

**(Effective until July 1, 2020)**

**WAC 51-11C-40801 Section C408.1—General.**

**C408.1 General.** A building commissioning process led by a *certified commissioning professional* shall be completed for mechanical and refrigeration systems in Sections C403 and C410, service water heating systems in Section C404, electrical power and lighting systems in Section C405 and energy metering in Section C409.

EXCEPTION: Buildings, or portions thereof, which are exempt from Sections C408.2 through C408.6 may be excluded from the commissioning process.

**C408.1.1 Commissioning in construction documents.** Construction document notes shall clearly indicate provisions for commissioning and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements.

**C408.1.2 Commissioning plan.** A commissioning plan shall be developed by the project's certified commissioning professional and shall outline the organization, schedule, allocation of resources, and documentation requirements of the commissioning process. Items 1 through 4 shall be included with the construction documents, and items 5 through 8 shall be submitted prior to the first mechanical inspection. For projects where no mechanical inspection is required, items 5 through 8 shall be submitted prior to the first electrical inspection.

1. A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities.

2. Roles and responsibilities of the commissioning team, including statement of qualifications of the commissioning professional.

3. A schedule of activities including systems testing and balancing, functional performance testing, and verification of the building documentation requirements in Section C103.6.

4. Where the certified commissioning professional is an employee of one of the registered design professionals of record or an employee or subcontractor of the project contractor, an In-House Commissioning Disclosure and Conflict Management Plan shall be submitted with the commissioning plan. This plan shall disclose the certified commissioning professional's contractual relationship with other team members and provide a conflict management plan demonstrating that the certified commissioning professional is free to identify any issues discovered and report directly to the owner.

5. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.

6. Functions to be tested.

7. Conditions under which the test will be performed.

8. Measurable criteria for performance.

**C408.1.3 Final commissioning report.** A final commissioning report shall be completed and certified by the *certified commissioning professional* and delivered to the building owner or owner's authorized agent. The report shall be organized with mechanical, lighting, service water heating and metering findings in separate sections to allow independent review. The report shall record the activities and results of the commissioning process and be developed from the final commissioning plan with all of its attached appendices. The report shall include:

1. Results of functional performance tests.

2. Disposition of deficiencies found during testing, including details of corrective measures used or proposed.

3. Functional performance test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.

EXCEPTION: Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.

**C408.1.4. Commissioning process completion requirements.** Prior to the final mechanical, plumbing and electrical inspections or obtaining a certificate of occupancy, the *certified commissioning professional* or approved agency shall provide evidence of systems *commissioning* and completion in accordance with the provisions of this section.

Copies of all documentation shall be given to the owner and made available to the *code official* upon request in accordance with Section C408.1.4.3.

**C408.1.4.1 Commissioning progress report for code compliance.** A preliminary report of commissioning test procedures and results shall be completed and certified by the *certified commissioning professional* or *approved agency* and provided to the building owner or owner's authorized agent. The report shall be organized with mechanical, lighting, service water heating and metering findings in separate sections to allow independent review. The report shall be identified as "Preliminary Commissioning Report" and shall identify:

1. Itemization of deficiencies found during testing required by this code that have not been corrected at the time of report preparation.

2. Deferred tests that cannot be performed at the time of report preparation because of climatic conditions, with anticipated date of completion.

3. Climatic conditions required for performance of the deferred tests.

4. Status of the project's record documents, manuals and systems operation training with respect to requirements in Section C103.6.

**C408.1.4.2 Acceptance of report.** Buildings, or portions thereof, shall not be considered acceptable for a final inspection pursuant to Section C104.2 until the *code official* has received a letter of transmittal from the building owner acknowledging that the building owner or owner's authorized agent has received the Preliminary Commissioning Report. Completion of the Commissioning Compliance Checklist (Figure C408.1.4.2) is deemed to satisfy this requirement.

**C408.1.4.3 Copy of report.** The *code official* shall be permitted to require that a copy of the Preliminary Commissioning Report be made available for review by the *code official*.

[Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40801, filed 12/6/16, effective 5/1/17; WSR 16-13-089, § 51-11C-40801, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40801, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40801, filed 2/1/13, effective 7/1/13.]

**(Effective July 1, 2020)**

**WAC 51-11C-40801 Section C408.1—General.**

**C408.1 General.** A building commissioning process led by a *certified commissioning professional* and functional testing requirements shall be completed for mechanical systems in Section C403; service water heating systems in Section C404; controlled receptacle and lighting control systems in Section C405; equipment, appliances and systems installed to comply with Sections C406 or C407; energy metering in Section C409; and refrigeration systems in Section C410.

EXCEPTION: Buildings, or portions thereof, which are exempt from Sections C408.2 through C408.7 may be excluded from the commissioning process.

1. Mechanical systems are exempt from the commissioning process where the building's total mechanical equipment capacity is less than 240,000 Btu/h cooling capacity and less than 300,000 Btu/h heating capacity.
2. Service water heating systems are exempt from the commissioning process in buildings where the largest service water heating system capacity is less than 200,000 Btu/h and where there are no pools or permanent spas.
3. Lighting control systems are exempt from the commissioning process in buildings where both the total installed lighting load is less than 20 kW and the lighting load controlled by occupancy sensors or automatic daylighting controls is less than 10 kW.
4. Refrigeration systems are exempt from the commissioning process in buildings if they are limited to self-contained units.

