

Universal Scope Requirements

V2.1 - 6.8.2018

(Mandatory Requirements that Accompany all Scope of Work Templates)

Note: This document accompanies the PBS-P100. The P100 remains the paramount guidance document. This document serves to clarify and expand upon certain requirements within the P100.

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Requirements for ALL Projects

Section A – Safety and Health Program

- **Contractor Responsibility:** The Contractor shall assume full responsibility and liability for compliance with applicable codes, standards and regulations pertaining to the health and safety of personnel during execution of the Work, and shall hold the Government harmless for any action on the Contractor's part, or that of the Contractor's employees or subcontractors, that results in illness, injury or death.
- **References:** In addition to publications referenced in the Construction Contract Clauses, the following Code of Federal Regulations (CFR), publications apply to conduct of the work. State and local safety and health regulations that apply are not cited herein. Current editions at the date of the agreement apply. The more stringent requirements apply.
 1. 29 CFR Part 1910: Occupational Safety and Health Administration (OSHA) General Industry and Health Standards.
 2. 29 CFR Part 1926: OSHA "Safety and Health Regulations for Construction"
 3. 40 CFR Part 61 Subpart M: U.S. Environmental Protection Agency (EPA) "NESHAPs, National Emission Standard for Asbestos"
 4. 40 CFR 763: EPA "Asbestos Hazard Emergency Response Act (AHERA)"
 5. 40 CFR 260-299 EPA Resource Conservation and Recovery Act Regulations (RCRA). [Governs generation, accumulation, and disposal of hazardous waste]
 6. 40 CFR Part 761: EPA Polychlorinated Biphenyls (PCBs), Manufacturing, Processing, Distribution in Commerce and Use Prohibitions. [GSA Project Team: Check if any work involves sealant removal as PCBs may be present.]
 7. National Fire Protection Association (NFPA) 70E Electrical Safety Requirements for Workplace Safety
 8. U.S. Army Corps of Engineers (USACE) Safety and Health Requirements Manual, EM 385-1-1, current edition.
 9. Federal Standard, Fed. Std. 313E, Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities
- The Contractor shall submit for approval a written **project safety and health program**, including but not limited to the following:
 1. Occupational Noise Exposure
 2. Fall Protection
 3. Personnel Protective Equipment
 4. Control of Hazardous Energy
 5. Electrical Safety Related Work Practices
 6. Lead
 7. Asbestos
 8. Polychlorinated Biphenyls (PCBs)
 9. Respiratory Protection
 10. Confined spaces
 11. Hazard Communication
- In addition to specific safety and health programs applicable to the project, Contractor shall submit firm's general safety plan at the pre-construction conference listing emergency procedures and contact persons with home addresses and telephone numbers.

Section B – Asbestos Pre-Alteration Assessment

• Asbestos Pre-Alteration Assessments

- In order to comply with 40 CFR 61.145(a), 41 CFR 102-80.15(c), Section 1.9.4.1.2 of the GSA PBS-P100, and Appendix A of PBS 1000.1, a pre-alteration asbestos assessment shall be required before any demolition or renovation activity where asbestos containing materials are present, presumed, or suspected in the project the area. A state certified asbestos building inspector must assess all areas within this scope and either test or assume positive all suspect materials for asbestos content that have not been previously analyzed and may be disturbed by the proposed renovation or demolition activity. GSA will provide any available “AHERA-style” baseline whole-building asbestos surveys, other asbestos documentation, and scopes of work related to the proposed demolition/renovation activity. Copies of the pre-alteration assessment report shall be provided to the GSA Project Manager, Building Manager, and Regional Industrial Hygienist. The following pre-alteration assessment requirements shall be adhered to:
 - Destructive sampling of materials that will be disturbed as a result of the proposed project is authorized. Sample holes shall be temporarily patched or covered with putty, tape, etc. Any residual debris generated as a result of the sampling shall be cleaned up and removed.
 - The assessment shall be conducted in accordance with the "Project Design Survey" requirements of ASTM E2356 - 14 *Standard Practice for Comprehensive Building Asbestos Surveys* and pursuant with applicable federal, state and local regulations.
 - Assessment and sampling protocols per ASTM E2356 – 14, AHERA sampling protocols at 40 CFR 763.86, and state/local asbestos regulations shall be followed with the following exception(s):
 1. For Miscellaneous Materials, a minimum of two (2) samples per each Homogeneous Area shall be collected.
 - The following sample analysis methodologies shall be used:
 1. Bulk samples shall not be composited for analysis and shall be analyzed by polarized light microscopy (PLM) via EPA Method EPA/600/R-93/116.
 2. Progressive sampling (i.e. positive stop) for each homogenous area (HA) is allowed.
 3. All separable layers within a bulk sample shall be analyzed and reported individually. Drywall samples shall be reported both by layers for OSHA compliance as well as a composite sample as allowed by federal EPA NESHAP regulations.
 4. If a sample of friable asbestos is estimated to be 1% asbestos or less, but greater than 0% by PLM via EPA/600/R-93/116, the sample shall be re-analyzed by EPA/600/R-93/116 with a 400-Point Count. If a result obtained by point count is different from a result obtained by visual estimation, the point count result shall be used. Tar impregnated samples do not have to be point counted.
 5. Asbestos bulk sample analysis shall be performed by an accredited analytical laboratory that participates in the National Institute of Standards and Technology (NIST), National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos bulk sample analysis.
 - A written assessment report shall be provided and contain the following content at a minimum:

1. The name and address of the building, structure of facility that was inspected. If less than the entire building, structure, or facility was inspected, the exact location of the area or component(s) inspected shall be listed.
 2. The certified asbestos building inspector's name, signature, contact information, individual certification number, and state Asbestos Consulting Firm name and registration number (if applicable).
 3. The date(s) the inspection/assessment was performed.
 4. General description of building and its physical components, dates of construction and any known renovations, description of mechanical systems such as HVAC and plumbing systems.
 5. Description of assessment protocols, sample collection and analytical procedures
 6. Summary of findings and table including material description / HA / location in building / sample numbers / asbestos content / estimated quantities / friability / material condition-assessment
 7. Summary of determined or assumed ACM materials that would be disturbed by proposed project activities and recommendations. Contractor shall also denote any non-ACM materials that would still be OSHA regulated (1% asbestos or less).
 8. Figures
 - o Site location figure
 - o Sample location figure(s)
 - o Extent of each HA determined or assumed ACM figure(s)
 9. Photographic log with representative photos of each HA determined or assumed to be ACM.
 10. Field notes
 11. Laboratory data packages / lab accreditations / chain-of-custody documentation.
 12. Inspector and firm certifications.
- **Potential Disturbance or Removal Asbestos Contain Materials**
 - o Projects with the potential to disturb or remove asbestos containing materials shall include the necessary controls to protect the construction contractor, building occupants, the public, and environment **AND** comply with all applicable regulations and policies including but not limited to:
 - 29 CFR 1910.1001: OSHA Asbestos in General Industry.
 - 29 CFR 1910.134: OSHA Respiratory Protection Standard.
 - 29 CFR 1926.1101: OSHA Asbestos in Construction Standard.
 - 40 CFR, Part 61 Subpart M: EPA NESHAPS National Emission Standard for Asbestos
 - 40 CFR 763: EPA Asbestos Hazard Emergency Response Act (AHERA)
 - 41 CFR 102-80.15: GSA Federal Management Regulation, Real Property, Safety and Environmental Management.
 - State and local asbestos control statutes and regulations.
 - GSA PBS-P100, current edition.
 - GSA PBS 1000.1 Asbestos Policy.
 - o Third-party industrial hygiene oversight and/or clearances may be required depending upon the type and quantity of material to be abated, abatement methodologies, site-specific circumstances and state-specific requirements. Please consult with the OFM Industrial Hygiene Team for guidance.

- Contractor shall provide a written method of procedure (MOP) or asbestos abatement project design, as applicable, describing types, quantities and locations of asbestos to be removed; controls and work methods; phasing; disposal, etc.

Section C – Lead Containing Paint / Lead Based Paint

- All coatings and paints in buildings built prior to 1978 are suspected to be lead containing. For alteration and demolition projects that require the sanding, burning, welding, scraping, or otherwise impacting painted or coated surfaces in such buildings, the impacted paints or coats shall either assume to be lead containing and managed as such **OR** have representative chip samples collected by a qualified individual and submitted to an accredited analytical laboratory for analysis by Flame Atomic Absorption Spectroscopy (AAS) via EPA Method SW-846-7000B.
- The OSHA Lead in Construction Standard 29 CFR 1926.62 applies to disturbance of any paint or coating with any detectable concentration of lead. Any project that disturbs assumed or confirmed lead-containing paint must comply with this standard. Lead-containing paint that is intact and in good condition need not be abated unless required for alteration or demolition.
- Lead-based paint (greater than 0.5% by weight) shall be abated in child care centers. Refer to Section 10.1.10 of PBS-P140 for specific details.
- Lead-based paint in child occupied facilities (child care centers) and pre-1978 target housing (GSA-owned or maintained residential dwellings) shall be managed in accordance with 24 CFR 35 and 40 CFR 745 “Lead-Based Paint Poisoning in Certain Residential Structures.”
- All lead containing debris shall be double bagged in 6-millimeter, labeled polyethylene bags, containerized, and transported and properly disposed of off-site at an appropriate facility. Contractor shall be responsible for the proper characterization and management of lead bearing waste in accordance with applicable federal, state, and local hazardous waste regulations. Lead bearing waste shall be assumed to be hazardous waste due to the characteristic of toxicity (Lead, EPA Waste Code D008) or have representative wastestream samples submitted to an accredited analytical laboratory for analysis via EPA Method SW-846 Test Method 1311: Toxicity Characteristic Leaching Procedure (TCLP). As applicable, the waste characterization and manifest documentation shall be provided to GSA as part of the deliverable.

