupancy Sensor: decora style wall switch or overhead wall or ceiling mounted, dual sensor technology, automatic on, automatic off after 15 minutes of inactivity, with manual off override as needed to cover minor movements in working spaces and major movements elsewhere.

5. Vacancy Sensor: decora style wall switch or overhead wall or ceiling mounted, dual sensor technology, manual on, automatic off after 15 minutes of inactivity, with manual off override.

6. Timers digital, astronomical, multiple channel clock with automatic daylight savings adjustment.

7. Dimmers: include wall mounted or integrated dimming within switches for the following areas, conference rooms, and offices.

8. Photo Eye: shall be used only to prevent active lighting from turning on when there is sufficient daylight. Otherwise, all exterior lighting shall be controlled with timer clocks as listed above.

9. Switch Plates and Receptacle Wall Plates:

    a. Indoors: Nylon, with color to match switches and receptacles.

B. Lighting Fixtures: All lighting fixtures shall be high-efficiency LED. Lighting (other than exit and emergency lighting) shall be 3,000 K color temperature and shall follow dark sky principles. All exterior lighting shall be controlled by astronomical timers with automatic daylight savings adjustment. Lighting shall be provided as follows (minimum). Lighting not specified in this section is the responsibility of the DBC.

1. Mechanical/Electrical Room – Two 1x4 surface mount fixtures, with one-way switch.

2. Halls – Three 1x4 surface mount fixtures, with three-way switches at either end of hall; two "frog-eye" emergency lights with battery backup; one illuminated exit sign with battery backup over exterior door.

3. Workspaces: Provide surface mount fixtures in a layout that provides even distribution of light to all workstations, while allowing for future flexibility in the event that the space layout should change.

4. Break Room – Recessed downlights with one-way switch; under cabinet lighting for minimum 50% of counter length with integral switching.

5. Bathrooms – One 36-inch over-mirror fixture, and one can light with gasketed lens (wet location fixture); bathroom exhaust fan shall be switched separately from lights.

6. Exterior – Dark Sky compliant exterior wall pack fixtures located at each exterior door, with one-way switch inside at each door for manual off override. Controlled with the following hierarchy: Primarily by a digital, astronomical clock with automatic daylight savings adjustment, then by photo eye, and dimmed with motion control.

7. Flagpole – Fixtures shall be downward facing, full cutoff, and include glare shielding.

--- END OF SECTION ---

D6010 DATA COMMUNICATIONS

D6010.1 SYSTEM DESCRIPTION

A. This system includes telecommunication systems.

D6010.2 GENERAL REQUIREMENTS

A. Electrical systems for all work associated with Data Communications shall be designed to conform to the codes and standards as specified in Section 1030 “Project Criteria” and as listed below:

1. National Electrical Contractors (NECA) National Electrical Installation Standards (NEIS), as applicable.

B. All electrical materials and equipment shall be UL listed.

D6010.3 SYSTEM REQUIREMENTS

A. Refer to Section D5020 “Electrical Service and Distribution”.

D6010.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

D6010.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

1. Wire raceway materials.

2. Types of cabling.

3. Patch panels.

4. Termination materials.

D6010.6 SYSTEM COMPONENTS

A. Telecommunications, Information Technology Systems:

1. Design pathways for telecom infrastructure extension into facility.

2. Provide dedicated telecom, IT room for telecommunications equipment.

3. Provide telecommunications raceway (3/4” Minimum ENT Conduit) and outlet locations iaccordance with the customer’s facility need (in general, one per office/desk location; three per individual office; one per each cubical, four per Conference, Huddle, Meeting room; and two per room minimum (excluding restrooms, Mechanical, Electrical, Cache, Vestibule, janitors closet).

4. Provide one television jack and two CAT 6 data jacks, located at each Conference room ‘Presentation Wall’. The television and data jacks shall be cabled to and terminated in a weatherproof demarcation box on the exterior of the building.

5. Provide 8 CAT 6 data jacks within the telecom/COMM room plus Two additional for connection to the fire alarm system.

6. Provide telecommunications raceways and outlet locations at regular hallway intervals for wireless routing equipment.

7. Provide telecommunications raceways and outlet locations at secured door locations and exterior roofline locations coordinated with government per security system requirements.

