

In accordance with the Federal Buildings Personnel Training Act 2010 (FBPTA), the enclosed core competencies are identified for personnel performing building operations and maintenance, energy management, sustainability, water efficiency, safety (including electrical safety), building performance measures and design functions.

Law requires an annual update of this curriculum, allowing it to evolve over time. This release represents the results of significant consultation with representatives from Federal departments and agencies, relevant professional societies, industry associations and apprenticeship training providers, as well as subject matter experts from academic institutions. Our Program to implement the FBPTA will continuously evolve; through lessons learned from this initial release and successive updates, in response to technological breakthroughs and improvements, in order to highlight transformational policies, processes and procedures, and in response to changes in funding and philosophical constraints. We will remain in constant consultation with the stakeholders mentioned above.

Legislative Intent:

Taxpayer investment in Federal facilities must be protected and leveraged through the cost savings involved in maximizing building performance. Achieving this level of performance requires a government-wide program that stresses training and continuing education in the implementation of industry best practices and lifecycle operations and management. [Senate Committee on Environment and Public Works Report-paraphrased](#)

Background:

The evolution of the enclosed core competencies began with a Federal listening session and the modification of a Department of Energy Workforce Standardization Project. We modified the energy job task analyses to include facilities operations and management activities. We also held an additional Federal listening session and an Industry Symposium. The completed Job Task Analyses (JTA) were released for public review and comment. Comments revealed that the JTAs were so comprehensive that no single person could acquire all of the skills and experience captured – even over a lifetime in the profession. This led to the development of a paired down version of the knowledge, skills and abilities (core competencies) arranged into three levels with associated pay grades and military ranks.

The Facility Manager section was then put out for public comment in the FedBizOpps and sent to more than 200 representatives from government, industry and academia. Comments were transformative in that they made it very clear that a government-wide Program to implement the FBPTA, must be agnostic to GS job series or pay grade. Departments and Agencies across the Federal government have personnel operating and managing facilities from many different job series. Any meaningful organization of core competencies needs to account for the variability of pay grades performing at the same level and with the same basic roles and responsibilities that are department/agency, region and even facility dependent.

The next significant area of comment centered on how departments and agencies deploy their personnel.

Reviewers admired the system's three levels of increasing knowledge, skills and abilities as a "concept", but did not believe it was implementable government-wide. Departments and agencies deploy their personnel according to the scope and scale required by the facilities being operated and managed, and according to their own organizational idiosyncrasies. One agency may have a dedicated facility manager for a large stand-alone building, while another agency may have a number of individuals whose area of expertise is deployed across numerous facilities coming together in a "department" to accomplish all facilities operations and management tasks.

System Design:

We developed a system that focused on the highest impact core competencies common to every agency - remaining job series and pay grade agnostic. This system establishes (7) Core Competency Areas referenced in the law, along with (5) additional Core Competency Areas universally recognized for their impact on facilities operations and management. Further, we introduced an industry standard framework and nomenclature to better align core competencies with existing courses, certifications, degrees, licenses and registrations. It arranges the system into: Core Competency Areas, Core Competencies and Performances. We determined that most functions performed above the Facility/Cantonment Area level differed mainly in scope and scale rather than in content including: program management; policy development and implementation; performance measurement; providing subject matter expertise; budget formulation, advocacy and execution; and funding allocation. While important, these management and support functions are not the focus of the FBPTA and thus, are not the focus of our initial Program release.

The Program/system provides departments and agencies the maximum flexibility to implement the FBPTA according to how they are truly organized and deployed across their portfolios. Inherent to this level of flexibility, is the necessity for interaction between individuals and their supervisors at an operational level. Using the "performances", individuals and their supervisors will need to determine what core competencies are vital to performing their roles within the organization. A web-tool is being developed with OPM that allows individuals to enter, and choose from a menu of certifications, degrees, licenses and registrations which ones they currently hold. Qualifications will be mapped automatically to the core competencies that they demonstrate. This plus any courses the individual has completed, establishes their baseline. The difference between the individual's baseline and the core competencies required by the individual will form a "GAP". This GAP analysis will provide the individual and their supervisor the ability to create development plans and justify funding for training. Unfortunately, the extreme variability across department and agency systems makes it impossible to allow data to be "pushed" into the web-tool.

Opportunity:

The web-tool and this process presents an incredible opportunity to create a one-of-a-kind database that can be used to measure the effectiveness of our training programs by mapping them to a series of building performance measures that we will be asking for when personnel establish their account, and at the six and twelve month time periods following completed training. We will include inquiry into whether the measures are impacted by any extreme conditions – record hot summer, record cold winter, moving into a 24hr operations posture etc. This

direct and observable correlation of training to building performance will be a powerful vehicle for both public and private facilities operations and management personnel as they make the case for training budgets or as evidence of the efficacy of their products.

Details:

This Program is designed to pursue and present state-of-the-art knowledge and concepts per the law. As such, some of the terms and concepts may not be familiar to all personnel using this document. Where the potential for that exists, the term has been defined and a reference location given. In some cases, knowledge of a term or concept represents a “performance” under a core competency. To receive credit for this performance in the system, an individual will certify that they have reviewed the reference indicated – the honor system applies.

During the development of this Program, the question of how to deal with (On the-Job-Training = OJT) came up frequently. Our intention is to give credit where appropriate. However, the number of personnel that will be seeking OJT and the areas they will be seeking it in, could not be determined prior to the identification of the core competencies. Now that we have the core competencies, the web-tool is being designed to capture OJT requests so that the volume and scope can be analyzed and a program developed to provide vehicles for these organization to ensure their personnel possess the competencies that they are claiming credit for.

Conclusion:

The identification of the enclosed core competencies represents a significant amount of research and has been done in consultation with our industry, government and academic partners. This is a very complex system seeking to implement transformational concepts across the Federal government. We look forward to continuing our work with all the outstanding individuals and organizations that contributed to this effort.

