

# Training and Resources

1. **Training:** Commissioning is emerging as a large issue in building sciences and coming to the forefront as an important feature of construction quality management. There are several training opportunities available and are listed below with a brief description so that the reader can select the one that most fits their needs.

1.1 Association of Energy Engineers (\$1350) This program will examine all aspects of building commissioning, including project scheduling, roles and responsibilities of the project team, new building commissioning, retro and recommissioning of existing buildings, system by system commissioning requirements, TAB and verification procedures, the LEED rating system, building code issues, and commissioning tools and technologies.

Additionally, if desired, this can be followed up with an examination for an additional (\$300) to become a certified Building Commissioning Provider (CBCP)

[http://www.aeepgrams.com/store/detail.cfm?id=807&category\\_id=4](http://www.aeepgrams.com/store/detail.cfm?id=807&category_id=4)

This training may be secured through the CP-18 program when funding is available, please contact Tom Jamieson, HQ USACE Commissioning Proponent, at [thomas.j.jamieson@usace.army.mil](mailto:thomas.j.jamieson@usace.army.mil).

(Recommended for Construction QA personnel)

1.2 USACE Prospect Course 327 HVAC Commissioning (\$1830)

This is a 5 day course that includes 2 days of hands-on laboratory.

The course provides practical technical information to fulfill construction quality verification duties for commissioning of mechanical systems. The course identifies procedures for startup, sequence of operation and testing that pertain to mechanical equipment and repetitive deficiencies in system performance. Through lecture, visual aids, conferences, and testing, this course presents the following mechanical HVAC subjects: commissioning of mechanical systems, cooling systems, heating systems, air side systems, and control systems. A 2-day lab experience is included where students observe proper performance testing of HVAC Systems.

<http://ulc.usace.army.mil/downloads/PurpleBook2014.pdf>

(Recommended for the 0800 government series employees)

1.3 The PECI has recently developed with the Building Commissioning Authority (BCA) and with funding from many state entities including NYSEERDA. It is a 24 course on-line curriculum (24-48 hrs) that can be taken over the period of a year as a prerequisite to a 5 day long hands-on laboratory (\$2800 or \$2400 without the laboratory). See the description

[http://www.wbdg.org/project/plan\\_comm\\_process.php](http://www.wbdg.org/project/plan_comm_process.php)

The courses can also be taken individually for about \$70 up to \$265 each.

<http://learn.peci.org/register.php>. PECI was originally called Portland Energy Conservation, Inc and is a not-for-profit company that designs and manages energy efficiency programs for utility providers, government organizations, and other clients.

(Recommended for personnel wishing to act as the Commissioning Authority)

1.4 ASHRAE instructor led course (6hrs) on the Commissioning Process

<https://www.ashrae.org/education--certification/instructor-led-courses/the-commissioning-process-in-new-and-existing-buildings>.

(Recommended for all personnel; but specifically Project Managers and Design Managers)

ASHRAE On-line instructor led (3hrs \$249) Commissioning for High-Performance Buildings. The focus is on the Commissioning process and developing an OPR.

<https://www.ashrae.org/education--certification/2013-fall-online-courses/commissioning-for-high-performance-buildings>

(Recommended for Project Managers and Design Managers)

## 1. Resources

2.1 Whole Building Design Guide, PECCI, Veteran Affairs, GSA and NEBB has prepared detailed guidance on commissioning as shown in the links below:

WBDG- General Guidance

[http://www.wbdg.org/project/plan\\_comm\\_process.php](http://www.wbdg.org/project/plan_comm_process.php)

PECCI's Functional Testing Guide <http://www.peci.org/ftguide/>

VA May 2013 150 page manual

<http://www.cfm.va.gov/til/commissioning/CxManual.PDF>

NEBB 2009 manual 155 page procedural standards for whole building commission

[http://www.nebb.org/assets/1/7/PST\\_BSC\\_2009.pdf](http://www.nebb.org/assets/1/7/PST_BSC_2009.pdf)

2005 GSA 83 page commissioning guide

<http://www.wbdg.org/ccb/GSAMAN/buildingcommissioningguide.pdf>

1.2 Certification programs

[http://www.cacx.org/resources/provider\\_cert.html](http://www.cacx.org/resources/provider_cert.html)

2.3 Commissioning Tools- sample plans

<http://www.cacx.org/resources/cxtools/index.html>

2. The Regional Technical Center for Commissioning (RCx) will maintain the web page with reference and future updates such as those planned for the ER on systems commissioning in progress now as well as O&M documentation. The Criteria Management System (CMS) through the Tri-Service community is in the process of updating the UFGS for section 23 HVAC commissioning and developing guidance for Division 1 and other technical division. The RCx will also provide webinars targeted to different communities of practice (PM, CM and Engineering).