--- END OF SECTION ---

D7010 ACCESS CONTROL AND INTRUSION DETECTION

D7010.1 SYSTEM DESCRIPTION

A. This system consists of access control and intrusion detection security elements.

D7010.2 GENERAL REQUIREMENTS

A. Electrical systems for all work associated with Access Control and Intrusion Detection shall be designed to conform to the codes and standards as specified in Section 1030 “Project Criteria” and as listed below:

1. National Electrical Contractors (NECA) National Electrical Installation Standards (NEIS), as applicable.

B. All electrical materials and equipment shall be UL listed.

D7010.3 SYSTEM REQUIREMENTS

A. Refer to Section D5020 “Electrical Service and Distribution”.

D7010.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

D7010.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer’s Catalog Data:

1. Physical Access Control and Security System.

C. Operation and Maintenance Data:

1. Security System.

D7010.6 SUBMITTALS UPON CONSTRUCTION COMPLETION

A. Submit as-built versions of one-line diagrams and panel schedules to government matching final installation in CAD format.

D7010.7 SYSTEM COMPONENTS

A. Physical Access Control and Security System, per Site Security assessment:

1. Provide a FICAM compliant physical access control system from the GSA Approved Product List. Design and installation of system shall be performed by CSEIP contractor. All exterior doors shall have contacts and security cameras mounted on corners with 48 hours of recording data on site. Cameras shall be powered over ethernet.

--- END OF SECTION ---

E1060 RESIDENTIAL EQUIPMENT

D6010.1 SYSTEM DESCRIPTION

A. Provide and install residential appliances including plumbing and electrical connections required for a complete installation as shown on the Drawings and specified herein.

B. Number & Location: As shown on drawings.

D6010.2 GENERAL REQUIREMENTS

A. Equipment specified in this section shall be Contractor -furnished and installed.

D6010.3 SYSTEM REQUIREMENTS

A. EPA/DOE Energy Star product labeling program.

B. Special Warranties: Manufacturer agrees to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.

C. Warranty Period: Two years from date of Substantial Completion.

D6010.4 COMPLIANCE VERIFICATION

A. Submit catalogue cuts during design.

B. Electrical Appliances: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D6010.5 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

D6010.6 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Product Data for each type of product.

1. Include installation details, material descriptions, dimensions of individual components, and finishes for each appliance.

2. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.

3. Operation and maintenance data.

D6010.7 SYSTEM COMPONENTS

A. Refrigerator/Freezers:

1. Electric Refrigerator/Freezer: Free standing two-door, side-by-side refrigerator/freezer and complying with AHAM ER-1

2. ADA/ABA Compliant.

3. ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling program.

4. Finish: Stainless steel.

B. Dishwasher:

1. Shall comply with AHAM DW-1.

2. Type: Built-in undercounter-accessible counter unit height.

3. Finish: Stainless steel.

--- END OF SECTION ---

G1010 SITE CLEARING

G1010.1 SYSTEM DESCRIPTION

A. This system consists of site clearing as required for construction of new work.

G1010.2 GENERAL REQUIREMENTS

A. Determination of site clearing requirements shall be the responsibility of the Design Build Contractor (DBC). The DBC shall also be responsible for identifying and obtaining permits and complying with the requirements of all federal, state, and local regulatory requirements associated with this work.

B. Clearing work shall be limited to only those areas necessary to execute the proposed project scope of work.

C. The government shall remove and relocate any government property identified on the site plan and within the contract limits shown, prior to construction startup.

D. All equipment used for site preparation shall be cleaned prior to site mobilization to minimize the introduction of exotic species and other adverse contamination.

E. A topographic survey shall be prepared by a professional land surveyor licensed in the state where the project is located

G1010.3 SYSTEM REQUIREMENTS

A. Work Limit Line: The DBC is shall establish a work limit line that shall define the limit of all work. Provide construction fencing at the work limit line to confine all operations, including stockpiling of materials, parking of vehicles, etc., within these limits. The work limit line shall be approved by the Government prior to construction operations.

G1010.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

G1010.5 SUBMITTALS DURING CONSTRUCTION

1. Not Applicable.

G1010.6 SYSTEM COMPONENTS

A. Site Clearing:

1. Limits of Construction: Provide limits of construction on site a minimum of 30 days prior to beginning any construction and notify the Contracting Officer and BLM site manager once limits have been set.