FACILITY/FACILITIES			
Competency Area	Core Competency	Competency Area	Core Competency
1. Facilities Operations and Management	<ul style="list-style-type: none"> ○ Building Systems ○ Building Interior ○ Building Exterior ○ Other Facility Systems 	9. Project Management	<ul style="list-style-type: none"> ○ Initiate ○ Execute ○ Closeout ○ Training
2. Facilities Operations, Maintenance and Engineering	<ul style="list-style-type: none"> ○ Operating and Maintaining HVAC Systems ○ Operating and Maintaining Electrical and Mechanical Systems ○ Operating, Maintaining and Testing Life Safety Systems ○ General Building Maintenance ○ Best Practices and Innovation 	10. Business, Budget and Contracting	<ul style="list-style-type: none"> ○ Total Cost of Ownership (TCO) ○ Life-Cycle Assessment (LCA) ○ Contracting ○ Budget Formulation and Execution
3. Technology	<ul style="list-style-type: none"> ○ Technology Solutions ○ Building Automation Systems (BAS) ○ Maintenance Management System (MMS) 	11. Leadership and Innovation	<ul style="list-style-type: none"> ○ Communication and Administration ○ Personnel ○ Innovation ○ Enterprise Knowledge and Strategic Decision Making
4. Energy Management	<ul style="list-style-type: none"> ○ Systems and Demand Reduction ○ Assess Initial Conditions ○ Commissioning ○ Planning, Project and Program Management ○ Energy Savings Performance Contracts (ESPC) ○ Coordinate with Public Utilities 	12. Performance Measures	<ul style="list-style-type: none"> ○ FBPTA ○ Acquiring Data ○ Establishment and implementation
5. Safety	<ul style="list-style-type: none"> ○ Basic Requirements ○ Infrastructure ○ Contract Management ○ Occupant Interface 		
6. Design	<ul style="list-style-type: none"> ○ Planning ○ Infrastructure Systems 		
7. Sustainability	<ul style="list-style-type: none"> ○ Background ○ Regulations and Requirements Implementation 		
8. Water Efficiency	<ul style="list-style-type: none"> ○ Regulations, Goals and Best Practices ○ Water Audit 		

Large FACILITY/Stand-alone Facility(ies)/Cantonment Area(s)

Core Competency Area:	1. Facilities Operations and Management
Core Competency	Performances:
Building Systems	<ol style="list-style-type: none"> 1. Demonstrate familiarity with Building Systems: HVAC, Electrical (and Standby generators), Lighting, Mechanical/Plumbing (and Fire protection systems), Vertical transportation, Structural, Roofing, Building Envelope. 2. Demonstrate ability to work with Facilities team to assess a facility's need for building systems. 3. Demonstrate ability to oversee the acquisition, installation, and operation of building systems. 4. Demonstrate ability to work with Facilities Team to establish practices and procedures. 5. Demonstrate ability to work with Facilities Team to determine and administer the allocation of building systems' resources. 6. Demonstrate ability to monitor and evaluate how well building systems perform. 7. Demonstrate ability to manage corrective, preventive and predictive maintenance. 8. Demonstrate ability to work with Facilities Team to develop emergency procedures for building systems. 9. Demonstrate knowledge of how to implement disaster recovery plans for building systems as required.
Building Interior	<ol style="list-style-type: none"> 1. Demonstrate knowledge of how to evaluate building structures and permanent interiors. 2. Demonstrate ability to manage the service/repair requests and maintenance and cleaning needs of building structures and permanent interior elements. 3. Demonstrate ability to evaluate furniture and equipment performance. 4. Demonstrate ability to manage the maintenance and cleaning of furniture and equipment.
Building Exterior	<ol style="list-style-type: none"> 1. Demonstrate familiarity with managing grounds and exteriors <ul style="list-style-type: none"> o Parking structures o Site utilities o Landscaping and grounds o Exterior envelope (roof, brick, masonry, etc.) 2. Demonstrate ability to assess the effect of climate and extreme environmental conditions. 3. Demonstrate ability to evaluate the performance of grounds and exterior elements. 4. Demonstrate ability to assess the need for alterations in grounds and exterior elements. 5. Demonstrate ability to manage the maintenance and custodial needs of grounds and exterior elements.
Other Facility Systems	<ol style="list-style-type: none"> 1. Demonstrate ability to manage vehicles and related equipment as required.

	<ol style="list-style-type: none"> 2. Demonstrate ability to work with Security Personnel as required on: <ul style="list-style-type: none"> o Personnel ingress/egress o Controlled access systems o Backup power requirements o Emergency Lighting 3. Demonstrate ability to manage pest control and waste systems. 4. Demonstrate ability to work with interior communications (phone, computer, video conferencing) personnel to ensure facility requirements are met and service interruption procedures are in place.
Core Competency Area:	2. Facilities Operations, Maintenance and Engineering
Core Competency	Performances:
<p align="center"><i>Operating and Maintaining HVAC Systems</i></p>	<ol style="list-style-type: none"> 1. Demonstrate ability to collecting Operating Data on system. <ul style="list-style-type: none"> o Read required: pressures, temperatures, control panels and other operating parameters as required. (Using gauges, meters and computer systems as necessary) o Check oil levels and other required levels o Log equipment reading and report any inconsistencies 2. Demonstrate ability to adjust System Parameters as required. 3. Demonstrate understanding of indoor air quality – how to test and adjust. (Air pollutant sources, biological contaminants, air sampling, CO₂ measurement, mold, control strategies, system balancing, ventilation) 4. Demonstrate ability to analyze HVAC system performance. (chillers, boilers, ventilation, pressure, temperature, amperage, voltage, air flow, water flow) <ul style="list-style-type: none"> o Collect trends of operational parameters o Conduct performance tests and collect data o Compare trends and data o Report findings 5. Demonstrate ability to coordinate HVAC system changes. 6. Demonstrate knowledge and ability to maintain all HVAC Systems (clean, change and perform preventative maintenance...) 7. Demonstrate knowledge and ability to repair all HVAC Systems (calibrate, change, fabricate, recover, replace and trouble shoot as required...) <ul style="list-style-type: none"> o Ability to perform advanced trouble shooting techniques using appropriate tools. 8. Demonstrate knowledge and ability to optimize HVAC controls. (ex calibrated energy savings, reduced ventilation where possible, hot/cold water resets, economizer control, start/stop timers, demand load shedding)