Section D – Accessibility

- The Architectural Barriers Act Accessibility Standard (ABAAS) is mandatory for all GSA projects
- If local accessibility standards exist, the A/E must follow the more stringent requirements between the local standards and ABAAS
- Accessibility in Federal Courthouses
 - Comply with Chapter 8, Design Standards for U.S. Court Facilities, Section 8.2, Planning for Accessibility, and Table 8.1, Accessibility Requirements

Section E – Green Purchasing

- **Key Sustainable Products (KSPs)**

- Any of the five materials listed below that are purchased and/or installed as part of this project must comply with their respective sustainability standards
- Contractor shall submit product data for each material used demonstrating that the material meets the sustainability standard

Product	Sustainability Standard	Required Submittal
<i>Nylon carpet</i>	<ul style="list-style-type: none"> • NSF 140 Gold certification AND • ≥ 10% post-consumer recovered content 	<ul style="list-style-type: none"> • Product literature showing NSF Gold logo AND • Certification of recovered content by reputable 3rd party
<i>Interior latex paint</i>	<ul style="list-style-type: none"> • ≤ 50 grams per liter (g/L) VOCs post-tint (SCAQMD Rule 1113 standard) 	<ul style="list-style-type: none"> • Material Safety Data Sheet (MSDS) • Technical Data Sheet (TDS)
<i>Gypsum board</i>	<ul style="list-style-type: none"> • Greenguard Gold certification OR • 0 g/L VOCs 	<ul style="list-style-type: none"> • Product sheet • Material Safety Data Sheet (MSDS) • Technical Data Sheet (TDS)
<i>Acoustical ceiling tiles</i>	Meets ALL of the following: <ul style="list-style-type: none"> • California Section 01350 standard for low-VOC materials • Total recycled content ≥ 20% • Recyclable in a closed loop process • USDA Certified BioPreferred 	<ul style="list-style-type: none"> • Environmental Product Declaration (EPD) AND • Product sheet for USDA Certified BioPreferred
<i>Concrete (ready-mix and site-mix)</i>	<ul style="list-style-type: none"> • ≥ 15% fly ash OR • ≥ 25% ground granulated blast-furnace (GGBF) slag 	<ul style="list-style-type: none"> • Letter from the supplier

- **Non-Key Sustainable Products**

- In addition to the KSPs, all other interior finishes must meet, at a minimum, the baseline environmental requirements specified in the most current GSA P100 facilities standards, Chapter 3, Architecture and Interior Design
- Contractor shall submit product data for each finish material used, demonstrating compliance with the appropriate environmental requirements
- Sustainability requirements for specific interior finishes and construction materials may also be found at www.sftool.gov

- **Water-Efficient Products (Plumbing Fixtures)**

- Purchase/install only water-conserving products, such as WaterSense and FEMP-designated products

- **Energy Efficient Products & Appliances (if applicable)**

- Any appliances (such as refrigerators, dishwashers, etc.) purchased by GSA and/or under GSA-operational control must be energy-efficient products meeting standards such as:
 - Environmental Protection Agency's (EPA) Energy Star-labeled
 - Federal Energy Management Program (FEMP) designated
 - Other similar energy-efficient certifications
- Contractor must provide proof of compliance (standard construction submittal) for applicable products, equipment replacements, and installations (See examples for contractor proof of compliance in the Resources section)

- **Lighting**
 - Interior Fixtures must be the best value (least life cycle cost) to the government
 - Contractor must perform a Life Cycle Cost Analysis (LCCA) to select the best lighting solution (refer to Section R Energy Design, point 3 below)
 - Contractor must also look at the light Efficacy in evaluating the lighting energy efficiency. Efficacy is the amount of light produced expressed in lumens per watt.
 - GSA supports the use of High-efficiency LED light fixtures in most cases
 - High-efficiency T-8 or T-5 light fixtures may be used to match existing fixtures in any single open space
 - Physically clean all light fixtures (bulbs, lenses, reflectors, etc.) with a cloth or per specific fixture's instructions post-install and prior to occupancy.
 - Automatic Lighting Controls
 - Automatic lighting controls are specified to save energy. As energy-saving devices, they are required as part of lighting control strategies mandated by commercial building energy codes and encouraged by green building rating systems such as LEED.
 - Per ASHRAE/IESNA/ANSI 90.1 Standard
 - Provide ceiling-mount occupancy or vacancy sensors throughout the space in order to reduce the hours that the lights are on when a particular space is unoccupied
 - No more than 1,000 square feet shall be controlled by any one sensor
 - Sensors must turn the lights OFF within 30 minutes of the space being vacated a feature manual-ON or auto-ON to 50% operation
 - Sensors must be dual-sensing (ultrasonic & infrared) to prevent inadvertently turning off while space is occupied
 - Occupancy/vacancy sensors in enclosed rooms shall continue to operate after the BAS has shut down the building at the end of the workday
 - Lighting sensors should work independently per room configuration or via a lighting control system
 - Contractor must demonstrate performance via commissioning or a function test of newly installed equipment
 - If occupancy/vacancy sensors are not economically preferable to the government, scheduling controls through the building automation system (BAS) is a permissible minimum alternative
- **Refrigerants Phase Out (if applicable)**
 - If any equipment/components are being replaced that contain ozone-depleting HCFC and HFC compounds and/or high GWP chemicals, these must be replaced with equipment containing non-HCFC and/or HFC refrigerants and/or SNAP-approved substitutes
 - Accordingly, contractors shall comply with:
 - Title VI of the Federal Clean Air Act **AND**
 - 40 CFR Part 82