2. Construction Fencing:

    a. General: Material may be new or used but shall be suitable for intended purpose. Fences and barriers shall be structurally adequate and neat in appearance.

    b. Lumber: Free of nails, large knotholes and splinters.

    c. Barrier Tape: 3-inch-high yellow plastic barrier tape, imprinted with "CAUTION: CONSTRUCTION AREA".

3. Tree Protection: Provide tree protection fencing for any vegetation to be retained within the construction limits. Fencing shall be a minimum of 5 feet from the base of each tree trunk. Fencing shall be firmly anchored and remain in place for the duration of construction.

4. Clearing and Grubbing: Once salvage operations are complete, and tree protection fencing is in place, clear and grub all remaining vegetation to be removed. Remove all stumps a minimum of 2 feet below proposed subgrade and remove roots and debris a minimum of 6 inches below proposed subgrade.

5. Topsoil: Strip 3 inches to 6 inches depth of topsoil and stockpile in 3 foot maximum height hedgerows on the site, where the soil can remain until it is replaced as part of finish grading.

--- END OF SECTION ---

G1020 SITE ELEMENTS DEMOLITION

G1020.1 SYSTEM DESCRIPTION

A. This system consists of site demolition as required for construction of new work.

G1020.2 GENERAL REQUIREMENTS

A. Determination of site demolition requirements shall be the responsibility of the Design Build Contractor (DBC). The DBC shall also be responsible for identifying and obtaining permits and complying with the requirements of all federal, state, and local regulatory requirements associated with this work.

B. Demolition work shall be limited to only those areas necessary to execute the proposed project scope of work.

C. All equipment used for site preparation shall be cleaned prior to site mobilization to minimize the introduction of exotic species and other adverse contamination.

G1020.3 SYSTEM REQUIREMENTS

A. Work Limit Line: The DBC is shall establish a work limit line that shall define the limit of all work. Provide construction fencing at the work limit line to confine all operations, including stockpiling of materials, parking of vehicles, etc., within these limits. The work limit line shall be approved by the Government prior to construction operations.

G1020.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

G1020.5 SUBMITTALS DURING CONSTRUCTION

A. Not Applicable.

G1020.6 SYSTEM COMPONENTS

A. Site Elements Demolition:

1. General: Whenever possible, all features demolished shall be reused, salvaged, or recycled in lieu of being disposed of as waste in a landfill.

2. Existing Features Demolition: Existing features to be demolished that are not reusable, salvageable, or recyclable shall become property of the DBC and shall be removed from project site.

3. Existing Hardscape Demolition: In areas where existing hardscape modifications will be made (e.g., change in layout or elevation), demolish and remove all existing hardscape.

4. Existing Site Utilities Demolition: All site utilities no longer used or being replaced by new shall be demolished and removed completely in those locations where new structures or paving will occur. In landscaped areas, existing utilities which will no longer be used can be abandoned in place and terminated as approved. Delineate all abandoned utilities on as-built drawings.

--- END OF SECTION ---

G1070 SITE EARTHWORK

G1070.1 SYSTEM DESCRIPTION

A. This system consists of site earthwork as required for construction of new work.

G1070.2 GENERAL REQUIREMENTS

A. Determination of site earthwork requirements shall be the responsibility of the Design Build Contractor (DBC). The DBC shall also be responsible for identifying and obtaining permits and complying with the requirements of all federal, state, and local regulatory requirements associated with this work.

B. Earthwork shall be limited to only those areas necessary to execute the proposed project scope of work.

C. All equipment used for site preparation shall be cleaned prior to site mobilization to minimize the introduction of exotic species and other adverse contamination.

G1070.3 SYSTEM REQUIREMENTS

A. Subsurface Requirements: Subsurface requirements shall be as determined by the DBC-furnished geotechnical report.

B. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

C. During installation of excavation support and protection systems, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify COR if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent.

D. DBC Furnished Materials: All imported materials, including borrow and aggregates, shall be furnished from approved locations outside of the BLM site boundaries.