<p><i>Operating and Maintaining Electrical and Mechanical Systems</i></p>	<ol style="list-style-type: none"> 1. Demonstrate knowledge and ability with Lighting Systems – trouble shoot lighting systems, adjust lighting programming, replace lamps, replace ballasts, maintain lamps and ballast inventory, 2. Demonstrate knowledge and ability to change: electrical fuses, control boards, electrical fixtures, and electrical relays. 3. Demonstrate knowledge and ability to replace electric motors. 4. Demonstrate knowledge and ability to maintain plumbing fixtures, sewage injectors, and water heaters. 5. Demonstrate knowledge and ability to identify irrigation leaks. 6. Demonstrate knowledge and ability to all drains and backflow preventers 7. Demonstrate knowledge and ability to maintain pressure-reducing valves. 8. Demonstrate knowledge and ability to replace water filters. 9. Demonstrate knowledge and ability to winterize irrigation systems if necessary.
<p><i>Operating, Maintaining and Testing Life Safety Systems</i></p>	<ol style="list-style-type: none"> 1. Demonstrate knowledge and ability to operate Fire Alarm panels and test the entire fire alarm system. 2. Demonstrate knowledge and ability to test the emergency generators. 3. Demonstrate knowledge and ability to test fire pumps and sprinkler systems. 4. Demonstrate knowledge and ability to test smoke and heat sensors. 5. Demonstrate knowledge and ability to inspect fire extinguishers.
<p><i>General Building Maintenance</i></p>	<ol style="list-style-type: none"> 1. Demonstrate knowledge and ability to maintain door hardware. 2. Demonstrate knowledge and ability to maintain roof systems. 3. Demonstrate knowledge and ability to maintain ceiling tiles. 4. Demonstrate knowledge and ability to maintain flooring systems. 5. Demonstrate knowledge and ability to maintain window systems. 6. Demonstrate knowledge and ability to perform minor wall repairs.
<p><i>Best Practices and Innovation</i></p>	<ol style="list-style-type: none"> 1. Demonstrate knowledge of the “Ten Steps to Operational Efficiency” – <i>FEMP O&M Best Practices Guide Rev 3.0 pg 291</i>. (http://www1.eere.energy.gov/femp/pdfs/omguide_complete.pdf) 2. Demonstrate knowledge of (DOE/PNNL) “Retuning Project” and how it could be applied – (Re-tuning is intended to provide building operators, building managers and energy service providers with the necessary skills to identify no- and low-cost operational problems that plague commercial buildings and provide the skills necessary to take corrective action.) http://www.pnnl.gov/buildingretuning/ 3. Demonstrate knowledge of and the ability to perform “predictive maintenance” (Predictive maintenance attempts to detect the onset of a degradation mechanism with the goal of correcting that degradation prior

	<p>to significant deterioration in the component or equipment.) <i>FEMP O&M Best Practices Release 3.0 pg 59</i> (http://www1.eere.energy.gov/femp/pdfs/omguide_complete.pdf)</p> <ol style="list-style-type: none"> 4. Demonstrate knowledge of ALL types of commissioning, and what is required in the Energy Independence and Security Act 2007 (EISA). 5. Demonstrate knowledge of metering and sub-metering for energy and water and how they contribute to systems optimization. 6. Demonstrate knowledge of O&M Frontiers like those found in <i>FEMP O&M Best Practices Guide Rev 3.0 pg 287</i>. (http://www1.eere.energy.gov/femp/pdfs/omguide_complete.pdf) 7. Demonstrate knowledge of advanced trouble-shooting techniques on a systems-wide basis.
Core Competency Area:	3. Technology
Core Competency	Performances:
Technology Solutions	<ol style="list-style-type: none"> 1. Demonstrate ability to monitor information and trends related to facility management technologies. 2. Demonstrate ability to identify and interface with internal and external accountable resources, e.g., external vendors, internal or external IT systems owners. 3. Demonstrate ability to identify evaluation criteria, evaluate, and recommend facility management technologies solutions. 4. Demonstrate ability to assess how changes to facility management technologies will impact current infrastructure, processes, and building systems. 5. Demonstrate ability to plan for and oversee the acquisition, installation, operation, maintenance, upgrade, and disposition of components supporting facility management technologies. 6. Demonstrate ability to recommend and communicate policies. Establish practices and procedures. 7. Demonstrate ability to develop and implement training programs for facilities staff and ancillary resources. 8. Demonstrate ability to monitor performance of facility management technologies and make appropriate recommendations when modifications are needed. 9. Demonstrate ability to manage corrective, preventive, and predictive maintenance. 10. Demonstrate ability to develop, test and implement, when necessary, emergency procedures and disaster recovery plans.
Building Automation Systems (BAS)	<ol style="list-style-type: none"> 1. Demonstrate knowledge of a Building Automation System (BAS) and Maintenance Management Systems (MMS) <ul style="list-style-type: none"> o How equipment is entered into BAS o Participate in the establishment of control strategies o Monitor and implement overrides when necessary, alarm procedures

	<ul style="list-style-type: none"> ○ Monitor, analyze and report trends ○ How BAS and MMS inter-relate for operations and accounting systems <ol style="list-style-type: none"> 2. Demonstrate understanding of the bridge between the technical and business aspects of facilities management. 3. Demonstrate ability to conduct trouble-shooting procedures at the equipment, system and building levels. 4. Demonstrate ability to conduct trouble-shooting of critical systems: access control systems, fire alarm and suppression systems, elevator systems, emergency lighting systems, and emergency communication systems.
<p>Maintenance Management System (MMS)</p>	<ol style="list-style-type: none"> 1. Demonstrate knowledge of Maintenance Management Systems - Computer Assisted Facilities Management (CAFM) AND Computerized Maintenance Management Systems (CMMS) 2. Demonstrate understanding of MMS AND CMMS: <ul style="list-style-type: none"> ○ Understand how to setup the program and input data on equipment and items to measure ○ Establish baselines with standards and priorities and backup requirements ○ Establish maintenance schedules ○ Setup reports, frequency, levels and user access ○ Establish inter-operability with accounting system ○ Establish inventory thresholds/levels and determine maintenance tasks ○ Determine user roles (access levels) and identify system administrators ○ Establish close-out procedures ○ Process departmental charge-backs ○ Determine costs/pricing structure (labor, materials, overhead, etc.) ○ Ensure system maintenance back up data and develop data archiving strategy ○ Train users, setup dashboard and identify in-house skills inventory
<p>Core Competency Area:</p>	<p>4. Energy Management</p>
<p>Core Competency</p>	<p>Performances:</p>
<p>Systems and Demand Reduction</p>	<ol style="list-style-type: none"> 1. Demonstrate knowledge of building systems and how they affect energy use: <ul style="list-style-type: none"> ○ HVAC System ○ Electrical Systems ○ Motors and drives ○ Lighting Systems ○ Building Envelope ○ Fuel Systems - Fuel Selection