Section F – Construction Indoor Air Quality (IAQ) Management Plan

- The General Contractor or other qualified party shall prepare and submit a Construction IAQ Management Plan to the Owner and Architect for approval. For any construction project(s) involving:
 - Heating, ventilation, and air-conditioning (HVAC) modifications
 - Demolition
 - Paints, sealants, adhesives, etc. (commonly referred to as "wet work")
 - Anything else affecting indoor air quality
- The Construction IAQ Management Plan shall meet the following criteria:
 - Construction activities shall be planned to meet or exceed the standards included in Chapter 3 of the Sheet Metal and Air Conditioning National Contractors' Association (SMACNA) "IAQ Guidelines for Occupied Buildings under Construction", 2nd Edition 2007
 - Control pollution sources
 - Isolate areas of work to prevent contamination
 - Pressure differentials shall be used where feasible to prevent migration of dust/contaminants
 - Protect existing building HVAC systems including
 - Shutting down systems where possible AND
 - Protecting supply and return ducts within the work area by covering or filtering
 - Filtration media shall be installed to protect ductwork and/or equipment used during the construction process using a minimum efficiency reporting value (MERV) of 8 must be used at each return air grille, as determined by ASHRAE Standard 52.2-1999
 - Replace all filtration media immediately prior to occupancy
 - Suppress dust
 - Apply wetting agents or sweeping compounds
 - Interrupt dust pathways via dust curtains or temporary enclosures
 - Pre-clean any dust-covered materials that will be disturbed during demo using an effective dust-collecting method (such as damp cloth, wet mop, etc.) and immediately bag, seal and remove this refuse from the project area
 - Protect materials
 - Develop a Sequence of Finish Installation Plan highlighting measures to reduce the absorption of VOCs by materials that act as 'sinks'
 - Protect absorptive materials from moisture damage both when stored on-site prior to install and after installation
 - Immediately prior to occupancy, perform:
 - An outside air flush out of the building (or of the immediate project area) **OR**
 - Pre-occupancy air-quality testing
 - Plan must be approved by GSA

Section G – Construction Waste Diversion

- **C&D Waste Protocol**
 - C&D waste is defined as non-hazardous waste generated by construction or demolition activities (such as furniture, appliances, carpet, sheetrock, fixtures, etc.)
 - Unless otherwise specified, all C&D waste material becomes the property of the contractor and shall be disposed of outside Government facilities and land.
 - Contractor shall provide dumpsters as necessary to handle all C&D waste. The location of these dumpsters will need to be coordinated with GSA at the start of the project. The contractor shall be responsible for the transportation of the waste material to a landfill as well as the disposal costs. The contractor shall not stockpile demolition debris for more than 48 hours.
 - Contractor shall dispose of C&D waste at least monthly, in a legal manner, at a public or private dumping area.
 - Contractor must document disposal as outlined in the section below “Required Submittals and Reporting Requirements
- **Minimum C&D Waste Diversion requirement is 50 percent**
 - This project shall generate the least amount of waste possible. The contractor shall employ processes to ensure the generation of as little waste as possible and avoid waste due to over-packaging, error, poor planning/layout, breakage, contamination, damage from weather, etc.
 - Diversion is defined as diverting materials from landfills and incinerators via methods such as recycling, reuse, repurposing, scrap, or donation
 - Contractor shall use all reasonable means divert as much C&D waste as possible
 - Diversion rates are calculated at end-of-project by weight of total non-hazardous waste generated by the project
- **Required Submittals and Reporting Requirements**
 - **Waste Management Plan:** To demonstrate compliance, contractor shall prepare/submit a **Waste Management Plan** within 14 days of Notice to Proceed including:
 - List of the recycling facilities, reuse facilities, municipal waste landfills and other disposal area(s) to be used
 - Name, location, and phone number of each facility listed
 - A copy of permit or license for each facility listed
 - Identify materials that cannot be recycled or reused. Provide explanation or justification why they may not
 - Plan may require revision and resubmission per GSA review and comment
 - Approval of Contractor’s Plan does not relieve the Contractor of responsibility for compliance with applicable environmental regulations
 - **Waste Reduction Calculations**
 - Before Substantial Completion, submit calculated end-of-project rates for salvage, recycling, and disposal as a percentage of total waste generated
 - **Waste and Diversion Records**
 - Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by facilities licensed to accept them
 - Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them
 - Include manifests, weight tickets, receipts, and invoices
 - Upload C&D data into ePM using the Master C&D Waste Report OR tracked in another tracking method (if the project(s) falls below the KPI threshold for the year the project was completed).

REQUIREMENTS IF APPLICABLE

(Remove if not needed **after** consulting with OFM and/or other appropriate groups)

Section H – Excavation Permit

- Contractor shall obtain an excavation permit prior to performing any excavation work on the Denver Federal Center. Permits are issued by GSA's EPG; consult GSA project manager for additional information. Any project outside the DFC, contractor shall follow any local codes and regulations.