G1070.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

G1070.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer's Catalog Data:

1. Silt fence.

2. Erosion control blanket.

C. Test Reports:

1. Gradation and Atterberg limits for imported borrow material.

2. Soil compaction results (random daily test results for in-place density for subgrades and embankments).

G1070.6 SYSTEM COMPONENTS

A. Site Earthwork:

1. Rough Grading:

a. Grade tolerances shall be as follows:

i. Minimum 0.5%, maximum 5% for all paved or concrete surfaces.

ii. Minimum 2%, maximum 5% for all graveled surfaces.

iii. Minimum 2%, maximum 25% for all unpaved surfaces. Unpaved surfaces can exceed 25% only where tying into existing grades steeper than 25%. Maximum slope under any condition shall be 50%. Install biodegradable erosion blankets for all slopes steeper than 33%.

b. Grade site to provide positive drainage away from all structures.

c. Finish floor elevation of all new structures shall be above the 100-year flood elevation.

2. Finish Grading:

a. Prior to laying topsoil, scarify (rip) all areas disturbed by construction to a minimum depth of 4 inches.

b. Remove all rocks exposed by construction activity over 6 inches in diameter.

c. Place stored topsoil on subgrade and distribute to a maximum depth of 6 inches. Compact topsoil with roller and grade surface flush with finish grade of adjacent paving or other structures. Haul any unused topsoil to a location specified by the Contracting Officer or BLM site manager.

3. Excavation, Backfilling and Compacting:

a. Balance cut and fill quantities to the extent possible. If cut is greater than fill, excess material shall be hauled to a location specified by the Contracting Officer or BLM site manager.

b. Earthwork computation shall incorporate appropriate shrink and swell factors, as listed in the geotechnical report.

c. Density Requirements:

i. For paved areas, graveled areas, and foundations: 95% of ASTM D1557.

ii. For landscape areas: 90% of ASTM D1557.

4. Slope Protection and Erosion Control:

a. Erosion control measures shall be utilized during construction at the construction site as well as any DBC lay down areas. Erosion control measures shall be listed and described in the specified stormwater pollution prevention plan.

b. Riprap shall be required at all stormwater outlets. Top of riprap shall meet top of adjacent grades.

c. Sediment Control and Silt Fencing: In accordance with state DEQ and NPDES requirements.

d. Erosion Control Blankets: Place erosion control blankets in all areas with slopes greater than 33%. Remove all rocks, clods, vegetative materials, or other obstructions so that the installed blankets will have direct contact with the soil. Install erosion control blankets after topsoil has been placed.

5. Storm Water Retention: Show storm water retention basins and necessary overflow structures to comply with state and local storm water run-off requirements.

6. Silt Fence: Silt fence fabric shall be a pervious sheet of propylene, nylon, polyester, or polyethylene yarn, installed with wooden stakes every 10 feet, maximum spacing.

7. Straw Bales: Straw bales shall be weed free, mechanically produced, and either wire or nylon bound. Stake with either No. 4 reinforcing bars or finished lumber; stakes shall be at least twice as long as bale height.

8. Erosion Control Blanket: 100% Biodegradable straw fiber erosion control blanket with natural, biodegradable fiber netting. Straw fiber shall be sterile; coconut fiber is also acceptable. Any products that are not 100% biodegradable shall not be used as erosion control blanket. Staple fabric to slope at regular intervals, as recommended by erosion control blanket manufacturer.

--- END OF SECTION ---

G2030 PEDESTRIAN PLAZAS & WALKWAYS

G2030.1 SYSTEM DESCRIPTION

A. This system consists of pedestrian plazas and walkways.

G2030.2 GENERAL REQUIREMENTS

A. Determination of pedestrian walkway requirements shall be the responsibility of the Design Build Contractor (DBC). The DBC shall also be responsible for identifying and obtaining permits and complying with the requirements of all federal, state, and local regulatory requirements associated with this work.

G2030.3 SYSTEM REQUIREMENTS

A. Site Layout: The site plan in the BLM Concept Package shows general layout relationships between buildings, parking, and any adjacent existing facilities. The final site layout should be approached from an interdisciplinary viewpoint to ensure proper coordination of the final design.

G2030.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

G2030.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Manufacturer’s Catalog Data:

1. Signage: Show fabrication and installation details for signs.

    a. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.

    b. Provide message list, typestyles, graphic elements and layout for each sign.

C. Design Data:

1. Mix designs for asphalt concrete and Portland cement concrete.

G2030.6 SYSTEM COMPONENTS

A. Pedestrian Paving:

1. General: All walks around buildings, between buildings, and elsewhere on the site shall be concrete, minimum 4 inches thick, with a minimum width of 5 feet, unless designated otherwise. Furnish base course under pedestrian paving if required by the geotechnical report.

