

In accordance with the Federal Buildings Personnel Training Act 2010 (FBPTA), the below curriculum is recommended relating to facility management and the operation of high-performance buildings.

We fully recognize and acknowledge the outstanding existing programs found throughout industry, government and academia. And we highly recommend that ALL Federal departments and agencies with the funding and ability to pursue these certifications and degrees do so. Our job is to implement the stated and implied goals of the FBPTA. The courses will be mapped to the core competencies they represent and credit for completion will be requested through our web-tool being developed with OPM for [www.FMI.innovations.gov](http://www.FMI.innovations.gov). For example **Energy 101** requires taking an exam and getting a certificate of completion.

We would like to thank our partners within the Federal government, across industry, within academia and those people who provided public comment, for their invaluable contributions the development of this initial Program to implement the Federal Buildings Personnel Training Act. We look forward to working with all of you to address issues, both planned and unforeseen, and applying the lessons learned to next year's annual core competency and curriculum updates.

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#### **Curriculum Development Background:**

##### **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](#)

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 academic subject matter experts.

The evolution of this final recommended curriculum began with research into the following and other sources:

- Degree curricula at academic institutions, like Cornell, Ferris State, Georgia Tech, The City College of New York, Community College of Philadelphia, and even international programs, like the one by Conestoga College in Ontario, Canada
- Curricula like the ones required for the Department of Defense's Facilities Engineer level I-III
- The University of California's Extension program curricula which leads to a Facility Management Certification
- Curricula required by many of the outstanding industry training providers for their certifications

Working with DOE's National Lab Subject Matter Experts, we developed a comprehensive curriculum was developed that followed the identified core competencies and provided for thorough knowledge in all aspects of the management and operations of high performance buildings. The following criteria was used to evaluate the developed curricula:

1. It must align with, and compliment the identified core competencies
2. It must provide knowledge, skills and abilities, that if applied, would have significant impact on goal of the FBPTA
3. It must have a high probability of being accepted and utilized on a government-wide basis

We shared the proposed curriculum with personnel and their supervisors in the field and we found that most Federal facilities operators and managers were already struggling to complete their existing department or agency curricula. Most efforts to complete existing requirements were either unfunded, or under-funded. Further, few Federal facilities and operations departments had the luxury of planning and training - finding themselves operating in continuous "breakdown maintenance" mode with both aging facilities and retirement eligible staff they could not afford to replace. Thus, our recommended curriculum, no matter the potential for impact and the desire to utilize it, still represents a **recommendation**, and must compete with the unfunded requirements and mandates of personnel struggling with the prioritization of the "most critical broken equipment" and the "most unmet requests". As such, the likelihood of a comprehensive curriculum requiring significant expenditures of time and money being accepted and utilized on a government-wide basis is minimal at best.

Given this fact, and in consultation with field personnel, the curriculum that has the highest probability of being accepted and utilized is one based on the highest impact aspects of the identified core competencies that can be offered through distance learning at no monetary cost to the organization. "Opportunity costs" of personnel taking training rather than repairing the "most critical broken equipment" or responding to headquarters' data calls still require management, as they do with any training program.

Thus, we have developed the below curriculum broken into (6) recommended courses for those personnel working in our facilities in positions requiring "hands-on" O&M, energy management, design, safety, water efficiency, sustainability and performance measures; and (6) recommended courses for those who manage and support the aforementioned personnel at the higher headquarters levels. The recommended courses build upon the most impactful core competencies. For example, under the Core Competency Area for **Facilities Operations, Maintenance and Engineering**, the Core Competency, **Best Practices and Innovations**, performance number two requires knowledge of DOE/PNNL "Retuning Project". While going to the cited website gives you the "knowledge", taking the recommended course, delivers the knowledge, skills and abilities that will be required to transform the our current Federal facilities operations and management paradigm, to one of "continuous retuning" - a paradigm shift that represents the potential of saving between \$700million and \$2.1billion per year in electricity alone. The recommended curriculum targets maximum impact at minimum cost.

Large Facility/ Stand-alone Facility/Cantonment Area(s)		
	Course Name	Website
1.	Operations, Maintenance, and Commissioning	<a href="http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=13">http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=13</a>
2.	Building Retuning Training	<a href="http://retuningtraining.labworks.org/training/lms/">http://retuningtraining.labworks.org/training/lms/</a>
3.	Optimizing Operations and Maintenance (O&M)	<a href="http://www.wbdg.org/education/opt_om.php">http://www.wbdg.org/education/opt_om.php</a>
4.	Energy 101	<a href="http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=6">http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=6</a>
5.	The Principles/Process for Conducting a Life-Cycle Cost Analysis	<a href="http://www.wbdg.org/education/lifecyclecosting.php">http://www.wbdg.org/education/lifecyclecosting.php</a>
6.	Implementing Deep Retrofits	<a href="http://apps1.eere.energy.gov/femp/training/course_detail_live.cfm/CourseDateId=387">http://apps1.eere.energy.gov/femp/training/course_detail_live.cfm/CourseDateId=387</a>
Management/Higher Headquarters		
	Course Name	Website
1.	The Integrated Design Process	<a href="http://www.wbdg.org/education/integrated_design.php">http://www.wbdg.org/education/integrated_design.php</a>
2.	Achieving Sustainable Site Design Through Low Impact Development Practices	<a href="http://www.wbdg.org/education/sdlowimpactdevelopment.php">http://www.wbdg.org/education/sdlowimpactdevelopment.php</a>
3.	Achieving Energy Security in Federal Facilities	<a href="http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=94">http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=94</a>
4.	Advanced Metering Solutions for Federal Agencies	<a href="http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=48">http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=48</a>
5.	Selecting & Evaluating New & Underused Energy Technologies	<a href="http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=92">http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=92</a>
6.	Federal Renewable Energy Project Implementation: From RFP to Project Closeout	<a href="http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=64">http://apps1.eere.energy.gov/femp/training/course_detail_ondemand.cfm/CourseId=64</a>