Section I – Utility Locates

- Contractor shall be responsible for obtaining public and private utility locates prior to performing any excavation activities. The Denver Federal Center has pre-approved locate contractors that shall be used for private utility locates. These contractors may charge a fee for their locating services; payment of fees associated with utility locates are the responsibility of the contractor; coordinate with GSA project manager prior to proposal submission.

Section J – gBuild

- The Green Building Upgrade Information Lifecycle Database (gBUILD) is an online system that lets GSA track and reports on projects' sustainability aspects. gBUILD allows project teams to collaborate in a secure central environment that reduces and streamlines data calls, allows program-wide reporting, promotes legal compliance, and facilitates performance tracking. GSA will provide all users with system instructions, training, and support. The contractor shall be responsible for updating the following Gbuild tabs at project initiation and closeout:
 1. Project Basics
 2. Financials
 3. Scope
 4. KPM – Performance Projections
 5. **KPM – LEED (If applicable)**
 6. KPM Energy Star
 7. KPM – Waste Management
 8. Building Closeout

Section K – Historical Preservation

- **General Historic Preservation Requirements**
 - Design development and final construction documents must adhere to any conditions and processes set forth in related Section 106 correspondence or formal agreements governing the undertaking. Include applicable construction specialist qualification requirements for repair, restoration or replication of historic materials, as specified in GSA Competency Specifications for Preservation Construction Contractors in www.gsa.gov/historicpreservation.
 - Construction execution must also allow for coordination with the preservation architect responsible for the approved preservation design solutions. Allow ample time for procurement of specialized materials required for work in restoration zones.

- **Criteria Governing Survey, Analysis, Recommendations and Design**
 - Services to be performed by the Architect-Engineer under this contract shall conform to all applicable requirements and criteria of the following laws, directives and guidelines and to the latest issuances of and changes thereto:
 1. National Historic Preservation Act of 1966 (NHPA), as amended
 2. ADM 1020.3 GSA Historic Preservation Procedures
 3. GSA P100 Facilities Standards, provisions on Alterations to Historic Buildings for each applicable design category
 4. The Secretary of the Interior's Standards for Rehabilitation and Guidelines for the Treatment of Historic Properties
 5. GSA Technical Preservation Guidelines
 6. GSA Building Preservation Plan and Historic Structure Report, as available

- **Section 106 Compliance**
 - Work in GSA historic buildings listed in or eligible for the National Register of Historic Places shall be consistent with the Secretary of the Interior's Standards for Rehabilitation, applicable GSA Technical Preservation Guidelines and GSA Building Preservation Plan recommendations. All work in a GSA historic property is subject to National Historic Preservation Act (NHPA) Section 106 compliance review, coordinated by GSA's Regional Historic Preservation Officer (RHPO). Contact the RHPO in early planning to identify and address preservation issues the project may raise.
 - The RHPO must review and approve proposed alterations that may affect restoration or rehabilitations zones identified in a Building Preservation Plan (BPP) or Historic Structure Report (HSR) before GSA can commit to or initiate such alterations. If no HSR or BPP exists for the building, the RHPO will determine these zones.
 - Submit for RHPO review and concurrence a completed 106 Compliance Form (or equivalent information) identifying historic spaces and materials that may be affected by planned alterations. Design development must explore alternatives that avoid or minimize adverse effects on the qualities that make the building eligible for the National Register. Preference will be given to alternatives that avoid adverse effects while meeting other project requirements.
 - Plans for any alterations that will result in adverse effects on historic property will require consultation with the State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, at its discretion, and interested parties. This process, initiated during concept design, includes public consultation with the goal of identifying alternatives for avoiding, minimizing, or mitigating adverse effects. Projects that will result in unavoidable adverse effects may require extended consultation to explore additional alternatives and prepare project documentation required by the SHPO.
 - Preservation design problem solving and project documentation for 106 submissions must be undertaken by a qualified historic architect meeting the Secretary of the Interior's Professional Qualification Standards and GSA Qualification requirements for Preservation Architects. The historic architect must be integrally involved in the analysis and development of design solutions for work affecting restoration or rehabilitation zones to minimize adverse effects on historic materials and character.
 - Projects involving substantive ground disturbance for new construction, excavation, utility work or major landscaping (e.g. relocation of mature trees) must include provisions for compliance with the NHPA, the National Environmental Protect Act , Archeological Resources Protection Act and other laws concerned with the

protection of archeological resources, including advance assessment of archeological data potential prior to and provisions for responding appropriately to unanticipated discoveries.