2. Accessibility: Site walkway grades shall not exceed ADA and ABA accessibility requirements. Provide accessibility ramp at main building entrances in accordance with ADA and ABA accessibility requirements.

3. Concrete Stoops: Provide minimum 5ftX5ft concrete pads outside each exterior man doorway.

4. Joints: Tooled joints shall be placed in sidewalks at intervals approximating sidewalk width (shall not exceed 1.5 width). Provide 3/4-inch expansion joint filler and sealant at all points in contact with buildings and 1/2-inch at other fixed objects, and at intervals not exceeding 40 feet. Sealant color shall match color of concrete. Coordinate/align joints with curb and gutter joints.

--- END OF SECTION ---

G2060 SITE DEVELOPMENT

G2060.1 SYSTEM DESCRIPTION

A. This system consists of site development, including site furnishings.

G2060.2 GENERAL REQUIREMENTS

A. Determination of site development requirements shall be the responsibility of the Design Build Contractor (DBC). The DBC shall also be responsible for identifying and obtaining permits and complying with the requirements of all federal, state, and local regulatory requirements associated with this work.

G2060.3 SYSTEM REQUIREMENTS

A. Site Layout: The site plan in the BLM Concept Package shows general layout relationships between buildings, parking, and any adjacent existing facilities. The final site layout should be approached from an interdisciplinary viewpoint to ensure proper coordination of the final design.

G2060.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

G2060.5 SUBMITTALS DURING CONSTRUCTION

A. Not Applicable.

G2060.6 SYSTEM COMPONENTS

A. Site Development:

1. Concrete Pads: Provide concrete pads for all outdoor site utilities, equipment, and site furnishings (transformers, dumpsters, bike racks, condensing units, etc.). Concrete pads shall be a minimum of 4 inches thick (6 inches for transformers and dumpsters) with thickened edge, and shall be sized to meet the loads, dimensions, and requirements of each item. Where feasible, group items onto one single pad, and/or abut to adjacent concrete walkways.

2. Curb and Gutter: Curb and gutter shall only be required where needed to facilitate site drainage and site vehicular circulation. If used, curb and gutter shall be concrete. All locations where pedestrian walks meet curb and gutter shall require a handicap accessible ramp, per ADA and ABA accessibility guidelines.

3. Site Furnishings:

a. Flagpole: Seamless, extruded aluminum alloy, with a butt diameter of 6 inches, top outside diameter of 3 1/2 inches, exposed height aboveground 35 feet. Unflagged flagpole shall be designed to withstand wind loading of 120 miles per hour.

4. Detention Basins: Stormwater detention basins shall be designed to meet state and local requirements that the project is located in.

--- END OF SECTION ---

G2080 LANDSCAPING

G2080.1 SYSTEM DESCRIPTION

A. This system consists of landscaping.

G2080.2 GENERAL REQUIREMENTS

A. Determination of site development requirements shall be the responsibility of the Design Build Contractor (DBC). The DBC shall also be responsible for identifying and obtaining permits and complying with the requirements of all federal, state, and local regulatory requirements associated with this work.

G2080.3 SYSTEM REQUIREMENTS

A. Site Layout: The site plan in the BLM Concept Package shows general layout relationships between buildings, parking, and any adjacent existing facilities. The final site layout should be approached from an interdisciplinary viewpoint to ensure proper coordination of the final design.

G2080.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

G2080.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Design Build Project Scope Paragraph “Submittals During Construction”.

B. Plant Material List.

C. Soil and Mulch Samples.

D. Edging and retaining systems.

E. Maintenance plan.

G2080.6 SYSTEM COMPONENTS

A. Landscaping:

1. Consideration shall be given to xeriscaping all or part of the project site to conserve water. Drip irrigation is often used for plant establishment with termination of use once established.

2. Project Conditions

a. Planting Restrictions: Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

b. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

3. Maintenance Service

a. Initial Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:

b. Shrubs and Turf: 60 days from date of Substantial Completion.

c. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

4. Plants: Provide landscape plants in accordance with ANSI Z60.1-14. The plants shall meet the following additional criteria:

a. Plants requiring minimum maintenance including, but not limited to reduced pruning, insect-free, disease-free, and drought tolerant plants.

b. Have a caliper of 2 inches for trees and a size of 5 gallons for shrubs.

c. Shall not be poisonous.

