



DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND  
1322 PATTERSON AVENUE, SE SUITE 1000  
WASHINGTON NAVY YARD DC 20374-5065

IN REPLY REFER TO:

NAVFACINST 12271.1  
CHE  
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NAVFAC INSTRUCTION 12271.1

From: Commander, Naval Facilities Engineering Command

Subj: NAVFAC TOTAL BUILDING COMMISSIONING POLICY

Ref: (a) American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Standard 90.1, "Energy Standard for Buildings Except Low-Rise Residential Buildings" of 1999  
(b) NAVFACINST 9830.1, "Sustainable Development Policy" of 09 Jun 03  
(c) U. S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED™) Rating System (Version 2.1) Commissioning Requirements  
(d) NAVFACINST 11013.39B, "Operation and Maintenance Support Information (OMSI) for Facility Projects" of 14 Sep 00

1. Purpose: To provide policy for incorporation of Total Building Commissioning (TBC) principles into all phases of the acquisition process.

2. Background: In October 2001, the Department of Defense adopted American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Standard 90.1 (reference a) and all ASHRAE approved addendums. ASHRAE 90.1 mandates "for projects larger than 50,000 ft<sup>2</sup> (4645 m<sup>2</sup>) conditioned area, that detailed instructions for commissioning HVAC systems will be provided by the designer in plans and specifications."

As described in reference (b), the Navy has also recently adopted the U. S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) Rating System "as a tool to apply sustainable principles, and as a metric to measure the sustainability achieved through the planning, design and construction process." A required prerequisite for LEED™ certification is building system commissioning. Reference (c) explains the LEED™ commissioning requirements.

NAVFAC provides facilities to our clients that satisfy their specific requirements and are energy efficient, safe, cost effective, functional, durable, accessible, and sustainable.

TBC is a process for achieving, validating and documenting that the performance of the total building and its systems meets the design needs and requirements of the client. The process ideally extends through all phases of a project, from concept to completion of warranty periods and beyond. Utilizing TBC principles in the planning and design phase can reduce costly rework and change orders during construction, and save limited funding by making changes and corrections on paper rather than in the field.

As the engineers in responsible charge for preparing, supervising and/or approving public projects, NAVFAC has the responsibility to safeguard life, health, and property to promote the

public welfare. NAVFAC engineers operate under the jurisdiction of state licensure laws that include the responsibility of properly preparing design documents, and performing field observation and testing to verify construction was performed in accordance with project plans and specifications.

Our basic goals of TBC are: (1) to provide a well-documented design, (2) to verify through testing that all systems function as required, and (3) to provide adequate documentation and training for building operators. Achieving these goals will require development of quality-based commissioning plans, incorporating detailed testing requirements into contract documents, strict adherence to testing schedules during construction, warranty enforcement, and proper operation and maintenance documentation and training for the client.

Many elements of TBC design and construction phases are already in place within the existing NAVFAC processes, but are not consistently applied, documented, or integrated. For example:

- a. Project 1391 development, Basis of Design Reports, facilitated design meetings, and Functional Analysis Concept Development Processes document the client's project requirements.
- b. Existing equipment certification programs and testing and balancing specifications ensure functional testing of building system components.
- c. Existing requirements for testing and certification of electrical equipment and materials, and functional acceptance of electrical systems by manufacturers and independent testing organizations ensure the safe functionality of electrical components.
- d. Operation and Maintenance Support Information (OMSI) ensures transfer of needed operational and maintenance documentation to the client.

Consequently, NAVFAC will pursue TBC by integrating our existing processes that affect quality delivery of facilities, and incrementally improve those processes.

3. Policy: Apply TBC principles as integral elements in the process of executing NAVFAC-administered new construction and rehabilitation projects. This policy will affect project execution from specific project planning through the warranty period for all Capital Improvements and Sustainment, Restoration, and Modernization projects.

4. Responsibilities: The NAVFAC organization is responsible for "cradle to grave" commissioning of Navy facilities.

For NAVFAC-administered projects, the EFD/EFA Capital Improvements Business Line (CIBL) Manager shall be designated the official Commissioning Authority (CA). Public Works Centers shall designate the Director, Utilities Department as the CA for all utility-oriented projects and the Director, Facilities Engineering Department as the CA for all other projects. Public Works Departments shall designate the Public Works Officer as the CA. The designated official CA may delegate the authority for the execution of his/her duties to the appropriate departments and ROICC offices for each phase of the process. The designated official CA shall determine the

most appropriate delivery method for execution of his/her responsibilities on an individual project basis.

5. Action:

- a. Planners - Ensure the client's and the facility operator's needs are fully documented.
- b. Design Engineers - Effectively convey the intended systems operation and system interrelations into the contract documents, and ensure the client's requirements are met. Ensure detailed testing procedures for operational testing of system elements and interactions are incorporated into the plans, specifications, and Requests for Proposals (RFP). When required, according to reference (d), OMSI provisions shall be incorporated into the project specifications. Detailed information for training requirements of maintenance personnel shall also be included in the contract documentation.
- c. Contracting Officers - Ensure that the building systems operate properly and efficiently at turnover as indicated in the contract documents. Ensure operational testing schedules are followed early to avoid time restrictions near turnover dates that interfere with the testing of systems. Ensure facility operators are properly trained and receive detailed operation and maintenance documentation according to the contract documents for every project. For facilities requiring contracted maintenance, contract development shall be initiated. Maintenance contracts should be in place as soon as the facility is accepted.
- d. Designated CA – As part of the commissioning responsibilities, perform a Facility Quality Survey of client satisfaction for all projects over \$3 million.
- e. CIBL Leader - Develop a detailed TBC implementation guidance document which will include distinct roles and responsibilities to accomplish the goals of this program. The document shall be continually updated as the commissioning process becomes more refined. Evaluate existing processes and documentation across all business lines to integrate TBC principles to the greatest extent possible. All divisions of NAVFAC shall assist as needed in incorporating and improving TBC elements into their acquisition processes. Maintain TBC guidance and references on the Whole Building Design Guide website ([www.wbdg.org/](http://www.wbdg.org/)). The implementation guidance should also address building system efficiency beyond warranty period, and the collection of both metrics and lessons learned in order to continuously refine the TBC instruction.

  
M. R. JOHNSON

Distribution:  
NAVFAC Intranet  
NAVFAC Internet

Bcc: 00 Dailies (2)/CHE

P by J. Gott

T by S. Stillwell/CHE/685-9167