- **Preservation Architect Requirements**

- The Designer must have a member of their team with the following qualifications regarding work in historic buildings to be considered a historic preservation architect and/or an architectural historian:
 - Professional degree in architecture or a State license to practice architecture plus one year of graduate study in architectural preservation, American architectural history, preservation planning or closely related field.
 - A minimum of two years full-time professional experience working on preservation projects in eligible or National Register listed buildings.
 - Past performance that visually and descriptively demonstrates successful experience consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties on three similar projects.
 - The Historic Preservation Architect and/or an Architectural Historian must meet the professional qualifications as outlined in the Secretary of the Interior's Standards and Guidelines: Professional Qualifications Standards http://www.cr.nps.gov/local-law/arch_stnds_9.htm

Section L – Commissioning

- Commissioning is required for any work related to new construction or alterations for any building system equipment including but not limited to any mechanical systems and the BMC/BAS.
- The Commissioning Authority (CxA) needs to be hired prior to OR in conjunction with design team. CxA can help write requirements for the design team RFP.
- Depending on project size, the CxA will be:
 - Large project with a CM: a 3rd party contracted through the CM
 - Medium/large project without a CM: a 3rd party contracted via an entirely separate contract
 - Small project: the contractor can self-perform Cx or if unqualified contract with a subcontractor.
- Commissioning is a systematic process of ensuring by verification and documentation that the newly installed equipment and/or systems perform independently and interactively in accordance with the scope documentation and project intent, and in accordance with the owner's operational needs to include preparation of operation personnel
- **Commissioning Plan**
 - Contractor must create/submit the commissioning plan, process and documenting procedure prior to the start of installation or construction
 - This plan must be approved by the Commissioning Authority (CxA) prior to the commencement of work
 - The level of commissioning should be appropriate to the scope, size, and complexity of the project as determined by the CxA
 - Commissioning must be conducted after all equipment and system components are installed and prior to project completion acceptance
 - Commissioning shall comply with P-100, GSA Building Commissioning Guide, and ASHRAE 202 as appropriate to the scope
- **Commissioning Documentation**

- Commissioning documentation shall demonstrate and confirm that the equipment and/or systems were properly installed and are in functioning order to meet the project intent
- Commissioning documentation requires submission to the CxA for approval after all commissioning activities have been finished
- **Acceptance**
 - Commissioning must be accepted prior to the project being accepted as complete.
 - The commissioning acceptance process may include visual inspection, functional testing, sequence testing (BAS) and confirmation of programming, graphics and BAS points added to the BAS dependent on the project scope.

Section M – GSA IT Network

- Any Internet Protocol (IP) devices/equipment (i.e. HVAC, lighting controls, t-stats, meters, etc.) and/or software that requests to connect to or reside on the GSA Network must follow the process for IT Security equipment scanning & approval outlined within The Building Technologies Technical Ref Guide
- This process reveals, analyzes and provides the vendor or manufacturer with weighted determinations on any and all Federal and GSA vulnerabilities the product(s) may have and that must be remediated prior to placement onto the GSA Network
- This includes devices related to both physical access and logical/network access
- A catalog exist already remediated products is the available for review only by GSA personnel
- Supporting Documents and Guidance
 1. 140416 Telecommunications Distribution Design Guide (Building Technologies Technical Ref Guide)
https://insite.gsa.gov/portal/mediaId/664598/fileName/Building_Technologies_Technical_Reference_Guide_v12_092916.action
 2. Security Language for IT Acquisition Efforts CIO-09-48
 3. 140416 Telecommunications Distribution Design Guide
 4. Technology Policy for PBS-Owned Buildings Monitoring & Control Systems

Section N – Building Monitoring and Control Systems (BMC)

- BMC refers to Building Automation System (BAS), HVAC, lighting, laboratory, and other automation technology
- The Region 8 Smart Buildings Systems Manager must be consulted for all BMC work
- All newly installed equipment must be integrated into the building's existing BMC systems with full functionality & controllability by the BMC
- Any project that installs new BMC devices or integrates with BMC devices shall adhere to GSA Region 8 BMC Standards, current versions of which can be obtained by contacting the Region 8 Smart Buildings Systems Manager
- BMC vendor selection and design submittal must be reviewed and approved by the Region 8 Smart Buildings Systems Manager
- Supporting Documents and Guidance
 1. 140416 Telecommunications Distribution Design Guide
 2. 2010_P100_Final Facilities Standards for the Public Buildings Service (PBS-P100)
 3. Building Technologies Technical Reference Guide_FINAL_6.24.11
 4. GSA PBS FMSP BAS Enterprise Software Specification - Version 4_0 20141015
 5. GSA PBS FMSP Open Protocol Implementation Guide - BACnet - v1_0_0_FINAL
 6. GSA PBS FMSP Smart Building Technology Guide v0_0_3

7. GSA PBS FMSP Standards for Installing Network Cabling in Electrical Equipment - DRAFT 20140612
8. GSA R8 BAS Graphic Format Standard v2_0_0_20140822
9. GSA R8 BAS Object Naming Standard - Version 1_0 20140808
10. GSA R8 EMCS Technology Implementation Guide
11. Technology Policy for PBS-Owned Buildings Monitoring & Control Systems