	<ol style="list-style-type: none"> 2. Demonstrate knowledge of Combined Heat and Power (CHP) Systems and distributed generation. 3. Demonstrate knowledge of Renewable Energy Systems – Solar (Thermal and Photovoltaic), Wind, Biomass, Hydropower. 4. Demonstrate knowledge of Thermal Energy Storage systems – (ex. chilled water storage, ice storage, potential energy storage etc) 5. Demonstrate knowledge of Building Automation Systems (BAS) and Control Systems. 6. Demonstrate knowledge of Enhanced Automation (EA) – “the variety of potential strategies to increase the capability of the existing energy or building management systems to control current, and plan for future, building energy costs while maintaining the comfort and productivity of all building occupants.” http://www.energy.ca.gov/enhancedautomation/ 7. Demonstrate knowledge of Energy Management Systems (EMS) and Energy Information Systems (EIS). 8. Demonstrate knowledge of re-programming current systems and expanding network of sensors and control devices to optimize HVAC, lighting and other automated systems. 9. Demonstrate knowledge of how to incorporate occupancy sensors, task lighting, thermostatic set-points with weather forecasting and other demand linked strategies to optimize building performance.
Assess Initial Conditions	<ol style="list-style-type: none"> 1. Demonstrate knowledge of how to perform and Energy Savings Assessment: Example http://www1.eere.energy.gov/femp/program/om_wgresources.html <ul style="list-style-type: none"> o Role of Energy Audits o Energy Audit – Types I, II, III o Utility Bill Analysis 2. Demonstrate knowledge of laws, regulations and Executive Orders that pertain to energy management, status of compliance and existing energy management plans. See FEMP website of list of laws and regulations: http://www1.eere.energy.gov/femp/regulations/regulations.html 3. Demonstrate knowledge of applicable Codes and Standards – (ex. ISO 50001, ASHRAE/IESNA Std 90.1-2010, ASHRAE 62.1-2010, Model Energy Code, ASHRAE Standard 135-2008, ASHRAE Std 189.1-2009 etc)
Commissioning and Energy Savings Performance Contracts (ESPC)	<ol style="list-style-type: none"> 1. Demonstrate knowledge of all types of Commissioning: initial commissioning, retro-commissioning, re-commissioning, Continuous (on-going) Commissioning – the differences, and commissioning requirements in laws and executive orders. 2. Demonstrate knowledge of commissioning requirements for: measurement and verification, phasing and commission agent duties. 3. Demonstrate knowledge of the Energy Savings Performance Contracting (ESPC) procedures and requirements:

	<ul style="list-style-type: none"> ○ Measurement and verification ○ Energy Savings Companies (ESCO) ○ Regulations pertaining to ESPCs ○ Utility Financing 	<ul style="list-style-type: none"> ○ Demand side management ○ Savings determination ○ Risk Assessment ○ Loans, Stocks and Bonds
<p><i>Coordinate with Public Utilities</i></p>	<p>4. Demonstrate knowledge of Shared Savings Contracts, Power Purchase Agreements (PPA), Utility Energy Service Contracts (UESC) and Enhanced Use Leases (EUL).</p>	
<p><i>Planning, Project and Program Management</i></p>	<ol style="list-style-type: none"> 1. Demonstrate knowledge of utility service providers for facility (ies). 2. Demonstrate knowledge of utility meters – location, reading and data management. 3. Demonstrate knowledge of utility billing and rate structure. 4. Demonstrate knowledge of local utility programs – special rate programs and incentives. 5. Demonstrate the ability to work with Facilities team to negotiate rates and discounts. 6. Demonstrate knowledge of how to work with utility departments to locate lines. 7. Demonstrate knowledge of utility emergency procedures and contacts. <ol style="list-style-type: none"> 1. Demonstrate knowledge and ability to develop an Energy master plan. 2. Demonstrate knowledge and ability to develop a metering Program. 3. Demonstrate knowledge and ability to develop energy account database. 4. Demonstrate knowledge and ability to provide planning support for energy budget. 5. Demonstrate knowledge and ability to identify and develop low-cost and no-cost energy efficiency opportunities. 6. Demonstrate knowledge and ability to provide operational support to energy management control systems. 7. Demonstrate knowledge and ability to develop/assist in project identification and justification. 8. Demonstrate knowledge and ability to develop UESC and ESPC projects. 9. Demonstrate knowledge and ability to monitor facility energy projects. 10. Demonstrate knowledge and ability to provide peak load management. 11. Demonstrate knowledge and ability to manage an energy awareness program and establish/support an awards program recognizing energy efficiency efforts. 12. Demonstrate knowledge and ability to develop and distribute energy articles, newsletters, notices, posters and signs. 13. Demonstrate knowledge and ability to coordinate Energy Awareness Week/Month. 14. Demonstrate the ability to calculate and respond appropriately to established energy metrics such as Power Utilization Efficiency (PUE). <ul style="list-style-type: none"> ○ Where and how to take measurements 	