5. Planting Requirements:

a. Planting schedule shall be determined by climatic conditions and in accordance with accepted practices in the region.

b. Provide corrosion-resistant, non-plastic edging at borders of landscape areas not defined by buildings or pavement.

c. Provide approved mulch and weed barrier in landscape areas.

d. Plants shall be mulched, weeded, sprayed, and watered until date of final acceptance.

e. Provide a temporary drip irrigation system to establish the plants.

f. For 12 months from the date of final acceptance (contract warranty period), remove deficient plants and replace with same size and quality as original planting.

--- END OF SECTION ---

G3010 WATER UTILITIES

G3010.1 SYSTEM DESCRIPTION

A. This system consists of site water supply and distribution.

G3010.2 GENERAL REQUIREMENTS

A. Determination of site water utility requirements shall be the responsibility of the Design Build Contractor (DBC). The DBC shall also be responsible for identifying and obtaining permits and complying with the requirements of all federal, state, and local regulatory requirements associated with this work.

G3010.3 SYSTEM REQUIREMENTS

A. General: New water utility systems shall be provided as necessary to serve new structures and the site.

B. Water Supply Systems: Water service systems and piping shall be sized for fire flow plus domestic flow, and for residual pressures required by fire and domestic water systems. Piping shall be sized to maintain velocities less than 6 feet per second.

C. Excavating, Backfilling and Compacting Requirements:

1. Trenching/Excavating: Trenching for site mechanical piping shall be accomplished in accordance with OSHA requirements.

2. Bedding/Backfilling: A minimum of 6 inches of bedding shall be provided where rocky or unstable trench bottom is encountered. Place and compact backfill in 8 inch layers.

3. Compacting: Bedding shall be compacted to 95 percent of maximum density. Each layer of backfill material shall be compacted to 95 percent of maximum density under vehicular traffic areas and 90 percent of maximum density in non-traffic areas.

D. Trenching requirements: Install various utility lines in common trench to the fullest extent possible to minimize width of utility corridors. Water and sewer mains must be separated by 6 feet, clear, minimum.

G3010.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

G3010.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Manufacturer's Catalog Data:

1. Pipe and pipe fittings.

2. Valves and valve boxes.

3. Water treatment system components (if applicable).

C. Test Reports:

1. Results of water flow and pressure tests.

2. Piping pressure test and bacteriological test results.

3. Soil compaction results (for utility trench backfill).

G3010.6 SYSTEM COMPONENTS

A. Water Supply:

1. General: Provide a water distribution system which will meet domestic, maintenance, and fire flow requirements for the new structures and other site features that use water. Piping, valves, and all other water supply system materials shall meet the American Water Works Association (AWWA) Class 200 standards for a 200 psi working pressure water system.

2. Connection to Water Supply: The water distribution system shall be connected to the existing site water system.

3. Flow Test: Determine available flow, static pressure, and residual pressure at the point of connection by conducting flow tests in accordance with NFPA 291-19. Residual water pressure at peak flow shall not be less than 20 psig. If facilities have a requirement for higher pressures, the DBC shall coordinate with the plumbing and fire protection requirements for the project.

4. Piping: Water distribution system shall include piping from the building water service entrance to the water source, including trenching and backfilling.

5. Water mains shall be ductile iron pipe (AWWA C151), with a cement-mortar lining in accordance with AWWA C104. Deflections at joints shall not exceed manufacturer's guidelines.

6. For most typical installations, water service lines shall be copper tubing (ASTM B88), PVC (ASTM 1785) or ABS (Acrylonitrile-butadiene-styrene) plastic (ASTM DI 527). All service lines and fittings shall have a minimum pressure rating of 200 psi. Service lines over 4- inch shall be ductile iron pipe (AWWA C151). Under no circumstance shall solvent welded PVC joints be used.

7. Thrust Restraints: Provide adequate thrust restraints at all changes in direction in water distribution system piping.

8. Burial Depth: Burial depth and cover shall be adequate to prevent freezing of water distribution system piping.

9. Valves: Valves shall be installed at all new points of connection and where necessary to insure adequate sectioning of the water distribution system. Valves shall be furnished with valve boxes and shall be located outside of pavement and heavy traffic areas whenever possible. If in paved areas, valve boxes shall be designed to withstand AASHTO H-20 traffic loading.

