Professional Development for Federal Buildings Personnel

Brian Gilligan, PE – GSA, Office of Federal High Performance Green Buildings
FBPTA: What is required?

- **Core Competencies** for Federal buildings Personnel
- **Recommended Curriculum** and Continuing Education
- Annual updates to Competencies and Curriculum
- **Compliance** by all Federal buildings personnel
- Method for contractor compliance

“…core competencies …relating to building operations and maintenance, energy management, sustainability, water efficiency, safety (including electrical safety) and building performance measures.”
FBPTA: Why?

Perhaps $2B / year in operational costs

Source: General Services Administration (GSA) Estimates based on the Pacific Northwest National Laboratory Study “Assessing the Potential for a FEMP Operations and Maintenance (O&M) Program to Improve Energy Efficiency”, 2002
FBPTA: Who?

Agency Share of Federal Footprint - Million SF

Federal Real Property Profile

<table>
<thead>
<tr>
<th>Agency</th>
<th>Annual O&amp;M Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defense</td>
<td>$14.6B</td>
</tr>
<tr>
<td>GSA</td>
<td>$6.3B</td>
</tr>
<tr>
<td>VA</td>
<td>$1.0B</td>
</tr>
<tr>
<td>Energy</td>
<td>$2.1B</td>
</tr>
<tr>
<td>Interior</td>
<td>$1.4B</td>
</tr>
<tr>
<td>State</td>
<td>$1.1B</td>
</tr>
<tr>
<td>Justice</td>
<td>$0.6B</td>
</tr>
<tr>
<td>Agriculture</td>
<td>$0.9B</td>
</tr>
<tr>
<td>DHS</td>
<td>$0.5B</td>
</tr>
<tr>
<td>NASA</td>
<td>$0.6B</td>
</tr>
<tr>
<td>Other</td>
<td>$1.9B</td>
</tr>
</tbody>
</table>
Resources at FMI.gov

Guide long-term professional development

What do I need to know?
How well do I know it?
What resources can help me?

Identify and fill basic knowledge gaps
FBPTA: Compliance and general career paths

Early / Transitional
- **BOMI – PAC/FMC**
- **IFMA - FMP**

Journeyman
- **BOMI – RPA/FMA**
- **IFMA - CFM**

Master
- **AEE - EMIT**
- **AEE - CEM**
- **ASHRAE - BEAP**
- **ASHRAE - OPMP**
- **BOC – BOC I**
- **BOC – BOC II**
- **BOMI – SMC**
- **BOMI – SMA / T**
- * “FBPTA – Aligned” credentials*

Facility Management

Energy Management

Building Operations
FEDSAT: Identify gaps and find free training

Live! – https://sftool.gov/fedsat
FEDSAT: Guide to critical parts of the FBPTA

Dashboard

Select a Competency Area

42%
Facilities Operations and Maintenance
Learning Resources | Related Competencies
In Progress

18%
Facilities Management Technology
Learning Resources | Related Competencies
In Progress

0%
Energy Management
Learning Resources | Related Competencies
Not Started

0%
Water Efficiency
Learning Resources | Related Competencies
Not Started

0%
Sustainability
Learning Resources | Related Competencies
Not Started

0%
Performance Measures
Learning Resources | Related Competencies
Not Started

Did You Know?
Registering with FMI will apply credit for previously assessed competency areas to your FEDSAT assessment. Underneath your score on this page, you will see the credit you received, and you will not have to answer questions pertaining to those performance areas.
Register with FMI
FEDSAT: Guide to critical parts of the FBPTA

Dashboard

Overall Progress

- In Progress: 28.6%
- Not Started: 71.4%

Recent Activity

- Facilities Management Technology
  - Nov 10
  - In Progress
  - Continue
  - 18%

- Facilities Operations and Maintenance
  - Nov 10
  - In Progress
  - Continue
  - 42%
FEDSAT: Scenario-based learning

Demonstrate knowledge of key building performance measures, where and how to read them, and reporting requirements.