	<ul style="list-style-type: none"> ○ How to interpret the data ○ How to explain the results to people in operations and upper management ○ How to develop an improvement strategy <p>15. Demonstrate the ability to recommend and/or acquire certifications for specific skills</p>
Core Competency Area:	5. Safety
Core Competency	Performances:
Basic Requirements	<ol style="list-style-type: none"> 1. Complete Department/Agency required Safety training that meets or exceeds the requirements of OSHA, General Industry and/or Construction 10 and 30 hr programs. 2. Complete Electrical Safety course and be familiar with electrical codes and regulations and best practices.
Infrastructure	<ol style="list-style-type: none"> 1. Demonstrate knowledge of control systems for: mold, asbestos, Histoplasmosis, PCB in transformers. 2. Demonstrate knowledge of proper water treatment to prevent Legionnaire's Disease. 3. Demonstrate knowledge of ventilation systems and prevention of contaminant introduction and cross contamination. 4. Demonstrate knowledge of fire prevention systems in hazardous locations/operations; food preparation areas; electrical transformers. 5. Demonstrate the ability to manage compliance with NFPA 70E -2012 for determining incident energy and marking the electrical components for the hazard distance and proper arc rated protective equipment 6. Demonstrate knowledge of control of electric vehicle battery fires, internal use, occupant use and visitor vehicles. 7. Demonstrate the ability to ensure that all building confined spaces are evaluated and marked. 8. Demonstrate the ability to ensure proper maintenance of special purpose, unique design or antiquated fire alarm and suppression systems. 9. Demonstrate the ability to manage Compliance with elevator inspection requirements.
Contract Management	<ol style="list-style-type: none"> 1. Demonstrate knowledge and ability to protect occupants with signs, barriers, and fencing and allow NO renovation of occupied space. 2. Demonstrate knowledge of permit system for hot welding work and for confined space work. 3. Demonstrate knowledge of fall protection of people and tools/materials for contractor and occupants. 4. Demonstrate knowledge of proper disposal of hazardous, toxic and biologic materials. 5. Demonstrate knowledge of protection of electrical hazards to employees and to building infrastructure; arc rated clothing, lock out/tag out program. 6. Demonstrate knowledge of compliant protective equipment for contract and sub contract workers

	<ol style="list-style-type: none"> 7. Demonstrate knowledge of adequate fall protection working from ladders/heights 8. Demonstrate knowledge of, and ability to manage compliance with OSHA 1910 and 1926 standards and Army Corps of Engineers construction safety manual EM 385-1-1.
Occupant Interface	<ol style="list-style-type: none"> 1. Demonstrate ability to ensure tenant renovations have adequate design, does not interfere with other tenants, local code compliance, high quality of work 2. Demonstrate knowledge of and ability to manage proper storage of hazardous, toxic and biologic materials 3. Demonstrate knowledge of and ability to manage proper disposal of hazardous (such as kitchen grease) and biologic materials (medical or research) 4. Demonstrate knowledge of and ability to manage prohibition of fire hazards. 5. Demonstrate knowledge of and ability to manage adequate ventilation of work spaces, adequate exhaust and makeup air, no short circuit designs 6. Demonstrate knowledge of and ability to manage adequate cleanliness of indoor firing ranges-ventilation, cleanup of lead dust. 7. Demonstrate knowledge of and ability to manage adequate electric vehicle battery charging stations to prevent fires (as required). 8. Demonstrate knowledge of and ability to manage prohibition of non UL-rate unsafe electrical equipment. 9. Demonstrate knowledge of and ability to manage the documentation of occupant safety and health complaints and their resolution. 10. Demonstrate knowledge of and ability to manage/conduct: <ul style="list-style-type: none"> o Creation of fire and life safety plans o Fire, HAZMAT and life safety drills o Creation and posting of evacuation routes o Creation of a personnel accountability system o Inspection of all components of the fire and life safety systems – (ex. exit lights, fire extinguishers, fire suppression systems, incident announcement systems etc)
Core Competency Area:	6. Design
Core Competency	Performances:
Planning	<ol style="list-style-type: none"> 1. Demonstrate knowledge and ability of conduct an assessment of “needs” that will evaluate whether current facilities can respond to a new requirement or whether a “project” must be developed to respond to the new requirement. 2. Demonstrate knowledge and ability to utilize Agency/Department planning tools (ex DD form 1391 or Prospectus) and funding thresholds to define project requirements, propose project site, estimate project

	<p>costs, justify need, and develop scope.</p> <ol style="list-style-type: none"> 3. Demonstrate knowledge and ability to perform due diligence analysis regarding: <ul style="list-style-type: none"> ○ Best site selection according to transportation connectivity ○ Interrelationships between physical, climatic, environmental, economic, political, sustainability, historic preservation, archeological and social elements ○ Interrelationships between Federal, State and local policies – codes, laws and regulations ○ Long-range vice short-range development plans 4. Demonstrate understanding of the concept of “Deep Energy Retrofits (DER)” and how and when to initiate. <p>Working Concept Definition: An integrated team, Implementing a deep energy retrofit should piggyback efficiency improvements on already planned capital improvements and breaks in occupancy, take advantage of advanced energy modeling and life cycle cost analysis methods to identify situations in building’s life cycle that trigger DER design and analysis, verify savings and continuously improve energy performance. http://apps1.eere.energy.gov/femp/training/course_detail_live.cfm/CourseDateId=387</p> 5. Demonstrate knowledge of certification systems used by the Federal government and industry (ex. Leadership Energy Environmental Design –LEED, Green Globes etc) 6. Demonstrate knowledge of the Sustainable Facilities Tool – www.SFTool.gov 7. Demonstrate knowledge and ability to use Geographic Information System (GIS) and other Dept/Agency software programs in preparation of all required documents.
Infrastructure Systems	<ol style="list-style-type: none"> 1. Demonstrate knowledge and understanding of Architectural and Engineering Systems: <ul style="list-style-type: none"> ○ Roofing Systems ○ Building Envelope Systems ○ Window Systems ○ HVAC Systems ○ Electrical Systems ○ Telecommunication Systems ○ All Lighting Systems ○ Fire Protection Systems ○ BAS ○ IT Systems – installation arrangement and energy requirements ○ Interior Design ○ Landscape Architectural Systems ○ Plumbing Systems ○ Occupant needs and requirements/controls

	<ul style="list-style-type: none"> ○ Resource flows – energy, water and waste
Core Competency Area:	7. Sustainability
Core Competency	Performances:
Background	<p>The term Sustainability applies within the definition of High Performance Buildings from EISA 07. <i>“A building that integrates and optimizes on a lifecycle basis all major high performance attributes, including energy [and water] conservation, environment, safety, security, durability, accessibility, cost-benefit, productivity, sustainability, functionality, and operational considerations”</i> (Energy Independence and Security Act 2007 401 PL 110-140).</p> <p>Within this definition, Sustainability is recognized to mean “development that meets the needs of the present, without compromising the ability of future generations to meet their own needs” - from the Brundtland Report, Our Common Future (1987). Experts within the Facilities Management industry have used the triple bottom line - balancing environmental, economic and social goals (Hodges 2009; Lewis et al 2009) to take the philosophical definition and make it practical.</p> <p>The nature of “Sustainability” is interdisciplinary and will contain elements from environmental, operations, maintenance, contracting and management etc.</p>
Regulations and Requirements	<ol style="list-style-type: none"> 1. Demonstrate knowledge of the Guiding Principles for Federal High Performance and Sustainable Buildings. http://www.wbdg.org/references/fhpsb.php and Federal Mandates http://www.wbdg.org/references/federal_mandates.php 2. Demonstrate knowledge of Dept/Agency Strategic Sustainability Performance Plan (SSPP). 3. Demonstrate knowledge of Dept/Agency Resiliency and Adaptation Plan.
Implementation	<ol style="list-style-type: none"> 1. Demonstrate knowledge and ability to develop and/or coordinate: <ul style="list-style-type: none"> ○ A recycling program ○ A HAZMAT reduction program ○ A green purchasing program ○ Alternative transportation and workplace strategies ○ Sustainability audit and inspection programs ○ Universal Waste Audit ○ Water Audit ○ Energy Audit

