# FAULT DETECTION AND DIAGNOSTICS FOR PACKAGED DIRECT EXPANSION UNITS



| CERTIFICATE OF ACCEPTANCE | | NRCA-MCH-12-A |
|---|---|---|
| Fault Detection and Diagnostics (FDD) for Packaged Direct Expansion Units | | (Page 1 of 3) |
| Project Name: | Enforcement Agency: | Permit Number: |
| Project Address: | City: | Zip Code: |
| System Name or Identification/Tag: | System Location or Area Served: | |

| | |
|---|---|
| *Note: Submit one Certificate of Acceptance for each system that must demonstrate compliance.* | Enforcement Agency Use: Checked by/Date |

| **A. Construction Inspection** |
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| 1. Prior to functional testing, verify and document the following: |
| ☐ The Fault Detection and Diagnostics (FDD) hardware is installed on the unit. |
| ☐ The FDD system is certified to the California Energy Commission. |
| 2. The following air temperature sensors are permanently installed: |
| ☐ Outside Air Sensor |
| ☐ Supply Air Sensor |
| ☐ Return Air Sensor (applicable for differential economizer operation only) |

| **B. Functional Testing** |
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| **Air Temperature Sensor Failure/Fault** |
| Step 1: Verify the FDD system indicates normal operation |
| Step 2: Disconnect outside air temperature sensor from unit controller. Verify the following: |
| ☐ FDD system reports a fault. |
| Step 3: Connect outside air temperature sensor to unit controller. Verify the following: |
| ☐ FDD system indicates normal operation. |
| **Excess Outside Air** |
| Step 1: Coordinate this test with *NRCA-MCH-02-A (NA 7.5.1 Outdoor Air)*, if NRCA-MCH-02-A indicates “pass” then verify the following: |
| ☐ FDD system indicates normal operation. |
| **Economizer Operation** |
| Step 1: Coordinate this test with *NRCA-MCH-05-A (NA 7.5.4 Air Economizer Controls)*, and simulate failure by immobilizing the outdoor air economizer damper by disconnecting the control signal from the damper actuator (or another method specified by the manufacturer). Verify the following: |
| ☐ FDD system reports a fault. |
| Step 2: Successfully complete and pass NRCA-MCH-05-A and verify the following: |
| ☐ FDD system reports normal operation. |

| **C. Testing Results** | **PASS** | **FAIL** |
|---|---|---|
| Test passes if all boxes are checked under **Functional Testing**. | ☐ | ☐ |

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| **D Evaluation** |
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| ☐ PASS: All **Construction Inspection** responses are complete and **Testing Results** is "Pass". |
| Notes: |
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**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**

1. I certify that this Certificate of Acceptance documentation is accurate and complete.

| | |
|---|---|
| Documentation Author Name: | Documentation Author Signature: |
| Documentation Author Company Name: | Date Signed: |
| Address: | ATT Certification Identification (If applicable): |
| City/State/Zip: | Phone: |

**FIELD TECHNICIAN'S DECLARATION STATEMENT**

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Acceptance is true and correct.
2. I am the person who performed the acceptance verification reported on this Certificate of Acceptance (Field Technician).
3. The construction or installation identified on this Certificate of Acceptance complies with the applicable acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to the applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
4. I have confirmed that the Certificate(s) of Installation for the construction or installation identified on this Certificate of Acceptance has been completed and signed by the responsible builder/installer and has been posted or made available with the building permit(s) issued for the building.

| | | |
|---|---|---|
| Field Technician Name: | Field Technician Signature: | |
| Field Technician Company Name: | Position with Company (Title): | |
| Address: | ATT Certification Identification (if applicable): | |
| City/State/Zip: | Phone: | Date Signed: |

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**

I certify the following under penalty of perjury, under the laws of the State of California:

1. I am the Field Technician, or the Field Technician is acting on my behalf as my employee or my agent and I have reviewed the information provided on this Certificate of Acceptance.
2. I am eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Acceptance and attest to the declarations in this statement (responsible acceptance person).
3. The information provided on this Certificate of Acceptance substantiates that the construction or installation identified on this Certificate of Acceptance complies with the acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to the applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
4. I have confirmed that the Certificate(s) of Installation for the construction or installation identified on this Certificate of Acceptance has been completed and is posted or made available with the building permit(s) issued for the building.
5. I will ensure that a completed, signed copy of this Certificate of Acceptance shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Certificate of Acceptance is required to be included with the documentation the builder provides to the building owner at occupancy.

| | | |
|---|---|---|
| Responsible Acceptance Person Name: | Responsible Acceptance Person Signature: | |
| Responsible Acceptance Person Company Name: | Position with Company (Title): | |
| Address: | CSLB License: | |
| City/State/Zip: | Phone: | Date Signed: |

**NRCA-MCH-12-A User Instructions**

**Section A. Construction Inspection**

This pre-test section consists of check boxes and data entry requirements. Complete check boxes and enter data as instructed.

**Section B. Functional Testing**

This section consists of check boxes and yes or no questions arranged by individual test. Check each box or circle the correct answer for each specific test or line item.

**Section C. Testing Results**

This section consists of check boxes for each test procedure. Complete check boxes as instructed.

**Section D. Evaluation**

Check the appropriate box as instructed.

**Declaration Statements of Acceptance**

This section contains fillable fields for three declaration statements: one from the Documentation Author, one from the Field Technician, and one from the Responsible Person. Each area contains a number of data entry requirements, including signature; date; and license number.

The Documentation Author is the person completing the compliance document. The Field Technician is responsible for performing and documenting the results of the acceptance procedures on the Certificate of Acceptance compliance documents. The Field Technician must sign the Certificate of Acceptance to certify that the information he or she provides on the Certificate of Acceptance is true and correct. It is important to note that the Field Technician is not required to have a contractor's, architect's or engineer's license. A Responsible Person is eligible under Division 3 of the Business and Professions code in the applicable classification to take responsibility for the scope of work specified by the Certificate of Acceptance document. The Responsible Person can also perform the field testing and verification work, and if this is the case the Responsible Person must complete and sign both the Field Technician's signature block and the Responsible Person's signature block on the Certificate of Acceptance compliance document. The Responsible Person assumes responsibility for the acceptance testing work performed by the Field Technician agent or employee.