SCENARIO 12A

In an existing fifteen-year-old, twenty-story office building, the lighting system throughout the tenant floors has been targeted for energy reduction strategies. The goal is to reduce energy used by the lighting systems by 35% over the next three years without increasing glare and occupant discomfort. The existing lighting in the tenant floors is an even distribution of 2x4 fluorescent light fixtures and 2x2 fluorescent light fixtures. The building is occupied by one agency. Staff members do intensive computer work in the open office areas of the floors. Managers in the enclosed offices do a variety of computer and paper-based tasks. The strategies being evaluated for energy reduction include a gradual (floor-by-floor) replacement of the fluorescent fixtures with LED fixtures; installation of daylight and vacancy sensors; and installation of task tuning control software in open office spaces.

QUESTIONS

In Scenario 12A, if the lighting system submeters for the entire building total a weekly energy usage of 22 kWh when the project starts, what is the monthly total usage being targeted at the end of 3 years?

Choose the best answer

- 88 kWh/month
- 31 kWh/month
- 57.2 kWh/month
- 22 kWh/month

Submit Answer
FEDSAT: Scenario-based learning

Demonstrate knowledge of the effect that climate and variable environmental conditions can have on the building envelope and systems.

SCENARIO 1A

Average Summer Weekday

- 6 North
- 6 East
- 6 South
- 6 West

A six-story office building is located in downtown Miami, Florida. It was built in 2002. The building floor plate is rectangular, with a central core that includes circulation, restrooms, and mechanical spaces. The first floor contains building related services and common spaces, such as a lobby, security office, mechanical rooms, and restrooms. Each of the remaining five floors houses one or more departments all from the same organization, each with a mix of fully-enclosed offices and open workstation areas along with typical support spaces such as conference rooms and pantries. The exception is the tenant on the sixth floor, whose space includes a large training center capable of holding 100 people at
FEDSAT: Scenario-based learning

Demonstrate knowledge of FEMP’s O&M Best Practices.

**QUESTION 6 of 27**
Weekly inspection of a boiler to look for and address cracks, leaks, or signs of wear on components is an example of

Choose the best answer

- preventative maintenance
- reactive maintenance
- proactive maintenance
- redictive maintenance

Submit Answer
FEDSAT: Feedback and links to free training

Dashboard » Competency Areas » Facilities Management Technology

Summary

Facilities Management Technology

5/11 Correct - You're almost there! You need a passing score to complete this competency area. Please try the ones you missed again.

LEARNING RESOURCES

Technology Performance Exchange
National Renewable Energy Lab new tech performance data

Promising Technologies List
DoE slideshow on emerging technology

DoE Metering Guidance
Meter systems, approaches, process, best practices, and more

Advanced Electric Metering in Federal Facilities
FEMP E-learning course supporting FBPTA competency areas

Selecting and Evaluating New and Underused Energy Technologies
FEMP seminar supporting timely FBPTA competency area topics

Plug-in Electric Vehicle Handbook
Electric vehicle installation guide from DoE

Fire Protection Guide
WBDG overview, design, and recommendations on fire protection
FEDSAT: A world of resources

The following learning resources are available to help you complete the assessment, fill in knowledge gaps, and better prepare you for running a highly efficient facility.

## Facilities Operations and Maintenance

Demonstrate familiarity with building systems and knowledge of how they affect energy use.

- **Building Energy Use Breakdown**
  - SFTool HVAC System Overview Page
- **Building and Energy Atmosphere Topics**
  - SF Tool building energy use topics
- **Planning an Energy Assessment for Federal Facilities**
  - FEMP E-learning course supporting FBPTA competency areas

Demonstrate ability to monitor and evaluate how well building systems perform.