10. Backflow Prevention: Provide backflow prevention in accordance with AWWA Manual M14-15, and as required by state and local regulatory agencies.

11. Leak Testing: All lines shall be leak tested prior to acceptance.

12. Disinfection: Sterilization of all potable water mains shall be accomplished in conformance with requirements of local authority and AWWA C65 1. Dispose of chlorinated water without discharge to natural drainage.

--- END OF SECTION ---

G3020 SANITARY SEWERAGE UTILITIES

G3010.1 SYSTEM DESCRIPTION

A. This system consists of site sanitary sewer components.

G3010.2 GENERAL REQUIREMENTS

A. Determination of site sanitary sewerage requirements shall be the responsibility of the Design Build Contractor (DBC). The DBC shall also be responsible for identifying and obtaining permits and complying with the requirements of all federal, state, and local regulatory requirements associated with this work.

G3010.3 SYSTEM REQUIREMENTS

A. General: New sanitary sewerage systems shall be provided as necessary to serve new structures and the site.

B. Sanitary Sewer Systems:

1. Gravity Sewer: Gravity sewer pipes shall be designed to flow full and maintain a minimum velocity of 2 feet per second and a maximum velocity of 10 feet per second.

2. Force Mains: Force mains shall be sized to minimize pumping head, shall be kept as short as possible, and shall be designed to maintain a minimum velocity of 2 feet per second and a maximum velocity of 9 feet per second.

C. Excavating, Backfilling and Compacting Requirements:

1. Trenching/Excavating: Trenching for site mechanical piping shall be accomplished in accordance with OSHA requirements.

2. Bedding/Backfilling: A minimum of 6 inches of bedding shall be provided where rocky or unstable trench bottom is encountered. Place and compact backfill in 8 inch layers.

3. Compacting: Bedding shall be compacted to 95 percent of maximum density. Each layer of backfill material shall be compacted to 95 percent of maximum density under vehicular traffic areas and 90 percent of maximum density in non-traffic areas.

D. Trenching requirements: Install various utility lines in common trench to the fullest extent possible to minimize width of utility corridors. Water and sewer mains must be separated by 6 feet, clear, minimum.

1. Concrete: Concrete for any structures constructed under this section shall be in accordance with Section A1010.

G3010.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

G3010.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Manufacturer's Catalog Data:

1. Pipe and pipe fittings.

2. Valves and valve boxes.

C. Test Reports:

1. Soil compaction results (for utility trench backfill).

G3010.6 SYSTEM COMPONENTS

A. Sanitary Sewer:

1. Connect to existing sanitary sewer system to provide sanitary sewer service to the facility.

2. Design all sewers to maintain the minimum cover required to protect the structural integrity of the pipe.

B. All force mains should have minimum cover and adequate thrust restraint.

C. Gravity sewer mains shall be ductile iron pipe (AWWA C151); service connections shall be either PVC pipe (ASTM D3034) or ductile iron pipe (AWWA C151). No solvent welded joints are allowed if PVC pipe is used.

D. Force mains shall be ductile iron pipe (AWWA C151).

E. All gravity sewer lines shall be laid with straight alignment between manholes and/or cleanouts. Curvilinear alignment of sewer lines is not acceptable. Any change in direction or slope requires a manhole. For service connections, where a change in slope and/or direction occurs, the manhole may be replaced by a cleanout, provided that the length of service line downstream of the cleanout is not longer than 100 feet.

F. All lines shall be leak tested prior to acceptance.

--- END OF SECTION ---

G4010 SITE ELECTRIC DISTRIBUTION SYSTEMS

G4010.1 SYSTEM DESCRIPTION

A. This system consists of exterior electrical systems and equipment, including overhead and underground electrical distribution, metering equipment, and communication and security systems.

G4010.2 GENERAL REQUIREMENTS

A. All permitting, utility coordination, fees and costs associated with utility connections, distribution, metering and installation shall be the responsibility of the Design Build Contractor (DBC).

B. Determination of site electrical utility requirements shall be the responsibility of the Design Build Contractor (DBC). The DBC shall also be responsible for identifying and obtaining permits and complying with the requirements of all federal, state, and local regulatory requirements associated with this work.