Section O – Advanced Metering System

- Contractors are required to install water, electric, natural gas, etc. meters if appropriate to the building systems being installed/replaced.
- **For all meter installation or replacement work**, contractor is required to:
 - Coordinate with the Advanced Metering R8 Manager for placement of new meters
 - Confirm the appropriate meter size, pipe sizes, flange sizes and straight runs of pipe requirements for new meters. Meter size may be different from pipe size due to the building usage and data.
 - Install new Weld-o-let fittings, flanges, isolation valves, piping, hangers, supports, and insulation as needed and install a by-pass and isolation valves for the new meters if required, and space is available. Paint any new piping and add new or remove and replace insulation (if applicable).
 - Install meters per manufacturer's recommendations for warranty
 - Test operation of all new equipment
 - Check all joints, fittings, flanges and piping for leaks
 - **Make new meters operable and with complete wiring** (includes communication wiring) including:
 - Disconnect any digital input wiring at the Advance Metering electric meter input prior to termination. Some of the electric meters are located in Medium/high voltage switchgear, safety precautions shall be enforced for access or work within these enclosures (NEC/OSHA arc flash requirements).
 - Coordinate with GSA prior to termination of meter communication wires
 - Remove any old associated wiring back to the source and provide neat and clean communication cable routes
 - Install necessary wiring from new meters to the RS-485 input on the advance metering electric meter
 - Meet the communication requirements (24 Gauge twisted shielded pair)
 - Install all wiring in conduit. EMT is acceptable with set screw fittings unless building-specific requirements are more stringent. Final connections to the metering equipment can either be flexible conduit or seal-tight conduit.
 - Trim each wire and/or cable to proper length to reduce the excess - Note each wire and cable should be the same length when cut
 - Daisy-chain multiple Modbus devices
 - Label each end of the communication wire with strap-on or stick-on labels
 - Label all meters installed
 - Supply all calibration data sheets to the Advanced Metering R8 Manager
- All Graphics, application programming, and final commissioning will be completed by the Advanced Metering R8 Manager
- **WATER METERS**
 - Contractor to Install (GSA Standard) Electro-Magnetic flow-type water meters
 - Install dedicated 120V power supply and disconnect switch within 6 feet
- **GAS METERS**
 - Install (GSA Standard) Nema 4-X Thermal Mass type Gas meters

- Coordinate with GSA and the local gas utility provider on the shutdown of gas or proposed piping location
- Test for leaks by utilizing a recently certified gas “sniffer” leak detector and provide leak test results
- **CHW AND HW BTU METERS**
 - BTU meters shall be required in all new installations and retro-fit installations where there is either a central utility plant or building specific cooling and/or heating plant(s)
 - Install (GSA Standard) Energy-flow type BTU meters, including the CW and/or HW BTU meters, transducers and RTD’s.
 - Test operation of the transducers, RTD’s, and BTU processor
 - Coordinate the placement of the BTU transducers with GSA and provide assistance with proper spacing at the time of commissioning prior to the pipes being insulated
- **ADVANCED ELECTRIC METERS**
 - Install the latest (GSA Standard) electric meters
 - The electric meter(s) shall be located in a compartment(s) in the switchgear specifically designed for metering. PT’s, CT’s, shorting blocks, etc. shall be incorporated in the design and installation sized per industry standards.
 - Contractor shall be responsible for coordination with GSA IT to:
 - Confirm the switch and port locations for the electric meters
 - Pull new Ethernet cables from the pre-determined Ethernet switch to each electric meter utilizing 600vac rated Ethernet cabling
 - Obtaining the IP address, Subnet Mask, and, Gateway information from GSA IT and forward all this information to the Advanced Metering R8 Manager
 - The contractor shall be responsible for any polarity-sensitive wiring (ie. CT’s) and verify phase terminations (A B C) and use the proper color-coded insulation (Grey for 277/480vac and White for 120/240vac)
 - Contractor shall be experienced in all components of electrical metering and shall be responsible for complete and operational integrity
 - Contractor must adhere to Arc Flash rules

Section P – Sustainable Environmental Management System (SEMS)

- The SEMS provides guidance on how to manage a variety of environmental impacts that may be identified at any stage of a project
- If the project involves any of the topics below, contact OFM for guidance/procedures.
 - Historic Preservation
 - Mold Contamination
 - Hazardous Chemical Abatement/Mitigation (Asbestos, Lead-containing paint, other hazardous chemicals, etc.)
 - Hazardous Chemicals (Storage & Disposal)
 - Paving (asphalt or concrete)
 - Roofing

Requirements for DESIGN & DESIGN/BUILD Projects only

Section Q – Asbestos Containing Materials

- **Pre-Alteration Assessments**
 - As part of the design process, an evaluation shall be conducted to determine if asbestos is present in the project area. This evaluation, an “pre-alteration asbestos assessment” shall be conducted in accordance with applicable federal, state and local asbestos regulations, as well as Section 1.9.4.1.2 of PBS-P100 and Appendix A of . Copies of the assessment shall be provided to the GSA Building Manager and GSA Regional Industrial Hygienist. See Section B above for details.
- **Potential Disturbance or Removal Asbestos Contain Materials**
 - Projects with the potential to disturb or remove asbestos containing materials shall include the necessary controls to protect the construction contractor, building occupants, the public, and environment **AND** comply with all applicable regulations and policies. See Section B above for details.
- **Specification of Asbestos-Free Building Materials**
 - Products containing any amount of asbestos are prohibited from use in construction of GSA-controlled Federal or leased facilities.