	<ol style="list-style-type: none"> 2. Demonstrate knowledge of how the above comes together in the “Sustainability Section” of the Facility Master Plan. 3. Demonstrate knowledge of the Sustainable Facilities Tool – www.SFTool.gov 4. Demonstrate ability to work with subject matter experts to calculate the “qualitative impacts” of sustainability program. <ul style="list-style-type: none"> o Waste reduction o Greenhouse Gas reduction o Operational impacts o Community impacts 5. Demonstrate knowledge of implementing a “recognition program” for sustainability efforts.
Core Competency Area:	8. Water Efficiency
Core Competency	Performances:
<i>Regulations, Goals and Best Practices</i>	<ol style="list-style-type: none"> 1. Demonstrate knowledge of water efficiency principles that are applicable in both the public and private arena. 2. Demonstrate knowledge of Federal water policy and goals found in Laws and Executive Orders: <ul style="list-style-type: none"> o Executive Order 13123, Guidance to Federal Agencies for Determining Baseline Water Usage (http://www1.eere.energy.gov/femp/program/waterefficiency_baseline.html) o Executive Order 13123, Guidance to Establish Water Efficiency Improvement Goal for Federal Agencies (http://www1.eere.energy.gov/femp/program/waterefficiency_goalguidance.html) o EO 13423, 13514, Energy Policy Act 2005 and Energy Independence and Security Act (EISA 07). 3. Demonstrate knowledge of Water Efficiency Goal Guidance for the Federal Government. (http://www1.eere.energy.gov/femp/program/waterefficiency_goalguidance.html) 4. Demonstrate knowledge of current Dept/Agency water guidance – Uniform Facilities Code (UFC), Department or agency guidebooks. 5. Demonstrate knowledge of how the following affect water use and efficiency and ability to make recommendations based on lifecycle analysis and best practices to facilities team: <ul style="list-style-type: none"> o Distribution System Audits, leak detection and repair o Water-efficient landscaping with focus on Xeriscaping - Defn: landscaping method that employs drought-resistant plants in an effort to conserve resources, especially water) o Toilets and Urinals o Showerhead and Faucets o Boilers and Steam Systems o Single-pass Cooling Equipment

	<ul style="list-style-type: none"> ○ Cooling Tower Management ○ Any miscellaneous high water-using processes ○ Water Reuse and Recycling
Water Audit	<ol style="list-style-type: none"> 1. Demonstrate knowledge and ability to conduct both a Top-down and Bottom-up water audit: <ul style="list-style-type: none"> ○ Top-down: <ul style="list-style-type: none"> ● Focus on the total system to set priorities ● Comprehensive scope ● Goals, objectives, procedures are then pushed down to the individual parts ○ Bottom-up: <ul style="list-style-type: none"> ● Focus on the specifics of each end-use ● Sum the parts to define the whole ● Goals, objectives, procedures are developed at the lower levels and pushed upward
Core Competency Area:	9. Project Management
Core Competency	Performances:
Initiate	<ol style="list-style-type: none"> 1. Demonstrate ability to work in integrated project teams (Facility Managers, Building Operating Engineers, Planners, Contracting Officers, Contractors, Occupants etc) to execute, small, medium and large projects. 2. Demonstrate ability to: <ul style="list-style-type: none"> ○ Follow Project Management processes and procedures per your organization's preferred methodology (ex. ISO 9000, PMI, WBS, in-house system etc) ○ Conduct needs assessment and define project requirements ○ Estimate costs and develop Project Plan and Project timeline ○ Develop project communications plan ○ Obtain any required project permits ○ Develop project accounting procedures ○ Ensure regulator compliance 3. If Project will be completed by contractors, demonstrate the ability to: <ul style="list-style-type: none"> ○ Develop Scope Of Work (SOW) and the Request For Proposal (RFP) ○ Work with procurement team to select contractor ○ Review Contractor Plans ○ Work with Contracting Officer on all contract administration requirements
Execute	<ol style="list-style-type: none"> 1. Demonstrate ability to:

	<ul style="list-style-type: none"> ○ Ensure facility services are maintained during project execution ○ Assign project resources ○ Inspect project work ○ Manage impacts of project on existing facility ○ Conduct project meetings ○ Report project progress ○ Monitor project costs ○ Monitor project schedules <p>2. If Project will be completed by contractors, demonstrate the ability to:</p> <ul style="list-style-type: none"> ○ Produce project change orders ○ Attend site reviews ○ If Contracting Officer Representative - approve project payments/draws ○ Resolve project issues ○ Obtain maintenance contracts ○ Secure project warranties ○ Arrange staff training for new equipment ○ Develop spare parts lists
Closeout	<p>1. Demonstrate knowledge of and ability to:</p> <ul style="list-style-type: none"> ○ Obtain project as-builts ○ Perform project close-outs ○ Create and complete project punch-lists ○ Obtain certificate of occupancy ○ Accept beneficial use ○ Commission the project ○ Review lessons learned ○ Work with contracting personnel to: <ul style="list-style-type: none"> ● Obtain lien waivers/release of liens if required ● Issue final payment ● Create budget variance report
Training	<p>1. Demonstrate knowledge of PM software and scheduling software, where to find technical resources on PM.</p> <ul style="list-style-type: none"> ○ Demonstrate ability to train those junior to you in these PM aspects and on these tools ○ Demonstrate ability to develop and implement a project Quality Assessment (QA) Program to ensure