- **Small Building Retrofitting Resources**
  - PNNL Retuning commercial Buildings Site
- **Commissioning for Existing Federal Buildings**
  - FEMP E-learning course supporting FBPTA competency areas
- **Advanced Electric Metering in Federal Facilities**

## Competency Areas

- Facilities Operations and Maintenance
- Facilities Management Technology
- Energy Management
- Water Efficiency
- Sustainability
- Performance Measures
- Leadership and Project Management
FEDSAT: A world of resources

Free Continuing Education Credits

Below is a listing of free online courses providing continuing education credits. We are currently listing for the following organizations and credits:

<table>
<thead>
<tr>
<th>Course Title and Link</th>
<th>Provider</th>
<th>AIA LUs</th>
<th>GBCI CE Hours</th>
<th>IACET CEUs</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEMP01 - Commissioning for Existing Federal Buildings</td>
<td>FEMP</td>
<td>4.5</td>
<td>4.5</td>
<td>0.5</td>
</tr>
<tr>
<td>FEMP02 - Planning an Energy Assessment for Federal Facilities</td>
<td>FEMP</td>
<td>4</td>
<td>4</td>
<td>0.5</td>
</tr>
<tr>
<td>FEMP03 - Launching a Utility Energy Services Contract (UESC): Getting to Yes!</td>
<td>FEMP</td>
<td>3</td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>FEMP04 - Federal On-Site Renewable Power Purchase Agreements</td>
<td>FEMP</td>
<td>2.5</td>
<td></td>
<td>0.3</td>
</tr>
<tr>
<td>FEMP05a - Advanced Electric Metering in Federal Facilities</td>
<td>FEMP</td>
<td>3.5</td>
<td>3.5</td>
<td>0.4</td>
</tr>
<tr>
<td>FEMP06 - Managing Water Assessment in Federal Facilities</td>
<td>FEMP</td>
<td>3.5</td>
<td>3.5</td>
<td>0.4</td>
</tr>
<tr>
<td>FEMP07 - Selecting, Funding, and Implementing Photovoltaic Systems in Federal Facilities</td>
<td>FEMP</td>
<td>3.5</td>
<td>3.5</td>
<td>0.4</td>
</tr>
<tr>
<td>FEMP08 - Sustainable Institutional Change for Federal Facility Managers</td>
<td>FEMP</td>
<td>3</td>
<td>3</td>
<td>0.4</td>
</tr>
<tr>
<td>FEMP09 - Sustainable Strategies for Existing Federal Facilities</td>
<td>FEMP</td>
<td>3.5</td>
<td>3.5</td>
<td>0.4</td>
</tr>
</tbody>
</table>
Accelerate FM: Career professional development

Live! – https://acceleratefm.us
# FBPTA: Compliance and general career paths

<table>
<thead>
<tr>
<th>Early / Transitional</th>
<th>Journeyman</th>
<th>Master</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOMI – PAC/FMC</td>
<td>BOMI – RPA/FMA</td>
<td></td>
</tr>
<tr>
<td>IFMA - FMP</td>
<td>IFMA - CFM</td>
<td></td>
</tr>
<tr>
<td>AEE - EMIT</td>
<td>AEE - CEM</td>
<td></td>
</tr>
<tr>
<td>BOC – BOC I</td>
<td>BOC – BOC II</td>
<td></td>
</tr>
<tr>
<td>BOMI - SMC</td>
<td>BOMI – SMA / T</td>
<td></td>
</tr>
</tbody>
</table>

* “FBPTA – Aligned” credentials

**Facility Management**
- BOMI – PAC/FMC
- IFMA - FMP

**Energy Management**
- AEE - EMIT
- BOC – BOC I
- BOMI - SMC

**Building Operations**
- BOMI – RPA/FMA
- IFMA - CFM
- AEE - CEM
- ASHRAE - BEAP
- ASHRAE - OPMP
- BOC – BOC II
- BOMI – SMA / T
Conclusion

- Find resources for workforce development at [www.fmi.gov](http://www.fmi.gov)
- Clear pathways to professional development
  - [FEDSAT](https://www.fedsat.gov) identifies gaps and provides free training resources
  - [Accelerate FM](https://www.acceleratefm.com) identifies relevant industry credentials, degrees and other individual courses
- [GAO](https://www.gao.gov) – Act should require reporting, GSA to suggest how
- Contact information:
  - Brian Gilligan (FMI / FBPTA) – [brian.gilligan@gsa.gov](mailto:brian.gilligan@gsa.gov)