Section R – Energy Design

- Any new building equipment, systems, and components as part of design must be 20% better than the ASHRAE 90.1-2013 standard
- For major renovations, any building equipment, systems, and components must be 30% better than ASHRAE 90.1-2013
- **GSA requires the best value, demonstrated by Life Cycle Cost Analysis (LCCA) for any equipment upgrades and additional equipment designed**
 - Best Value as determined by LCCA is GSA’s primary selection criteria for all projects, designs and technologies
 - If alternative options are not available, equipment that meets ASHRAE 90.1-2013 Standard is the base option

Section S – Electrical Design

- **Arc Flash Study**
 - Whenever a transformer or Over-Current Protection Device (OCPDs) (including switchgear, main circuit breaker, fuse, and disconnect) is replaced or newly installed, a new ARC Flash Study is required
 - Study shall include a new one-line and time-current curves of the affected OCPDs
 - New Warning Labels shall be installed reflecting the required Personal Protection Equipment (PPE) category as defined in the current version of the National Electric Code
 - Study shall be distributed to the GSA Building Manager and GSA Office of Facilities Management Electrical Engineer
- New switchgear shall be tested according to NFPA 70B prior to energizing
 - Test reports showing the acceptable limits and observed values shall be submitted

Section T – Lighting Design

- **Daylight-harvesting Controls**

- Daylight-harvesting sensing and controls must be installed but ONLY if cost-effective to the government. Cost-effectiveness is defined as if the products pay back within the current P-100 guidelines.
- Daylight harvesting sensors can be integrated into the fixtures or ceiling-mounted
- Sensors and controls shall maintain required lighting levels in work spaces
- Special consideration shall be paid to providing daylight-dimming controls in atriums and within 15 feet of windows/skylights where daylight can contribute to energy savings

Section U – Mechanical Design

- GSA has adopted the technical requirements of the International Code Council (ICC) family of codes (unless otherwise as noted)
 - The ICC family of codes is available through www.iccsafe.org
 - The latest edition of the International Mechanical Code (IMC) shall be used
- See the latest edition of the PBS P-100 for detailed requirements for mechanical system modifications and new installations
- Any new closed-loop systems (i.e. boilers, chillers, etc.) need to have an aeration filtration device installed
- New boilers must feature direct-venting rather than louvers

Section V – Seismic Safety Design

- See PBS P-100 for Seismic Resistance requirements based on geographic seismic risk and Tier level requirements for architectural, mechanical, electrical and structural design requirements
- Seismic resistance design requirements include structural and non-structural elements

Section W – Physical Security Performance Attributes

- GSA buildings shall meet the Interagency Security Committee's (ISC) standards and best practices for protecting Federal facilities
 - Reference the ISC “Physical Security Criteria for Federal Facilities”
 - This attribute relates to the design of the buildings physical security, and its ability to resist the Design Basis Threats
 - Design Basis Threats include but are not limited to blast, progressive collapse, vehicle ramming, and ballistics
 - GSA buildings are to meet the ISC Security Criteria for the given Facility Security Level (FSL)
- Other reference documents include:
 1. ISC “Facility Security Level Determinations for Federal Facilities”
 2. ISC “The Design-Basis Threat” report
 3. General Services Administration Facility Security Requirements for Explosive Devices Applicable to Facility Security Levels III and IV
 4. See PBS P-100 for application of requirements and further details

Section X – Water-Efficient & Pollinator-Friendly Landscaping

- **Irrigation:** If facilities have ≥ 25,000 square feet of irrigated landscape, a separate outdoor water meter must be installed
- **Native Plants:** Implement native species to the maximum extent economically preferable to the government
- **Pollinator-habitat**
 - Install plants beneficial to pollinators to the maximum extent economically preferable to the government
 - Plant selection metrics should include:
 - Number of plant species, diversity and abundance of pollinators
 - Periods of bloom for the plant species
 - Frequency of pollinator visits
 - Capital and maintenance costs pre/post-planting

Section Y – Stormwater Management

- For projects involving ≥5,000 SF exterior site redevelopment, contact the OFM Guiding Principles Team for procedural guidance on procedure and required forms

TYPICAL PROJECT DOCUMENT REFERENCES

Document List:

- PBS-P100, Facilities Standards for the Public Buildings Service, current at the time of the award, including all applicable standards, criteria, and guides listed therein. The Design Stage submissions shall comply with PSB-P100 Appendix A unless otherwise indicated in this Statement of Work. (www.gsa.gov/p100)
- GSA Order PBS 3490.1 Management of Sensitive but unclassified (SBU) building information
- GSA PBS BIM Guide Series 02 Spatial Program Validation (available at www.gsa.gov/bim)
- GSA/PBS Building Commissioning Guide
- Facility Security Level Determinations
- GSA Fire Protection Specification
- GSA PBS Business Assignment Guide
- GSA PBS Pricing Desk Guide (Found at http://insite.pbs.gsa.gov/pv/pva/pricing_desk/main.html)
- GSA/PBS-Region 8, Contractor Clearance and Escort Guide
- PBS P-120, Project Estimating Requirements for the Public Buildings Service
- PBS PQ-251, Value Engineering Program Guide for Design and Construction, Volume 2, Contracting Officers and Professional Services Contractors
- Architectural Barriers Act Accessibility Standard (ABAAS) (Found at <http://www.access-board.gov/ada-aba/final.cfm>)
- GSA Order PBS 1000.1 Asbestos Policy