C. The site electrical utilities included in this contract shall be designed to conform to codes and standards as specified in Section 1030 “Project Criteria” and those listed below:

1. Illuminating Engineering Society (IES) G-1-16, “Security Lighting for People, Property, and Critical Infrastructure”.

2. IES HB-10-11, “The Lighting Handbook, 10th Edition”.

3. Obtain DarkSky certification.

4. Local electric power company standards and requirements.

5. Local telecommunication service provider standards and requirements.

D. All site electrical utility materials and equipment shall be UL listed.

E. Design Requirements:

1. Electrical system voltage drop shall not exceed 4 percent.

G4010.3 SYSTEM REQUIREMENTS

A. General: New underground electrical and telecommunications conduits, pull boxes, and wiring shall be provided as necessary to serve new structures and all devices on the site requiring power or telecommunications connections.

B. Excavating, Backfilling and Compacting Requirements:

1. Trenching/Excavating: Trenching for conduits shall be accomplished in accordance with OSHA requirements.

2. Bedding/Backfilling: A minimum of 6 inches of bedding shall be provided where rocky or unstable trench bottom is encountered. Place and compact backfill in 8-inch layers.

3. Compacting: Bedding shall be compacted to 95 percent of maximum density. Each layer of backfill material shall be compacted to 95 percent of maximum density under vehicular traffic areas and 90 percent of maximum density in non-traffic areas.

C. Trenching requirements: Install various utility lines in common trench to the fullest extent possible to minimize width of utility corridors.

D. Concrete: Concrete for any structures constructed under this section shall be in accordance with Section A10.

E. Marking Tape: Provide a detectable plastic warning tape in the backfill approximately 6 inches below finished grade over all site electrical utility conduits. Use a yellow plastic tape with integral warning legend repeated continuously throughout the entire length of the tape.

G4010.4 SUBMITTALS DURING DESIGN

A. Refer to Project Statement of Work.

G4010.5 SUBMITTALS DURING CONSTRUCTION

A. Submit the following for review and approval in accordance with the Project Statement of Work.

B. Manufacturer's Catalog Data:

1. Wire and cable.

2. Conduit.

3. Pull boxes and handholes.

C. Test Reports:

1. Soil compaction results (for utility trench backfill).

G4010.6 SUBMITTALS UPON CONSTRUCTION COMPLETION

A. Submit as-built version of one-line diagram(s) to the Government matching final installation.

G4010.7 SYSTEM COMPONENTS

A. Electrical Distribution:

1. General:

a. Pull boxes and Handholes:

i. Pull box and handhole separation shall not exceed 500 feet on straight pulls and 300 feet on curved runs.

ii. Terminate conduits in end-bells where conduits enter pull boxes and handholes. Clear all conduits of particles of earth, sand, and gravel. Install conduit plugs until cable is installed; plugs for spare conduits shall remain in place.

2. Primary Electrical Service:

a. Power Company Work: Where work by the electric power company is required in conjunction with construction, such as installation of primary power cables or power transformers, the DBC shall be responsible for coordinating the work and ensuring that all required work is completed. DBC shall make arrangements with utility company for metered connections. DBC shall pay all costs associated with utility work and shall reduce cost to government by contributions provided by utility.

b. Conduit: Underground primary power conduits shall be Schedule 40 PVC. Conduits shall not be smaller than 4 inches in diameter unless otherwise indicated.

c. Pull boxes: Pull boxes shall be constructed of precast concrete. Provide pull boxes with load ratings suitable for the locations where installed.

d. Depth of Burial: Primary power conduit shall be installed a minimum of 42 inches below grade.

3. Secondary Electrical Service:

a. Overhead Service: The electrical service entrance for overhead power shall be provided with a weather head and a service mast capable of resisting the forces imposed by the power company’s overhead service cable.

b. Underground Service:

i. Underground secondary power conduits from the power transformer to the building service entrance shall be Schedule 40 PVC.

ii. Wiring shall be copper, with THHN/THWN insulation.

c. Pull Boxes and Handholes: Pull boxes shall be constructed of precast concrete and handholes shall be constructed of composite fiberglass material. Provide pull boxes and handholes with load ratings suitable for the locations where installed.

d. Depth of Burial: For exterior locations, secondary power conduit shall be installed a minimum of 24 inches below grade.

--- END OF SECTION ---