**C408.1.1 Commissioning in construction documents.** Construction documents shall clearly indicate provisions for commissioning process. The construction documents shall minimally include the following:

1. A narrative description of the activities that will be accomplished during the commissioning process. At a minimum, the commissioning process is required to include:

1.1. Development and execution of the commissioning plan, including all subsections of Section C408.1.2;

1.2. The *certified commissioning professional's* review of the building documentation and close out submittals in accordance with Section C103.6; and

1.3. The commissioning report in accordance with Section C408.1.3.

2. Roles, responsibilities, and required qualifications of the *certified commissioning professional*.

3. A listing of the specific equipment, appliances, or systems to be tested.

**C408.1.2 Commissioning plan.** A commissioning plan shall be developed by the project's certified commissioning professional and shall outline the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.

1. A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities, systems testing and balancing, functional performance testing, and verification of the building documentation requirements in Section C103.6.

2. Roles and responsibilities of the commissioning team, including the name and statement of qualifications of the *certified commissioning professional*.

3. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.

**C408.1.2.1 In-house commissioning disclosure and conflict management plan.** Where the certified commissioning professional's contract or employment is other than directly with the building owner, an in-house commissioning disclosure and conflict management plan shall be a part of the commissioning process. A copy shall be included in the commissioning plan. This plan shall disclose the certified commissioning professional's contractual relationship with other team members and provide a conflict management plan demonstrating that the certified

commissioning professional is free to identify any issues discovered and report directly to the owner.

**C408.1.2.2 Functional performance testing.** Functional performance testing shall be conducted for mechanical systems in Sections C403; service water heating systems in Section C404; controlled receptacles and lighting control systems in Section C405; equipment, appliances, systems installed to comply with Section C406 or C407; energy metering in Section C409; and refrigeration systems in Section C410. Written procedures which clearly describe the individual systematic test procedures, the expected system response or acceptance criteria for each procedure, the actual response or findings, and any pertinent discussion shall be followed. This testing shall include control systems which will be tested to document that control devices, components, equipment, and systems are calibrated and adjusted to operate in accordance with approved construction documents. Testing shall affirm the conditions required within Sections C408.2 through C408.7 under system testing.

**C408.1.2.3 Functional performance testing - Sampling.** For projects with 7 or fewer similar systems, each system shall be tested. For projects with more than 7 systems, testing shall be done for each unique combination of control types. Where multiples of each unique combination of control types exist, no fewer than 20 percent of each combination shall be tested unless the code official or design professional requires a higher percentage to be tested. Where 30 percent or more of the tested system fail, all remaining identical combinations shall be tested.

**C408.1.2.4 Deficiencies.** Deficiencies found during testing shall be resolved including corrections and retesting.

**C408.1.3 Commissioning report.** A commissioning report shall be completed and certified by the *certified commissioning professional* and delivered to the building owner or owner's authorized agent. The report shall be organized with mechanical, service water heating, controlled receptacle and lighting control systems, energy metering, and refrigeration findings in separate sections to allow independent review. The report shall record the activities and results of the commissioning process and be developed from the final commissioning plan with all of its attached appendices. The report shall include:

1. Results of functional performance tests.
2. Disposition of deficiencies found during testing, including details of corrective measures used or proposed.
3. Functional performance test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.
4. Commissioning plan.
5. Testing, adjusting and balancing report.

EXCEPTION: Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.

**C408.1.4. Commissioning process completion requirements.** Prior to the final mechanical, plumbing and electrical inspections or obtaining a certificate of occupancy, the *certified commissioning professional* shall provide evidence of *building commissioning* in accordance with the provisions of this section.

**C408.1.4.1 Commissioning compliance.** Buildings, or portions thereof, shall not be considered acceptable for a final inspection pursuant to Section C104.2.6 until the *code official* has received a letter of

transmittal from the building owner acknowledging that the building owner or owner's authorized agent has received the Commissioning Report. Completion of Commissioning Compliance Checklist (Figure C408.1.4.1) is deemed to satisfy this requirement. Phased acceptance of the Commissioning Compliance Checklist for portions of the work specific to the trade that is being inspected is permissible where accepted by the *code official* and where the *certified commissioning professional* remains responsible for completion of the commissioning process. If there are unresolved deficiencies when the final inspection is scheduled, the Commissioning Report shall be submitted and shall describe the unresolved deficiencies.

**C408.1.4.2 Copy of report.** The *code official* shall be permitted to require that a copy of the Preliminary Commissioning Report be made available for review by the *code official*.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-40801, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.045, 19.27A.160, and 19.27.074. WSR 16-24-070, § 51-11C-40801, filed 12/6/16, effective 5/1/17; WSR 16-13-089, § 51-11C-40801, filed 6/15/16, effective 7/16/16. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-40801, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-40801, filed 2/1/13, effective 7/1/13.]