	that projects are completed as designed with the specified materials by qualified personnel.												
Core Competency Area:	10. Business, Budget and Contracting												
Core Competency	Performances:												
Total Cost of Ownership (TCO)	<ol style="list-style-type: none"> Demonstrate knowledge of the mission of the Facilities' Occupants and how the facilities enhance that mission. Demonstrate knowledge that the TCO is best determined through Life-Cycle Cost Analysis (LCCA) for Facilities. Demonstrate knowledge of how to find/calculate the basic costs required for an LCCA: <table border="1" data-bbox="537 516 1764 667"> <tr> <td>Initial Costs – Acquisition, Construction etc</td> <td>Residual Values – Resale values, Disposal costs</td> </tr> <tr> <td>Fuel Costs</td> <td>Other Costs - Finance Charges(interest payments) etc</td> </tr> <tr> <td>O&M and Repair costs</td> <td>Non-Monetary Benefits or Costs</td> </tr> <tr> <td>Replacement Costs</td> <td></td> </tr> </table> Demonstrate knowledge of additional methods for calculating TCO and other economic analysis can be used if they use the same parameters and time period. <table border="1" data-bbox="537 773 1787 849"> <tr> <td>Net Savings (or Net Benefits)</td> <td>Savings to Investment Ratio (SIR) or Benefit-Cost Ratio</td> </tr> <tr> <td>Internal Rate of Return (IRR)</td> <td>Payback Period</td> </tr> </table> Demonstrate knowledge of available LCCA software. <ul style="list-style-type: none"> o Building Life-Cycle Cost (BLCC) Program - FEMP o ECONPAK – Army Corps of Engineers o Energy 10 – has a cost estimating feature o SuccessEstimator – from U.S. Cost 	Initial Costs – Acquisition, Construction etc	Residual Values – Resale values, Disposal costs	Fuel Costs	Other Costs - Finance Charges(interest payments) etc	O&M and Repair costs	Non-Monetary Benefits or Costs	Replacement Costs		Net Savings (or Net Benefits)	Savings to Investment Ratio (SIR) or Benefit-Cost Ratio	Internal Rate of Return (IRR)	Payback Period
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Internal Rate of Return (IRR)	Payback Period												
Life-Cycle Assessment (LCA)	<ol style="list-style-type: none"> Demonstrate knowledge of the difference between a Life Cycle Assessment (LCA) and an LCCA. Demonstrate knowledge and ability to use a LCA to estimate the environmental impacts of a material, product or service through its entire life cycle. Demonstrate knowledge of ISO 14040. Demonstrate knowledge of an ability to use LCA Software: <ul style="list-style-type: none"> o Building for Environmental and Economic Sustainability (BEES) o ATHENA Environmental Impact Estimator 												

<p>Contracting</p>	<ol style="list-style-type: none"> 1. Demonstrate knowledge of Contracting Officer Representative (COR) duties, responsibilities, training, certification and maintenance of certification. 2. Demonstrate knowledge of rules and requirements for purchasing products and services. 3. Demonstrate ability to assess technical requirements needed to ensure delivery and quality of services/products. 4. Demonstrate ability to create an effective Statement Of Work (SOW) for COR or Contracting Officer to ensure proper procurement of a product or service. 5. Demonstrate knowledge of and ability to effectively govern/oversee a contract to ensure compliance and full value of the service or product being provided. <ul style="list-style-type: none"> o Quality Assurance Audits and Indicators o Required Measurement and Verification o Performance Audits and Surveys o Customer Satisfaction Surveys o Compliance with Federal, State and Local regulations o Compliance with all Safety laws and requirements o Benchmarking Progress
<p>Budget Formulation and Execution</p>	<ol style="list-style-type: none"> 1. Demonstrate ability to develop and manage a project/program budget. 2. Demonstrate knowledge of budget submission requirements. 3. Demonstrate knowledge of historical budget records and costs and how to use in forecasting. 4. Demonstrate ability to quantify potential for cost savings and cost avoidance. 5. Demonstrate ability to use LCCA in budget preparation. 6. Demonstrate ability to identify quantitative and qualitative risks. 7. Demonstrate ability to advocate for funding using economic analysis. 8. Demonstrate ability to prioritize projects/programs based on funding levels. 9. Demonstrate ability to manage operating budget and produce required financial reports. 10. Demonstrate knowledge of invoice/expenditure approval processes. 11. Demonstrate ability to recommend/conduct funding reallocation based on changing priorities. 12. Demonstrate ability to conduct periodic financial reviews and produce required reports.
<p>Core Competency Area:</p>	<p>11. Leadership and Innovation</p>
<p>Core Competency</p>	<p>Performances:</p>
<p>Communication and Administration</p>	<ol style="list-style-type: none"> 1. Demonstrate ability to: <ul style="list-style-type: none"> o Write clear, concise, and well organized documents

	<ul style="list-style-type: none"> ○ Speak in a clear, concise, and well organized manner (public and interpersonal) ○ Listen effectively and communicate understanding ○ Give direction ○ Actively clarify interpretations and confirm understanding ○ Make oral presentations ○ Present information visually ○ Use communication technologies ○ Conduct effective meetings ○ Comprehend written and graphic information ○ Comprehend financial and technical information ○ Negotiate for services, resources, information and commitments ○ Establish personal and professional networks <p>2. Demonstrate ability to supervise personnel as required:</p> <ul style="list-style-type: none"> ○ Plan staffing needs and requirements ○ Hire, contract, reassign, retrain, right-size ○ Coordinate personnel assignments ○ Coordinate work performed as contracted services ○ Evaluate performance ○ Support personnel development ○ Provide leadership <p>3. Demonstrate ability to perform administrative duties:</p> <ul style="list-style-type: none"> ○ Administer policies, procedures and practices ○ Administer the acquisition, distribution and use of material resources ○ Maintain documentation systems
Personnel	<p>1. Demonstrate knowledge and ability to:</p> <ul style="list-style-type: none"> ○ Evaluate and manage the facility's support of organizational goals and objectives. ○ Monitor changes in laws and regulations. ○ Assure the facility and its operation complies with laws and regulations ○ Monitor and assure changes in the facility function and services ○ Monitor information and trends about human and environmental concerns ○ Ensure training is conducted to maintain safe and effective use of the facility ○ Conduct due diligence studies

	<ol style="list-style-type: none"> 2. Demonstrate knowledge and ability to: <ul style="list-style-type: none"> ○ Develop or participate in the development of emergency plans ○ Assure people are trained in emergency procedures ○ Assure all emergency systems and procedures are tested as planned ○ Assure emergency drills and conducted ○ Develop or participate in the development of recovery plans
Innovation	<ol style="list-style-type: none"> 1. Demonstrate knowledge and ability to investigate ways to improve facility services. 2. Demonstrate knowledge and ability to assess risks and opportunities. 3. Demonstrate knowledge and ability to conduct pilot tests when developing new procedures. 4. Demonstrate knowledge of the on-line National Science Foundation library of Federal Facilities related publications – (ex Core Competencies for Federal Facilities Asset Managers Through 2020, Predicting Outcomes of Investment in Maintenance and Repair of Federal Facilities) http://search.nap.edu/napsearch.php?term=Federal+facilities&x=16&y=15 5. Demonstrate knowledge of Federal government “Knowledge Hubs” – (Whole Building Design Guide, Fed Center) www.wbdg.org and www.fedcenter.gov 6. Demonstrate knowledge of the offices, programs and National Labs at DOE that drive innovation in Facilities operation and management. [ex Office of Energy Efficiency and Renewable Energy (EERE) Federal Energy Management Program (FEMP), Lawrence Berkeley National Lab (LBNL)] http://energy.gov/offices 7. Demonstrate knowledge of GSA’s Green Proving Ground Program - http://www.gsa.gov/portal/category/102491 8. Demonstrate knowledge of the training and certifications provided by Industry Associations and Professional Societies in Facilities Operations and Management, Energy Management, Sustainability, Project Management etc. 9. Demonstrate knowledge of University Facilities Management degrees and certifications. 10. Demonstrate ability to translate innovative ideas into actionable tasks: <ul style="list-style-type: none"> ○ Work with occupants, and facilities’ team to analyze and ensure alignment of Facilities with the mission of Dept/Agency on a macro level and the specific occupant’s deliverables on a micro level ○ Work with occupants, and facilities’ team to integrate people, places, processes and technologies throughout all interconnected organizations ○ Using knowledge gained from the above sources and ingenuity born from day-to-day in the field operations, find ways to innovate across traditional macro and micro organizational boundaries

Enterprise Knowledge and Strategic Decision Making	<ol style="list-style-type: none"> 1. Demonstrate knowledge of “continuous retuning” and the potential savings represented by a government-wide shift to this operating mode (ex A 10-30% reduction in electricity use across Federal facilities represents a savings of between \$700,000 million and \$2.1Billion annual – in 2009 dollars) 2. Demonstrate knowledge of the National Security role that Federal Facilities play – housing Fed Dept/Agencies for operations, training, disaster response and energy/resource use. 3. Demonstrate knowledge and ability to drive a “Change Management” process - a structured approach to shifting/transitioning individuals, teams, and organizations from a current state to a desired future state. 4. Demonstrate knowledge and ability to move from the Operational (the who and when of things getting done) to Tactical (what we do) to the Strategic (why we do what we do). 5. Demonstrate ability to strategically allocate all forms of “capital” – human(people), physical(facilities), economic(money) and environmental(land and resources). 6. Demonstrate ability to provide decision makers with better information about the total long-term costs and consequences of a particular course of action. 7. Demonstrate ability to participate in the organization’s strategic planning at the executive level in order to translate between the organization’s missions and its facilities portfolio and clearly communicate how real estate and facilities can support these missions.
Core Competency Area:	12. Performance Measures
Core Competency	Performances:
Federal Buildings Personnel Training Act	<ol style="list-style-type: none"> 1. Demonstrate knowledge of the requirements under the Federal Buildings Personnel Training Act 2010. 2. Demonstrate knowledge of how to use www.FMI.innovations.gov to view core competencies, methods to demonstrate them, curriculum and to report compliance with the law.
Acquiring Data	<ol style="list-style-type: none"> 1. Demonstrate knowledge of the differences between quantitative and qualitative data and how to gather/calculate each. 2. Demonstrate knowledge of key building performance measures, where and how to read them, and reporting requirements. 3. Demonstrate knowledge of what data is necessary to enable “continuous retuning.” 4. Demonstrate ability to determine what records provide the “best fit” data for strategic decision making – situation and desired outcome dependent.
Establishment and Implementation	<ol style="list-style-type: none"> 1. Demonstrate knowledge of Performance Measurement concepts (ex. SMART – Specific, Measureable, Actionable, Time-bound) 2. Demonstrate ability to use measures to inform decision-making and resource allocation.

3. Demonstrate knowledge of cascading Key Performance Indicators (KPI) that can be used to measure how well mission, management, program and individual goals are being met.
4. Demonstrate ability to establish baselines from which progress toward attainment of goals can be measured.
5. Demonstrate ability to establish feedback systems to support continuous improvement of an organization's processes, practices, and results (outcomes).
6. Demonstrate knowledge of how to combine single building metrics into a system to measure the performance of buildings portfolio in support of the organization's overall mission.
7. Demonstrate understanding that investments in training, and in facilities in general, are not often immediately visible or measurable, but that they are manifest over a period of years.
8. Demonstrate ability to perform a sensitivity analysis on proposed measures to determine the how much affect various controllable and uncontrollable drivers are:
 - o Funding, weather, retirements, individual performance, training etc
9. Demonstrate knowledge of current portfolio-level performance indicators like the following:
 - o Facilities Condition Index or Asset Utilization Index (measures portfolio against mission)
 - o Current Replacement Value (total amount of money invested in portfolio)
 - o Plant Replacement Value (cost to replace facilities assets in today's dollars and using today's methods)
 - o Sustainment Rate (adequacy of funding maintenance and repair)
10. Demonstrate ability to understand a base set of key performance indicators for measuring the outcomes of investments and the data to be provided for:
 - o Total number and size of facilities
 - o Facility types, age and location
 - o Plant Replacement Value (PRV)
 - o Facilities Condition Index (FCI)/Installation Readiness Report
 - o Deferred Maintenance/Facilities Revitalization Rate
 - o Asset Utilization Index
 - o Recapitalization Rate
11. Demonstrate ability to understand, provide input for, and use additional (KPI) developed by organization to measure the qualitative aspects of facilities operations and management:
 - o Cost effectiveness
 - o Customer satisfaction
 - o Process efficiencies